MEIS

MICROELECTRONIC & INFORMATION SCIENCES CENTER

INSTITUTE OF TECHNOLOGY
UNIVERSITY OF MINNESOTA

Interest Profiles 1985

#73382
227 Lind Hall

600

9/4/85

INTEREST PROFILES 1985

of

FACULTY AND GRADUATE STUDENTS WITH INTERESTS IN MICROELECTRONIC AND INFORMATION SCIENCES

University of Minnesota

Institute of Technology

INTEREST PROFILES 1985

Several years ago, the Microelectronic & Information Sciences Center compiled a summary of the research interests of faculty affiliated with MEIS. It included about 40 names. That summary was very well received and appreciated because it helped scientists and engineers locate others with similar interests.

Since then MEIS has developed and matured considerably. New faculty and graduate students have joined the MEIS community at the University, all programs have become more focused, and industrial researchers have become involved in the research programs.

This interest profile is an updating and expansion of that first research summary. It includes information on faculty and graduate students affiliated with the microelectronic and information sciences. About 40 industrial researchers are participants in MEIS programs. Although not included in this summary, they are a vital component of our research community.

The exchange of ideas among scientific colleagues is fundamental to the creation of new knowledge, the education of new scientists, and the transfer of technology. The MEIS approach to communication has been to encourage it in all programs, continuously. Researchers in MEIS member companies become involved in all phases of a program cycle, from giving input for research directions to interacting with graduate students and reviewing research projects. This continuous flow of information optimizes MEIS resources for research and shortens the time required for technology transfer.

Faculty

The University of Minnesota faculty identified in this summary are members of academic departments through which courses are offered and degrees are granted. These faculty members carry out individual research activities and collaborate on interdepartmental, interdisciplinary programs of MEIS:

- Intelligent Systems
- III-V Compound Semiconductors and High Speed Devices
- High Performance Integrated Circuits
- Artificially Structured Materials For Microelectronics

These research programs were chosen because they bridge the intellectual strengths at the University of Minnesota, the research interests of our corporate sponsors, and the demand for well-educated scientific personnel.

Faculty expertise in these areas provides a continuing source of able consultants for industry. This consultation provides industry with early access to new ideas and provides faculty with insights into the technological concerns of industry.

Graduate Students

Graduate students provide a source of innovative ideas and assistance for faculty and also establish links between faculty and industry researchers through their summer jobs and eventual employment. MEIS supports graduate students and post docs through MEIS Doctoral Fellowships and through support in the form of research assistantships. MEIS Doctoral Fellowships are awarded to entering top quality graduate students in the following departments: Chemistry, Chemical Engineering and Materials Science, Computer Science, Electrical Engineering and Physics. These students receive a $14,000 equivalent stipend for their first year of graduate study and are introduced to MEIS member companies for recruitment as summer employees. To qualify for the MEIS Fellowship, applicants must be U.S. citizens or permanent residents, have high scholastic standing, interest in research in the microelectronic and information sciences and be committed to a Ph.D. degree.

Most of the MEIS Fellows receive continuing support as research assistants during the remainder of their studies. In addition to the MEIS Fellows, other graduate students are supported by MEIS funds and funds leveraged by MEIS for conducting research in the microelectronic and information sciences.

In addition, the American Electronics Association provides support for graduate students interested in teaching careers through a fellowship-loan program. AEA provides $14,000 per year to selected recipients. The loan portion of the fellowship-loan is forgiven if the Fellow teaches three years or more at a university after receiving the Ph.D. degree.

Summary

A profile summary like this is never complete because new faculty and graduate students are added continually. It does, however, represent the breadth and depth of theoretical and experimental interests in microelectronic and information sciences at the University of Minnesota. It also reflects the development of MEIS research and educational programs, visible through the expertise of University of Minnesota scientists, engineers and graduate students.

This collection of profiles includes University of Minnesota faculty and graduate students with interests in the microelectronic and information sciences. Some receive sponsorship from MEIS; others participate more informally in MEIS programs. Their interests are profiled here to facilitate making the acquaintance of other researchers with similar interests.

Minnesota scientists are an enormous resource. By strengthening their research base, by increasing their numbers, and by building collaboration among them, MEIS increases the benefits of these intellectual resources to the entire research community.

Readers of these interest profiles are invited to get in touch with faculty directly or with graduate students through their faculty advisors. Please call the MEIS office, 376-9122, if you have questions or comments.

The Microelectronic and Information Sciences Center

In 1980-81, the University of Minnesota joined with Control Data, Honeywell, Sperry and 3M to establish the Microelectronic and Information Sciences Center. Our charge was to become a center of excellence in these sciences by: establishing a continuing source of expertise in these areas in the Institute of Technology; by creating a flow of well-educated scientific personnel from the University into the workplace; and by promoting the interaction between academic and industrial researchers.

MEIS has structured its programs to:

- Strengthen research and teaching programs in the Institute of Technology
- Advance basic and applied knowledge in fields related to the microelectronic and information sciences
- Draw together the interdisciplinary teams requisite for fast conversion between the academic and the industrial members of MEIS in research and teaching programs
- Increase the flow of highly skilled graduates to local industry
- Expedite technology transfer

In four years, over $10 million of new research grants and contracts have been acquired by University of Minnesota faculty affiliated with MEIS for their research in the microelectronic and information sciences. Corporate contributions which initiated MEIS and support from the State of Minnesota have helped leverage faculty positions, and attract new graduate students.

In addition to these activities, MEIS information dissemination programs have published and presented research reports through professional meetings and journals, program reviews and Technical Reports. An interactive research community has been established. Faculty, graduate students and industrial researchers have worked cooperatively at both industrial and university facilities.

MEIS is halfway through its first program cycle. These are the university members of our research community.

Martha G. Russell, Ph.D.
Associate Director

NETA AMIT

(612) 373-0132

Assistant Professor - Computer Science

Educational Background

Ph.D. - Yale University, 1985 (Computer Science)
M.Sc. - Technion-Israel Institute of Technology, Haifa, Israel, 1980 (Computer Science)
B.Sc. - Technion-Israel Institute of Technology, Haifa, Israel, 1977 (Computer Science)

Professional Affiliations

Association for Computing Machinery.

Career History

1985-present - University of Minnesota, Department of Computer Science
1981-1985 - Yale University, Department of Computer Science, Teaching Assistant, Instructor, Research Assistant
1983 - IBM Thomas J. Watson Research Center, Yorktown Heights, New York, Summer Employment
1979-1980 - National School for Handassaim, Haifa, Israel, Department of Computer Engineering, Lecturer
1977-1980 - Technion-Israel Institute of Technology, Department of Computer Science, Teaching Assistant; Administrative Data Processing, Systems Analyst and Programmer

Research Interests & Expertise

Dr. Amit's major areas of interest are programming methodology and transformational programming, downward transformations to optimize execution, upward transformations into a high level notation to enhance readability, programming languages aspects of Supercomputers, parallelism and pipelining in specification, compilation and optimization.

Other areas of interest include computer-aided design (CAD): compiled and interpreted simulators for hardware design; concurrency control of distributed DBMS; and design and analysis of deterministic scheduling algorithms.

DAVID ATKATZ (612) 373-0098

Principal Physicist - Sperry Corporation

MEIS Affiliation - Visiting Scientist, III-V Compound Semiconductors and High Speed Devices Project.

Educational Background

Ph.D. - State University of New York at Stony Brook, 1979 (Theoretical Physics)
M.A. - State University of New York at Stony Brook, 1974 (Physics)
B.S. - State University of New York at Stony Brook, 1972 (Physics)

Professional Affiliations

American Physical Society; New York Academy of Sciences; Sigma Pi Sigma.

Career History

1983-present - Sperry Corporation, Semiconductor Research, St. Paul, Minnesota
1981-1983 - Bell Laboratories, Holmdel, New Jersey
1980-1981 - The Rockefeller University, New York
1979-1981 - Queen Mary College, University of London
1977-1979 - Institute for Theoretical Physics, SUNY at Stony Brook
1977 - Instituut voor Theoretische Fysica, Rijksuniversiteit, Utrecht, Netherlands

Research Interests & Expertise

Dr. Atkatz is interested in the scaling theory of polymers, field theoretic methods in condensed matter physics, physics of 2-D systems, and Quantum Hall Effect.

PAUL F. BARBARA (612) 376-9276

Assistant Professor - Chemistry

MEIS Affiliation - Artificially Structured Materials For Microelectronics Project.

Educational Background

Ph.D. - Brown University, 1978 (Chemistry)
B.A. - Hofstra University, 1974 (Chemistry)

Professional Affiliations

American Chemical Society; American Physical Society; Optical Society of America.

Career History

1980-present - University of Minnesota, Department of Chemistry
1978-1980 - Bell Laboratories

Research Interests & Expertise

Dr. Barbara is interested in applying non-linear optical spectroscopy to the investigation of the electronic properties of artificially prepared materials.

VALDIS A. BERZINS (612) 373-7581

Assistant Professor - Computer Science

MEIS Affiliation - Small Grant Recipient.

Educational Background

Ph.D. - Massachusetts Institute of Technology, 1979 (Computer Science)
E.E. - Massachusetts Institute of Technology, 1975 (Electrical Engineering)
S.M. - Massachusetts Institute of Technology, 1975 (Electrical Engineering)
S.B. - Massachusetts Institute of Technology, 1975 (Physics)

Professional Affiliations

Association for Computing Machinery; IEEE; Sigma Xi.

Career History

1984-present - Honeywell, Inc., Consultant
1980-present - University of Minnesota, Department of Computer Science
1979-1980 - University of Texas, Dallas, Assistant Professor

Research Interests & Expertise

Dr. Berzins is interested in computer aids for designs expressed in the notation of MSG, a formal language for software functional specifications, providing constraint checking and aiding in evaluating design alternatives. He is also interested in the design of prototype database systems to study the configuration control, access control and concurrency control mechanisms appropriate for design database applications, as well as the design of interactive, integrated, functional programming environments, and developing language features for testbed development of software modules.

DANIEL L. BOLEY (612) 376-8114

Assistant Professor - Computer Science

MEIS Affiliation - Small Grant Recipient.

Educational Background

Ph.D. - Stanford University, 1981 (Computer Science)
M.S. - Stanford University, 1976 (Computer Science)
B.A. - Cornell University, 1974 (Mathematics)

Professional Affiliations

Association for Computing Machinery; ACM Special Interest Group on Numerical Mathematics; Society For Industrial and Applied Mathematics.

Career History

1981-present	- University of Minnesota, Department of Computer Science
7/83-8/83	- The Australian National University, Canberra ACT, Australia, Centre for Mathematical Analysis
9/83-12/83	- Politecnico di Milano, Milan, Italy, Department of Mathematics
7/79-8/79	- IBM Research Laboratory, Zurich, Switzerland
Summers 1977,1978	- Los Alamos Scientific Laboratory, Los Alamos, New Mexico
1976-1977	- Stanford Linear Accelerator Center, Menlo Park, California
Summer 1973 & Spring 1974	- Cornell University, Laboratory of Atomic and Solid State Physics
1971-1974	- Cornell University, Office of Computer Services

Research Interests & Expertise

Dr. Boley is interested in numerical linear algebra, and control theory, particularly numerical aspects. He is also working on methods for large sparse problems on vector or parallel computer architectures, and numerical conditioning in control problems and large matrix eigenvalue problems.

Other interests include numerical problems in linear control theory, inverse eigenvalue problems, and large sparse matrix problems, including linear equations and eigenvalue problems.

CHARLES F. CAMPBELL (612) 373-5468

Professor & Head - School of Physics & Astronomy

MEIS Affiliation - Artificially Structured Materials For Microelectronics Project.

Educational Background

Ph.D. - Washington University - St. Louis, 1969 (Physics)
B.S. - Ohio State University, 1964 (Physics)

Professional Affiliations

American Association for the Advancement of Science; American Association of Physics Teachers; American Physical Society; Sigma Xi.

Career History

1973-present - University of Minnesota, Department of Physics
1971-1973 - Stanford University, Research Associate
1969-1971 - University of Washington, Research Associate

Research Interests & Expertise

Dr. Campbell is interested in theoretical physics, quantum fluids, many-body problems, liquid helium, physical adsorption, high density matter, liquid metallic hydrogen, and electron-hole droplets in semiconductors.

Other interests include the many-body theory of quantum fluids, including liquid ^{4}He, liquid ^{3}He, helium mixtures, polarized hydrogen, liquid metallic hydrogen, and adsorbed monolayers; correlations of electrons in solids, including the electron gas, electron-hole droplets, and the anomalous quantized Hall effect; and the variational formulation of quantum statistical mechanics.

JOHN V. CARLIS (612) 373-7580

Assistant Professor - Computer Science

Educational Background

Ph.D. - University of Minnesota, 1980 (Business Administration)
M.S. - Pennsylvania State University, 1971 (Industrial Engineering)
B.S. - Pennsylvania State University, 1969 (Computer Science)

Professional Affiliations

Association For Computing Machinery; IEEE.

Career History

1981-present - University of Minnesota, Department of Computer Science
1983-present - Chameleon Computer Systems, Vice President
1980-1981 - University of Minnesota, Management Information Systems
1978-1980 - Syracuse University, Management Information Systems
1974 - Northwest Banks, Systems Analyst
1971-1973 - Pennsylvania State University, Programmer/Analyst
1969 - IBM, Programmer

Research Interests & Expertise

Dr. Carlis is interested in the study of data base management systems, the user-information system interface, and applications of general systems theory. His teaching interests include data base systems, sorting, management information systems, and software engineering.

KEITH S. CHAMPLIN (612) 373-2473

Professor - Electrical Engineering

MEIS Affiliations - Chairman, Director Search Committee; Small Grant Recipient.

Educational Background

Ph.D. - University of Minnesota, 1958 (Electrical Engineering)
M.S. - University of Minnesota, 1955 (Electrical Engineering)
B.S. - University of Minnesota, 1954 (Electrical Engineering)

Professional Affiliations

American Association for the Advancement of Science; American Physical Society; Eta Kappa Nu; Gamma Alpha; IEEE; Sigma Xi; Tau Beta Pi.

Career History

1954-present - University of Minnesota, Department of Electrical Engineering
1954 - Univac Corporation
1951-1952 - U.S. Army Signal Corps
1963 - Visiting Professor, University of Paris

Research Interests & Expertise

Dr. Champlin is interested in microwave integrated circuits on GaAs and Si, millimeter and submillimeter wavelength devices, distributed nonlinear transmission lines for microwaves, high speed digital multiplexed communication antennas, and microwave measurements and instrumentation.

LORNE M. CHANIN (612) 373-5525

Professor - Electrical Engineering

MEIS Affiliation - Small Grant Recipient.

Educational Background

Ph.D. - University of Pittsburgh, 1959 (Physics)
M.S. - University of New Mexico, 1951 (Physics)
B.S. - University of Manitoba, 1949 (Physics)

Professional Affiliations

American Physical Society; Gaseous Electronics Society; IEEE; Physical Electronics Society; Sigma Xi.

Career History

1968-present - University of Minnesota, Department of Electrical Engineering
1960-1965 - Honeywell Research Center, Minneapolis, Section Head
1951-1959 - Westinghouse Research Laboratories, Pittsburgh

Research Interests & Expertise

Dr. Chanin is mainly interested in plasma physics, physics of gaseous plasmas and energy conversion systems.

PHILIP I. COHEN (612) 373-3025

Associate Professor - Electrical Engineering

MEIS Affiliation - High Performance Integrated Circuits Project; Small Grant Recipient.

Educational Background

Ph.D. - University of Wisconsin - Madison, 1975 (Physics)
B.A. - Johns Hopkins University, 1969 (Physics)

Professional Affiliations

American Physical Society; American Vacuum Society; Co-chairman of the August, 1985 MBE Workshop held at the University of Minnesota.

Career History

1978-present - University of Minnesota, Department of Electrical Engineering
1976-1978 - University of Maryland

Research Interests & Expertise

Dr. Cohen is interested in the growth mechanisms of III-V compounds and related materials. He also has interests in using reflection high-energy electron diffraction (RHEED) to understand the role of surface structure, morphology, defects, impurity concentrations, and ion damage in the growth of GaAs. Other interests include crystallography of surfaces, and electron diffraction to study the role of surface structure in the growth of III-V compounds by Molecular Beam Epitaxy (MBE).

ROBERT J. COLLINS (612) 373-4895

Professor & Head - Electrical Engineering
Professor - Physics

MEIS Affiliation - Executive Committee; Management Board.

Educational Background

Ph.D. - Purdue University, 1953 (Physics)
AB-MS - University of Michigan, 1949 (Physics)

Professional Affiliations

IEEE.

Career History

1963-present - University of Minnesota, Departments of Electrical Engineering & Physics
1981-1983 - On leave to Office of Naval Research as Director Electronic & Solid State Physics
1973-1974 - Office of Naval Research, London, Visiting Scientist
1962-1963 - Institute of Defense Analysis, Washington, D.C.
1953-1963 - Bell Telephone Laboratories, Murray Hill, New Jersey

Research Interests & Expertise

Professor Collins' major research interests include electro-optic research in the design and use of lasers and coherent optical systems.

E. DAN DAHLBERG (612) 373-3358

Assistant Professor - Physics

MEIS Affiliation - Artificially Structured Materials For Microelectronics Project.

Educational Background

Ph.D. - University of California - Los Angeles, 1978 (Physics)
M.S. - University of California - Los Angeles, 1974 (Physics)
M.A. - University of Texas at Arlington, 1972 (Physics)
B.S. - University of Texas at Arlington, 1970 (Physics)

Professional Affiliations

American Association for the Advancement of Science; American Physical Society; Sigma Pi Sigma.

Career History

1978-present - University of Minnesota, Department of Physics
8/84-9/84 - University of Grenoble, Centre de Recherches Sur les Tres Basses Temperatures, Visiting Associe Professeur
1972-1978 - University of California - Los Angeles, Research and Teaching Assistant
1968-1972 - University of Texas at Arlington, Research Assistant

Research Interests & Expertise

Dr. Dahlberg is interested in magnetism in amorphous and dilute alloys and transport properties of two-dimensional electron systems. He is also interested in the research in magnetism directed at an understanding of the effect of competing interactions (i.e., ferro and antiferro couplings) on magnetic ordering. Other interests include the two-dimensional electron transport research involving studies primarily of the quantized Hall effect in GaAs/AlGaAs heterostructures.

CHANDAN DASGUPTA (612) 376-2765

Professor - Physics

Educational Background

Ph.D. - University of Pennsylvania, 1978 (Physics)
M.S. - University of Delhi, India, 1973 (Physics)
B.S. - Calcutta University, India, 1970 (Physics)

Professional Affiliations

American Physical Society.

Career History

1981-present - University of Minnesota, Department of Physics
1983-1984 - Indian Institute of Science, Bangalore, Visiting Scientist
1980-1981 - Harvard University, Postdoctoral Fellow
1978-1980 - University of California, Postgraduate Research Physicist

Research Interests & Expertise

Dr. Dasgupta is interested in phase transitions and critical phenomena, disordered systems, and dynamics far from equilibrium. Current topics of interest include phase transitions between mesophases of liquid crystals, static and dynamic properties of models of spin glass, and non-equilibrium dynamics of multicomponent systems.

H. TED DAVIS (612) 373-2299

Professor & Head - Chemical Engineering & Materials Science
Professor - Chemistry

MEIS Affiliation - Chairman, Executive Committee; Management Board; Technical Coordinating Committee.

Educational Background

Ph.D. - University of Chicago, 1962 (Chemical Physics)
B.S. - Furman University, 1959 (Chemistry)

Professional Affiliations

American Association for the Advancement of Science; American Chemical Society; American Institute of Chemical Engineers; American Physical Society; Sigma Xi; Society of Petroleum Engineers.

Career History

1963-present - University of Minnesota, Department of Chemical Engineering and Materials Science
1966-present - University of Minnesota, Department of Chemistry
July,1979 - Mexican Institute of Petroleum, Mexico City, Mexico
1970 - Consultant to oil, chemical, food, and electronics companies and government agencies and laboratories
April,1970 - University of Florida
1962-1968 - Free University of Brussels

Research Interests & Expertise

Dr. Davis is interested in thermodynamics and transport phenomena, interface and colloid science, multiphase flow in porous media, physics of wetting and spreading, large-scale scientific computation, statistical mechanics, molecular dynamics, liquid electronics, and heat and mass transfer in rigid, deformable and swellable porous media.

DAVID HUNG-CHANG DU (612) 373-0137

Assistant Professor - Computer Science

MEIS Affiliation - Small Grant Recipient.

Educational Background

Ph.D. - University of Washington, 1981 (Computer Science)
M.S. - University of Washington, 1980 (Computer Science)
B.S. - National Tsing-Hua University, 1974 (Mathematics)

Professional Affiliations

Association for Computing Machinery; Referee for IEEE Transactions on Computers, IEEE Transactions on Software Engineering.

Career History

1981-present - University of Minnesota, Department of Computer Science
1977-1981 - University of Washington, Seattle, Department of Computer Science

Research Interests & Expertise

Dr. Du is interested in database design, parallel/distributed processing, computer architectures, and computer aided design.

The following projects in above areas are currently under investigation:

1. Special purpose database for integrating electronic computer-aided design tools;
2. Placement and routing problems in electronic computer-aided design;
3. Efficient office automation systems;
4. High performance, reliable real-time distributed systems;
5. Dynamic file structures for physical database design.

JOHN F. EVANS (612) 376-1312

Associate Professor - Chemistry

MEIS Affiliation - Artificially Structured Materials For Microelectronics Project.

Educational Background

Ph.D. - University of Delaware, 1977 (Chemistry)
B.A. - Washington and Jefferson College, 1971 (Chemistry)

Professional Affiliations

American Chemical Society: Division of Analytical Chemistry and Division of Colloid and Surface Chemistry; American Institute of Physics; American Vacuum Society; Electrochemical Society; Sigma Xi.

Career History

1977-present - University of Minnesota, Department of Chemistry
1975-1977 - Ohio State University, Department of Chemistry, Visiting Research Associate
1971-1975 - University of Delaware, Department of Chemistry, Graduate Teaching Assistant and Graduate Fellow

Research Interests & Expertise

Dr. Evans is interested in plasma surface reactions, thermodynamics and dynamics of electroactive polymers, excited state electrochemistry, and surface analysis.

Other interests include surface chemistry and physics, plasma polymerization, plasma etching of polymers, surface modification, plasma diagnostics, electrochemistry of electroactive polymers, photoelectrochemistry, and surface reactions initiated by and/or sustained by low energy ion or electron bombardment.

ALFONSO FRANCIOSI

(612) 373-3010

Assistant Professor - Chemical Engineering & Materials Science

MEIS Affiliation - III-V Compound Semiconductors and High Speed Devices Project.

Educational Background

Ph.D. - University of Rome, 1978 (Physics)
B.S. - University of Rome (Physics)
International Center E. Majorana (Pre-university Course)

Professional Affiliations

American Association for the Advancement of Science; American Physical Society.

Career History

1982-present - University of Minnesota, Department of Chemical Engineering & Materials Science
1981-1982 - Universita della Calabria, Department of Physics
1980-1982 - University of Wisconsin, Synchrotron Radiation Center
1979 - Polytechnic of Milan, Institute of Experimental Physics

Research Interests & Expertise

Dr. Franciosi's major research concerns the modulation of surface reactivity of semiconductors, interface reactions of polysilicon, surface segregation and ion-enhanced diffusion in solids, electronic structure of II-VI and semi-magnetic semiconductors, and transition metal clusters. General research interests include metal-semiconductor interfaces, electronic properties of solids, surface and interface properties, photoemission and electron spectroscopy techniques and synchrotron radiation.

WILLIAM W. GERBERICH (612) 373-4829

Professor - Chemical Engineering & Materials Science

MEIS Affiliation - Artificially Structured Materials For Microelectronics Project.

Educational Background

Ph.D. - University of California, 1971 (Materials Science and Engineering)
M.S. - Syracuse University, 1959 (Industrial Engineering)
B.S. - Case Institute of Technology, 1957 (Engineering Science)

Professional Affiliations

American Society for Testing and Materials; American Society of Metals; The Metallurgical Society of AIME; Sigma Xi.

Career History

1971-1985 - University of Minnesota, Chemical Engineering and Materials Science, Professor and Associate Head, Director of Materials Science
1967-1971 - Lawrence Berkeley Laboratories, University of Calfornia, Berkeley
1965-1967 - Aerojet General Corporation, Sacramento, California
1962-1965 - Aeronutonic, Ford Motor Company, Newport Beach, California
1959-1962 - Jet Propulsion Laboratory, Car Tech, Pasadena, California

Research Interests & Expertise

Professor Gerberich's and his students' interests lie in the area of mechanical and physical properties associated with interfaces. He also has a long-standing interest in alloy design for improved strength/fracture toughness relationships in materials. His current programs, besides MEIS, include those dealing with fatigue-resistance (DOE) and electron channeling studies of localized defect structures (NSF). In those, scanning transmission electron microscopy, electron channeling, computer finite element and simulation techniques are being utilized to examine stress and defect distributions. The application is to understand segregation and degradation phenomena at interfaces.

MARIA L. GINI

(612) 376-8230

Assistant Professor - Computer Science

Educational Background

Doctor of Physics - University of Milan, Italy, 1972

Professional Affiliations

American Association for Artificial Intelligence; Association for Computing Machinery; Robotics International, Society of Manufacturing Engineers.

Career History

1982-present - University of Minnesota, Department of Computer Science
1979-1980 - Stanford University, Artificial Intelligence Lab, Visiting Scholar
1976-1978 - Stanford University, Artificial Intelligence Lab, Visiting Scholar
1974-1982 - Politecnico of Milano, Italy, Department of Electronics, Research Assistant

Research Interests & Expertise

Dr. Gini is interested in artificial intelligence, equipping robots with visual sensors, developing advanced software for robots, specifically in the area of language, use of knowledge bases (particularly to generate reasoning activity), and automated error recovery activity.

WAYNE L. GLADFELTER (612) 376-8004

Associate Professor - Chemistry

MEIS Affiliation - Fellowship Committee.

Educational Background

Ph.D. - The Pennsylvania State University, 1978 (Inorganic and Organic Chemistry)
B.S. - Colorado School of Mines, 1975 (Mineral Engineering Chemistry)

Professional Affiliations

American Chemical Society; Sigma Xi.

Career History

1979-present - University of Minnesota, Department of Chemistry
1978-1979 - California Institute of Technology
1975-1978 - The Pennsylvania State University
1973-1975 - Colorado School of Mines

Research Interests & Expertise

Dr. Gladfelter is interested in developing a fundamental understanding of the chemistry of metal clusters containing small nitrogenous ligands such as NO, NH, and NCO; characterization using spectroscopic analysis and single-crystal x-ray crystallography; and a new project involving the conversion of nitrido clusters to new solid state materials. Solid state nitrides are important in metallurgical hardening processes.

ALLEN M. GOLDMAN

(612) 373-5480

Professor - Physics

MEIS Affiliation - Coordinator, Artificially Structured Materials For Microelectronics Project; Technical Coordinating Committee.

Educational Background

Ph.D. - Stanford University, 1965 (Physics)
A.B. - Harvard University, 1958 (Chemistry, Physics)

Professional Affiliations

American Association for the Advancement of Science (Fellow); American Physical Society (Fellow); Israeli Physical Society; Sigma Xi.

Career History

1965-present - University of Minnesota, School of Physics and Astronomy
1976 - Honeywell Josephson Effect Committee, Consultant
1975-1976 - Jet Propulsion Laboratory, Consultant
Spring, 1975 - Institute of Technology, Technion, Israel
1960-1965 - Stanford University, Department of Physics
Summer, 1959 - Stanford University, Microwave Laboratory

Research Interests & Expertise

Dr. Goldman is interested in experimental condensed matter physics, non-equilibrium superconductivity, Josephson tunneling, superconductivity in disordered and dimensionally constrained systems, superconducting materials, and thin films.

ROBERT M. HEXTER (612) 373-2236

Professor - Chemistry

MEIS Affiliation - Management Board; Artificially Structured Materials For Microelectronics Project.

Educational Background

Ph.D. - Columbia University, 1952 (Physical Chemistry)
M.A. - Columbia University, 1950 (Physical Chemistry)
B.A. - University of Minnesota, 1948 (Chemistry)

Professional Affiliations

American Chemical Society; American Physical Society.

Career History

1969-present - University of Minnesota, Department of Chemistry
1979-present - National Science Foundation, Regional Instrumentation Facility for Surface Analysis, Director
1980-1983 - University of Minnesota, Institute of Technology, Research Officer
1980-1982 - University of Minnesota, Acting Director of MEIS Center
1969-1975 - University of Minnesota, Department of Chemistry, Chairman
1965-1969 - Carnegie-Mellon University, Department of Chemistry
1957-1969 - Mellon Institute
1961-1962 - Israel Institute of Technology, Guggenheim Fellow and Fulbright Scholar
Summer,1959 - University of California, Lawrence Radiation Laboratory, Guest Scientist
1952-1957 - Cornell University, Department of Chemistry
1948-1952 - Columbia University, Department of Chemistry

Research Interests & Expertise

Dr. Hexter is interested in vibrational spectra of molecular crystals; spectroscopy of molecular crystals, particularly in the infrared and vacuum ultraviolet; rapid-scanning infrared spectroscopy; and surface-enhanced Raman spectroscopy of surfaces and thin films.

Other interests include chemical and solid state physics, application of group theory to molecular crystals and surface reconstruction, sophisticated instrument design, particularly using lasers, high speed optics, low temperature and ultrahigh vacuum technology.

ROBERT T. HOLT

(612) 373-2966

Dean - Graduate School
Professor - Political Science

MEIS Affiliation - Management Board.

Educational Background

Ph.D. - Princeton University, 1957 (Political Science)
M.P.A. - Princeton University, 1952 (Public Affairs)
A.B. - Hamline University, 1950 (Psychology, History)

Professional Affiliations

Present affiliations: Inter-University Consortium for Political and Social Research; Foreign Relations Council, University of Chicago; Assembly of Behavioral and Social Sciences, National Academy of Science; Steering Committee for Program of Advanced Study in Institutional Development and Technical Assistance Methodology, MUCIA; Planning and Coordinating Committee, Commission of Natural Resources, National Research Council.
Past affiliations: American Association for the Advancement of Science; American Political Science Association; International Studies Association; Board of Directors, Council of Graduate Schools in the United States.

Career History

1982-present - University of Minnesota, Dean, Graduate School
1956-present - University of Minnesota, Department of Political Science
1975-1978 - University of Minnesota, College of Liberal Arts, Coordinator of Research Development
1967-1980 - University of Minnesota, Director, Center for Comparative Studies in Technological Development and Social Change
1954,1956 - University of Maryland, Overseas Branch, Heidelberg, Germany
1953-1955 - U.S. Army
Summer,1952 - University of Minnesota, Department of Psychology
1951-1952 - Princeton University, Center of International Studies

Research Interests & Expertise

Dean Holt is interested in political science, mathematical models, and political change.

JAMES E. HOLTE (612) 373-3015

Associate Professor - Electrical Engineering

Educational Background

Ph.D. - University of Minnesota, 1960 (Electrical Engineering)
M.S. - University of Minnesota, 1956 (Electrical Engineering)
B.S. - University of Minnesota, 1953 (Electrical Engineering)

Professional Affiliations

American Society for Electrical Engineers (ASEE); Elected Associate of the Danforth Foundation; IEEE; National Association For Dental Research; Sigma Xi.

Career History

1960-present - University of Minnesota, Department of Electrical Engineering
1965-1973 - University of Minnesota, Director of Continuing Education in Engineering & Science

Research Interests & Expertise

Dr. Holte is interested in microelectronics for biomedical applications, acoustic methods for hard and soft tissue evaluation, processing of speech for improved intelligibility, synthesis of wave guidance structures, and integrated design in augmentation of human function, including aids for the handicapped.

CHENG-CHER HUANG

(612) 373-3787

Associate Professor - Physics

MEIS Affiliation - Small Grant Recipient.

Educational Background

Ph.D. - University of Pennsylvania, 1975 (Physics)
B.Sc. - National Taiwan University, Taipei, 1969 (Physics)

Professional Affiliations

American Physical Society; Optical Society of America.

Career History

1983-present - 3M Technical Research Laboratory, Consultant
1977-present - University of Minnesota, Department of Physics
1984 - 3M Technical Research Laboratory, Visiting Professor
July,1984 - Chalmers University of Technology, Goteborg, Sweden, Visiting Professor
1980,1982 - Bell Laboratories, Murray Hill, Visiting Scientist
1975-1977 - University of Illinois, Research Associate
1970-1975 - University of Pennsylvania, Research Assistant

Research Interests & Expertise

Dr. Huang is interested in experimental condensed matter physics; thermal and optical studies of various liquid-crystal compounds including state-of-the-art facilities for heat capacity and thermal conductivity measurements; nature of phase transitions between various mesophases of liquid crystals; characterization of chiral smectic phase liquid crystals for bi-stable, microsecond-switching display applications; and surface alignments for liquid crystal device applications.

OSCAR H. IBARRA (612) 373-0136

Professor - Computer Science

MEIS Affiliation - Small Grant Recipient.

Educational Background

Ph.D. - University of California - Berkeley, 1967 (Electrical Engineering, Computer Science)
M.S. - University of California - Berkeley, 1965 (Electrical Engineering, Computer Science)
B.S. - University of the Philippines, 1962 (Electrical Engineering)

Professional Affiliations

Association for Computing Machinery; IEEE; National Science Foundation; Society for Industrial and Applied Mathematics.

Career History

1969-present - University of Minnesota, Department of Computer Science
1984-1985 - Guggenheim Foundation Fellow
1975-1976 - University of the Philippines, College of Engineering, Department of Engineering Sciences
1964-1969 - University of California - Berkeley, Department of Electrical Engineering and Computer Sciences
1962-1968 - University of the Philippines, Department of Electrical Engineering

Research Interests & Expertise

Dr. Ibarra is interested in theory of computation, design and analysis of algorithms, computational complexity, and parallel computing. Other interests include space-time trade-offs, hierarchies of computation, nondeterminism versus determinism, parallel versus sequential, and (un)decidability of decision problems. His research interests also include development of techniques for design and analysis of algorithms for parallel computers, characterizations of models of parallel computation (e.g. systolic systems, cellular, and iterative arrays) in terms of uni-processor sequential machines, and capabilities and computational complexity of parallel models of computation.

ETTORE F. INFANTE (612) 373-2955

Dean - Institute of Technology

MEIS Affiliation - Management Board.

Educational Background

Ph.D. - The University of Texas at Austin, 1962 (Mathematics)
B.S. - The University of Texas at Austin, 1959 (Aeronautical Engineering)
B.A. - The University of Texas at Austin, 1958 (Mathematics)

Professional Affiliations

ASME; American Mathematical Society; IEEE; Mathematical Association of America; Society for Industrial and Applied Mathematics.

Career History

1984-present - University of Minnesota, Institute of Technology, Dean
1979-present - National Science Foundation, Division Director
1978 - The Weizmann Institute, Rehovot, Israel, Visiting Professor of Mathematics
1972-1973 - University of Paris VI, CNRS Researcher, Visiting Professor of Mathematics
1965-1984 - Brown University, Applied Mathematics
1963 - University of Notre Dame, NSF Institute on Control Systems
1958-1965 - The University of Texas at Austin, College of Engineering

Research Interests & Expertise

Dean Infante is interested in control theory and applications; ordinary, functional and partial differential equations; stability theory and applications to macroeconomic theory; and science and technology policy.

KLAVS F. JENSEN (612) 373-2309

Associate Professor - Chemical Engineering & Materials Science

MEIS Affiliation - Coordinator, III-V Compound Semiconductors and High Speed Devices Project.

Educational Background

Ph.D. - University of Wisconsin - Madison, 1980 (Chemical Engineering)
M.Sc. - The Technical University of Denmark, 1976 (Chemical Engineering)

Professional Affiliations

American Association For Crystal Growth; American Chemical Society; American Institute of Chemical Engineers; Electrochemical Society; Society For Industrial and Applied Mathematics.

Career History

1980-present - University of Minnesota, Department of Chemical Engineering & Materials Science
1981 - Exxon Corporate Research Laboratories
1979-1980 - University of Wisconsin - Madison, Mathematics Research Center
1976-1979 - University of Wisconsin - Madison, Department of Chemical Engineering

Research Interests & Expertise

Dr. Jensen is interested in chemistry and transport phenomena associated with chemical vapor deposition (CVD) processes, specifically: metal organic chemical vapor deposition (MOCVD) of II-VI and III-V compound semiconductors, low pressure CVD of silicon related materials and metals, plasma enhanced CVD, and laser assisted CVD of compound semiconductors. He is also interested in analysis of CVD reactors through mathematical modeling and large scale computations of flow temperature and concentration fields, and chemicalkinetic studies with special reactor configurations, mass spectrometry, laser spectroscopy and (in the case of plasma processes) emission spectroscopy. He also has related interests in transport and reactions in porous media and process control of chemical processes.

PAUL E. JOHNSON

(612) 376-2530

Professor - Management Sciences and Psychology

MEIS Affiliation - Co-Coordinator, Intelligent Systems Project.

Educational Background

Ph.D. - Johns Hopkins University, 1964 (Cognitive Science)
B.S. - University of Minnesota, 1960 (Physics)

Professional Affiliations

American Association for the Advancement of Science; American Association for Artificial Intelligence; American Institute of Decision Sciences; American Psychological Association; Artificial Intelligence in Medicine Society; Association for Computing Machinery; Cognitive Science Society; Sigma Xi; Special Interest Group on Artificial Intelligence.

Career History

1964-present - University of Minnesota

Research Interests & Expertise

Dr. Johnson is interested in problem solving, human information processing, artificial intelligence, expert systems, decision support systems, training and development, and management and technical decision processes.

RICHARD Y. KAIN (612) 373-5341

Professor - Electrical Engineering

MEIS Affiliation - Technical Coordinating Committee.

Educational Background

Sc.D. - Massachusetts Institute of Technology, 1962 (Electrical Engineering)
M.S. - Massachusetts Institute of Technology, 1959 (Electrical Engineering)
B.S. - Massachusetts Institute of Technology, 1957 (Electrical Engineering)

Professional Affiliations

Association for Computing Machinery; IEEE.

Career History

1966-present - University of Minnesota, Department of Electrical Engineering
Summer,1969 - Univac, Engineer
1962-1966 - Massachusetts Institute of Technology

Research Interests & Expertise

Dr. Kain is interested in digital computers: design and specification of distributed computer systems, their use for specialized application (such as image and signal processing), and system testing techniques. Other interests include examinations of the use of wafer-based distributed processing architecture which incorporate on-line testing for fault detection, and allow dynamic reconfiguration of internal module interconnections; as well as techniques for testing and configuring wafer and interconnections.

PRAMOD P. KHARGONEKAR

(612) 373-3026

Associate Professor - Electrical Engineering

Educational Background

Ph.D. - University of Florida - Gainesville, 1981 (Electrical Engineering)
M.S. - University of Florida, 1980 (Mathematics)
B.Tech. - Indian Institute of Technology, Bombay, India, 1977 (Electrical Engineering)

Professional Affiliations

Control Systems Society; IEEE; Phi Kappa Phi; Sigma Xi; Tau Beta Pi.

Career History

1984-present - University of Minnesota, Department of Electrical Engineering
1981-1984 - University of Florida, Department of Electrical Engineering
1983 - Mathematics Research Institute, Swiss Federal Institute of Technology, Zurich
1982 - Texas Technical University, Department of Electrical Engineering

Research Interests & Expertise

Dr. Khargonekar's interests include linear systems; time-varying systems; systems and control theory; robust and optimal control and filtering; distributed systems.

LARRY L. KINNEY (612) 373-5626

Associate Professor - Electrical Engineering

Educational Background

Ph.D. - University of Iowa - Iowa City, 1968 (Electrical Engineering)
M.S. - University of Iowa - Iowa City, 1965 (Electrical Engineering)
B.S. - University of Iowa - Iowa City, 1964 (Electrical Engineering)

Professional Affiliations

IEEE Computer Group - Chairman, 1972 and 1978; IEEE Executive Committee - Chairman, 1982; Autotestcon - Vice Chairman, 1978; IEEE and ACM Paper Reviewer; ICC Technical Program - Vice Chairman, 1974.

Career History

1968-present - University of Minnesota, Department of Electrical Engineering
1968 - Honeywell, Inc., Systems & Research Center, St. Paul, Research Engineer
1968 - University of Iowa, Iowa City

Research Interests & Expertise

Dr. Kinney's research interests include design and specification of distributed computer systems, their use for specialized applications (such as image and signal processing), and system testing techniques. He also examines wafer-based distributed processing architecture that incorporates on-line testing for fault detection, and allows dynamic reconfiguration of the internal module interconnections, increasing both operational manufacturing yield and system availability. Other areas of expertise are techniques for testing and configuring wafers and interconnections.

TIMOTHY P. LODGE

(612) 373-4945

Assistant Professor - Chemistry

MEIS Affiliation - Small Grant Recipient.

Educational Background

Ph.D. - University of Wisconsin - Madison, 1980 (Analytical and Physical Chemistry of Macromolecules)
B.A. - Harvard College, 1975 (Applied Mathematics and Molecular Science)

Professional Affiliations

American Chemical Society; American Physical Society; Sigma Xi; Society of Rheology.

Career History

1982-present - University of Minnesota, Department of Chemistry
1975-1977 - University of Wisconsin, Department of Chemistry
Summers 1973,1974 - Polymer Technical Center, Northern Petrochemical Company, Polymer Testing Laboratory, Technician

Research Interests & Expertise

Dr. Lodge's main research interests include the dynamics of polymeric liquids, conformational rearrangements and diffusion of polymers and polymer characterization. He is particularly interested in techniques of dynamic birefringence, dynamic light scattering, forced Rayleigh scattering, and small-angle neutron scattering.

KURT J. MALY (612) 373-0133

Associate Professor & Head - Computer Science

MEIS Affiliation - Executive Committee; Management Board.

Educational Background

Ph.D. - New York University, 1973 (Computer Science)
M.S. - New York University, 1970 (Computer Science)
Diplom Ingenieur - Technical University, Vienna, 1968

Professional Affiliations

Association for Computing Machinery; IEEE.

Career History

1982-present - University of Minnesota, Department of Computer Science, Head
1972-1982 - University of Minnesota, Department of Computer Science

Research Interests & Expertise

Dr. Maly is interested in efficiency of data structures on the physical level of implementation and the interface between the user and the tools needed to write good programs. This means going beyond the normal solutions and finding a new or an electic data structure that works particularly well for the specialized environment. He is interested in reducing the complexity (both time and space) of programs, and in making development of programs more concise for users.

MARTHA L. MECARTNEY

(612) 373-2300

Assistant Professor - Chemical Engineering & Materials Science

Educational Background

Ph.D. - Stanford University, 1984 (Materials Science, Engineering)
M.S. - Stanford University, 1980 (Materials Science, Engineering)
B.S. - Case Western Reserve University, 1979 (Metallurgy, Materials Science Engineering)
B.A. - Case Western Reserve University, 1979 (Classics)

Career History

1984-present - Max-Planck-Institute für Metallforschung, Visiting Scientist with Drs. M. Rühle and N. Claussen
1979-1984 - Stanford University, Research Assistant

Research Interests & Expertise

Dr. Mecartney is interested in microstructural analysis using transmission electron microscopy (TEM) and ceramics (processing and evaluation). Future interests include continuing studies on glassy phasses in ceramics, grain growth studies in two-phase ZrO_2, interfacial-microstructural problems in electronic ceramics, microstructural improvements by novel processing routes (sol-gel, plasma RF), and ZrO_2 as a solid oxide fuel cell.

LARRY L. MILLER (612) 373-2365

Professor & Chairman - Chemistry

MEIS Affiliation - Artificially Structured Materials For Microelectronics Project.

Educational Background

Ph.D. - University of Illinois - Urbana-Champaign, 1964 (Chemistry)
A.B. - Colorado State College - Greeley, 1961 (Chemistry)

Professional Affiliations

American Chemical Society; Electrochemical Society.

Career History

1977-present - University of Minnesota, Department of Chemistry
1980 - Weizmann Institute, Rehovot, Israel
1966-1976 - Colorado State University
Fall,1975 - University of Aarhus, Denmark

Research Interests & Expertise

Dr. Miller is interested in organic synthesis and elucidation of the mechanistic aspects of electron transfer, using electrochemical analysis, synthesis, and mechanisms. He is also interested in organic plasma chemistry of organic vapors passed through radio frequency discharge, and analyzed using mass spectroscopy.

Other interests include molecular electronics, drug delivery systems, organic electrochemistry, chemically modified electrodes, plasma chemistry, and neurochemistry.

ROLF K. MUELLER

(612) 373-2543

Professor - Electrical Engineering
Director - Acoustics Imaging Center

Educational Background

Ph.D. - Institute of Technology, Munich, Germany, 1942 (Physics)

Professional Affiliations

American Physical Society; German Physical Society; IEEE.

Career History

1974-present - University of Minnesota, Department of Electrical Engineering
1963-1974 - Bendix Research Labs, Michigan, General Science & Technology Lab, Director
1960-1963 - General Mills, Electronic Division, Solid-State Physics Department, Manager
1953-1956 - Cambridge Research Center, Bedford, Massachusetts, Consultant

Research Interests & Expertise

Dr. Mueller's research interests include acoustics, image processing, and optics.

WILLIAM D. MUNRO (612) 373-0134

Professor & Associate Head, Director of Graduate Studies - Computer Science

MEIS Affiliation - Fellowship Committee.

Educational Background

Ph.D. - University of Minnesota, 1947 (Mathematics)
M.A. - University of Minnesota, 1940 (Mathematics)
B.A. - University of Colorado, 1938 (Mathematics)

Professional Affiliations

American Mathematical Association; Association for Computing Machinery; Society of Industrial Applied Mathematics.

Career History

1969-present - University of Minnesota, Department of Computer Science
1945-present - Honeywell, Inc., R.C.A., Maico, etc.
1945-1969,
1940-1942 - University of Minnesota, Department of Mathematics
1959-1960 - The Johns Hopkins University, Visiting Professor
1958-1959 - University of California, Los Angeles, Research Mathematician
1942-1945 - Honeywell, Inc., Project Engineer

Research Interests & Expertise

Dr. Munro's current research is an investigation of the use of floating point arithmetic (normalized and non-normalized) and its effect on accuracy. He is especially concerned with the effect of round-off error on numerical analysis algorithms.

ALLEN NUSSBAUM

(612) 373-2486

Professor & Director of Graduate Studies - Electrical Engineering

MEIS Affiliation - Fellowship Committee; High Performance Integrated Circuits Project.

Educational Background

Ph.D. - University of Pennsylvania, 1954 (Physics)
M.A. - University of Pennsylvania, 1940 (Physics)
B.A. - University of Pennsylvania, 1939 (Chemistry)

Professional Affiliations

IEEE, Solid-State Electronics.

Career History

1962-present - University of Minnesota, Department of Electrical Engineering
1961-1962 - American Electronics Laboratories, Solid State Division
1954-1961 - Honeywell Research, Hopkins, Minnesota
1941-1950 - U.S. Army and U.S. Air Force

Research Interests & Expertise

Dr. Nussbaum's research interests focus on the theory of heterojunctions and homojunctions, MOSFET analysis, applied optics, group theory and its application to solid-state physics.

HENDRIK J. OSKAM (612) 373-5427

Professor - Electrical Engineering

Educational Background

Ph.D. - Utrecht, The Netherlands, 1957 (Physics)
M.A. - Utrecht, The Netherlands, 1949 (Physics, Mathematics)
B.A. - Utrecht, The Netherlands, 1946 (Physics, Mathematics)

Professional Affiliations

1970, American Physical Society (Fellow); Center of Plasma Chemistry - Coordinator; Dutch Physical Society; Eta Kappa Nu; European Physical Society; Gaseous Electronics Conference - Executive Committee; Gordon Conference on Plasma Chemistry - Chairman; IUPAC International Symposium on Plasma Chemistry - Program Committee; National Science Foundation Workshop on Plasma Chemistry and ARC Technology - Co-Chairman; Sigma Xi.

Career History

1965-present - University of Minnesota, Department of Electrical Engineering
1964-1965 - Honeywell Corporate Scientific Advisor
1958-1964 - University of Minnesota
1952-1958 - Philips, The Netherlands, Scientific Staff

Research Interests & Expertise

Dr. Oskam's interests include the properties of gaseous plasmas and collision processes occurring within them which are studied by mass-spectrometer and light-spectrometer techniques. Plasmas are produced in the rare gases, and various molecular and metallic vapors. His investigations focus on electrical discharge phenomena with emphasis on applications to plasma chemistry. Active as well as decaying plasmas are investigated.

WILLIAM T. PERIA

(612) 373-2458

Professor - Electrical Engineering

Educational Background

Ph.D. - University of British Columbia, 1957 (Physics)
M. A. - University of British Columbia, 1952 (Physics)
B.Sc. - Queens University, Ontario, 1948 (Physics)

Professional Affiliations

American Physical Society; American Society for Engineering Education; American Vacuum Society; IEEE; Minnesota Academy of Science.

Career History

1952-present - University of Minnesota, Department of Electrical Engineering
Summers,
1975,1976 - Leeds and Northrop Research Laboratory
1956-1960 - Honeywell Research Center, Hopkins, Minnesota, Senior Research Scientist
1950-1952 - University of British Columbia, Physics Laboratory Instructor
1948-1950 - National Research Council Laboratory, Ottawa, Junior Research Officer

Research Interests & Expertise

Dr. Peria is interested in electron beam promoted chemical reactions of potential utility for in situ fabrication of integrated circuits. He is also interested in the development of a new instrument for identification of molecular species on surfaces.

WILLIAM A. PLICE (612) 373-3023

Associate Professor - Electrical Engineering

Educational Background

Ph.D. - University of Minnesota, 1975 (Computer Science)
M.S. - University of Minnesota, 1964 (Electrical Engineering)
B.S. - Illinois Institute of Technology, 1951 (Electrical Engineering)

Professional Affiliations

IEEE; National Research Council Board on Assessment of NBS Programs.

Career History

1984-present - University of Minnesota, Department of Electrical Engineering
1960-1984 - Honeywell, Inc., Minneapolis, Research Staff Scientist
1956-1960 - Maico, Inc., Minneapolis, Chief Engineer
1955-1960 - Bell & Howell, Inc., Chicago, Engineer
1948-1955 - Industrial Research Products, Franklin Park

Research Interests & Expertise

Dr. Plice is interested in computer aided test design, built-in tests, design for testability, and error detection and correction in VLSI systems.

TING-CHUEN PONG

(612) 373-9751

Assistant Professor - Computer Science

Educational Background

Ph.D. - Virginia Polytechnic Institute and State University, 1984 (Computer Science and Applications)
M.S. - Virginia Polytechnic Institute and State University, 1981 (Computer Science and Applications)
B.S. - University of Wisconsin - Eau Claire, 1978 (Mathematics, Physics)

Professional Affiliations

Association for Computing Machinery; IEEE; IEEE Computer Society.

Career History

1984-present - University of Minnesota, Department of Computer Science
1980-1984 - Virginia Polytechnic Institute and State University, Spatial Data Analysis Lab, Graduate Research Assistant
1979-1980 - Virginia Polytechnic Institute and State University, Department of Computer Science, Graduate Teaching Assistant

Research Interests & Expertise

Dr. Pong's research interests include computer vision and image processing. In computer vision, specific interests are in studying the recovery of intrinsic scene characteristics such as surface orientations, reflectance properties and distance information from images. Major topics in image processing include noise removal, image segmentation, edge and line detection, and textural feature extraction.

PATRICK A. POWELL (612) 373-0132

Assistant Professor - Computer Science

Educational Background

Ph.D. - University of Waterloo, Ontario, 1985
M.Math. - University of Waterloo, Ontario, 1982 (Computer Science)
B.Sc. - University of British Columbia, Vancouver, 1971
(Mathematics)

Career History

1985-present - University of Minnesota, Department of Computer Science
1982-1985 - University of Waterloo, VLSI Group, System Manager;
Department of Computer Science, Teaching Assistant
1979-1982 - University of Waterloo, Portable Software Group
1978-1979 - Litton Systems Ltd., Toronto, Advance Projects Group
1977-1978 - Ruscom Logics, A Division of Multiple Access Inc.,
Toronto, Project Leader
1977-1978 - Independent consultant and designer in Toronto
1975-1977 - Computing Devices Ltd., Ottawa, Designer
1973-1974 - Bell-Northern Research, Ottawa, Member of several BNR
research groups
1971 - Viscount Video Switching Product, Vancouver

Research Interests & Expertise

Dr. Powell is interested in VLSI design, computer architectures, software engineering, and real time system design.

WILLIAM P. ROBBINS

(612) 373-9719

Associate Professor - Electrical Engineering

MEIS Affiliation - Coordinator, High Performance Integrated Circuits Project.

Educational Background

Ph.D. - University of Washington, 1971 (Electrical Engineering)
M.S.E.E. - Massachusetts Institute of Technology, 1965 (Electrical Engineering)
B.S.E.E. - Massachusetts Institute of Technology, 1963 (Electrical Engineering)

Professional Affiliations

IEEE.

Career History

1969-present - University of Minnesota, Department of Electrical Engineering
1967-1969 - University of Washington
1965-1969 - Boeing Company, Research Engineer
1964-1965 - National Magnet Laboratory, MIT
1963 - John Fluke Manufacturing Co., Engineer

Research Interests & Expertise

Dr. Robbins is interested in surface acoustic wave phenomena and basic materials studies of piezoelectric materials, magnetic materials, and sputtered thin films of magnetic and piezoelectric materials. Other interests include acoustic microscopy and its applications to the examination of integrated circuits.

J. BEN ROSEN (612) 373-0131

Professor - Computer Science

MEIS Affiliation - Small Grant Recipient.

Educational Background

Ph.D. - Columbia University, 1952 (Applied Mathematics)
B.S. - Johns Hopkins University, 1943 (Electrical Engineering)

Professional Affiliations

Association for Computing Machinery; Computer Science Board; Mathematics Programming Society; Society for Industrial and Applied Mathematics.

Career History

1971-present - University of Minnesota, Computer Science Department
1964-1971 - University of Wisconsin, Computer Science Department and Math Research Center
1962-1964 - Stanford University, Computer Science Department
1954-1962 - Shell Development Company, Applied Mathematics Department
1952-1954 - Princeton University

Research Interests & Expertise

Dr. Rosen's current research interests include large-scale optimization methods, global optimization, and vector & parallel processing. His primary interest is in the development of efficient numerical methods which can be used to solve a variety of optimization problems using supercomputers. The basic technique used is linear programming, in which the minimum or maximum of a linear objective function is obtained subject to linear equality or inequality constraints. Generalization of this technique has been applied to nonlinear problems where the objective function (and constraints) may be nonlinear.

MARTHA G. RUSSELL

(612) 376-9122

Associate Director - Microelectronic & Information Sciences Center

MEIS Affiliation - Management Board; Technical Coordinating Committee.

Educational Background

Ph.D. - University of Minnesota, 1983 (Policy Analysis and Administration, Science Policy and Research Management)
S.R.A. - Additional studies in Patent Administration through Society for Research Administrators, 1979
M.A. - University of Minnesota, 1974 (Family Social Science, Consumerism)
B.S. - University of California, Santa Barbara, 1969 (Nutrition, Psychology)

Professional Affiliations

American Association for the Advancement of Science; International Association For Impact Assessment; International Association For Interdisciplinary Research Management; Materials Research Society, Education Committee.

Career History

1978-present - University of Minnesota; Microelectronic and Information Sciences Center; Agricultural Experiment Station, Administrative Fellow; College of Home Economics, Assistant to the Dean
1976-1978 - Garrett Russell Consultant, Minneapolis, Consultant
1971-1976 - University of Minnesota, Research Assistant and Instructor
1969-1971 - Pillsbury Company, Minneapolis, Publications

Research Interests & Expertise

Dr. Russell's interests include research productivity, technology transfer, interdependency of graduate education and research, and theoretical models and administrative environments for interdisciplinary activities.

SARTAJ K. SAHNI (612) 376-3169

Professor - Computer Science

MEIS Affiliation - Small Grant Recipient.

Educational Background

Ph.D. - Cornell University, 1973 (Computer Science)
M.S. - Cornell University, 1972 (Computer Science)
B.Tech. - Indian Institute of Technology - Kanpur, 1970
(Electrical Engineering)

Professional Affiliations

Association for Computing Machinery; IEEE; Society for Industrial and Applied Mathematics.

Career History

1973-present - University of Minnesota, Department of Computer Science
Summers,
1971,1972 - Cornell University, Department of Computer Science
Summers,
1968,1970 - Indian Institute of Technology, Kanpur, India, Computer Center

Research Interests & Expertise

Dr. Sahni is interested in the development of algorithm design techniques useful in the design of efficient algorithms for parallel computers, involving interconnection networks and parallel architectures. Other interests include development of efficient algorithms for such problems as: partitioning of electronic circuits, synthesis, placement of components, wire layout, design rule checks, and test generation. Other reseach areas involve design and analysis of algorithms; algorithms for the design automation of electronic circuits (including VLSI); parallel, distributed, and pipeline computing; data structures; and computational complexity.

ROLF SCHAUMANN

(612) 373-2483

Professor - Electrical Engineering

MEIS Affiliation - Small Grant Recipient.

Educational Background

Ph.D. - University of Minnesota, 1970 (Electrical Engineering)
Dipl. Ing. - University of Stuttgart, Germany, 1967 (Electrical Engineering)

Professional Affiliations

Eta Kappa Nu; IEEE; New York Academy of Science.

Career History

1967-present - University of Minnesota, Department of Electrical Engineering
1966 - Standard Telecommunication Laboratories, Harlow, England
1965 - Telefunken A.G., Berlin, Germany
1964 - Standard Elektrik Lorenz, A.G., Stuttgart, Germany

Research Interests & Expertise

Dr. Schaumann is interested in the design and tuning of fully integrated (monolithic) filters, problems in HF switched-capacitor circuits, the design of Very-High-Frequency Monolithic filters, analog integrated circuits, and active RC filters.

LANNY D. SCHMIDT (612) 373-2307

Professor - Chemical Engineering & Materials Science

MEIS Affiliation - Artificially Structured Materials For Microelectronics Project.

Educational Background

Ph.D. - University of Chicago, 1964 (Physical Chemistry)
B.S. - Wheaton College, 1960 (Chemistry)

Professional Affiliations

American Chemical Society; American Physical Society; American Vacuum Society.

Career History

1965-present - University of Minnesota, Department of Chemical Engineering & Materials Science
1964-1965 - University of Minnesota, Postdoctoral Research Fellow
1960 - Abbott Laboratories

Research Interests & Expertise

Dr. Schmidt's research interests include surface chemistry and catalysis; adsorption and reaction on well-defined surfaces; adsorption, desorption and reaction kinetics; supported catalyst structure; mass spectrometry; flash desorption; Auger electron spectroscopy; electron microscopy; low energy electron diffraction; and photo-electron spectroscopy.

Other interests include fundamentals of surface science and engineering applications; use of experimental methods for characterization of submonolayer amounts of adsorbates, particularly in reactive systems; techniques such as Auger and photoelectron spectroscopy and temperature programmed desorption being used to characterize reactions on single crystal and polycrystalline surfaces of transition metals; reaction kinetics, particularly the relation between rates and surfaced structures; and surface characterization and electron microscopy in studying particle size and morphological affects of catalytic properties on metal and alloy catalyst particles.

MICHAEL S. SHUR

(612) 376-8758

Professor - Electrical Engineering

MEIS Affiliation - III-V Compound Semiconductors and High Speed Devices Project.

Educational Background

Ph.D. - A.F. Ioffe Institute of Physics & Technology, 1967 (Physics)
M.S. - Leningrad Electrotechnical Institute, 1965 (Electrical Engineering)

Professional Affiliations

Electron Device Society; IEEE.

Career History

1979-present - University of Minnesota, Department of Electrical Engineering
1978-1979 - Oakland University, Rochester, MI
June,1979 - IBM, Yorktown Heights
1976-1978 - Wayne St. University, Detroit, MI
Summers,
1976-1980 - Cornell University, Ithaca, NY
1965-1976 - A.F. Ioffe Institute of Physics and Technology, Leningrad

Research Interests & Expertise

Dr. Shur is interested in electron transport in submicron devices, modulation doped devices, heterojunction structures, GaAs devices and IC's, a-Si solar cells, and transistors.

JAMES R. SLAGLE (612) 373-7513

Professor - Computer Science

MEIS Affiliation - Technical Coordinating Committee; Intelligent Systems Project.

Educational Background

Ph.D. - Massachusetts Institute of Technology, 1961 (Mathematics)
M.S. - Massachusetts Institute of Technology, 1957 (Mathematics)
B.S. - St. John's University, 1955 (Mathematics)

Professional Affiliations

American Association for Artificial Intelligence; Association for Computing Machinery; IEEE; Military Operations Research Society.

Career History

1984-present - University of Minnesota, Department of Computer Science
1981-1984 - Navy Center For Applied Research in Artificial Intelligence, Naval Research Laboratory
1974-1981 - Naval Research Laboratory, Communications Sciences Division, Computer Science Laboratory
1967-1974 - Johns Hopkins University, Department of Computer Science
1967-1974 - National Institutes of Health, Division of Computer Research & Technology, Hueristics Laboratory
1964-1967 - University of California at Berkeley, Department of Computer Science and Electrical Engineering
1963-1967 - University of California, Lawrence Livermore Radiation Laboratory
1962-1963 - Massachusetts Institute of Technology, Department of Electrical Engineering
1955-1963 - Massachusetts Institute of Technology, Lincoln Laboratory

Research Interests & Expertise

Dr. Slagle is interested in all aspects of artificial intelligence, including automated deduction, heuristic search, clustering pattern recognition, learning, robotics, multipurpose problem solving, symbolic mathematics, and especially expert consultant systems. He is particularly interested in control strategies and explanation strategies in expert systems.

MARVIN L. STEIN

(612) 373-7592

Professor - Computer Science
Founding Director - University Computer Center

Educational Background

Ph.D. - University of California, Los Angeles, 1951 (Mathematics)
M.A. - University of California, Los Angeles, 1949 (Mathematics)
B.A. - University of California, Los Angeles, 1947 (Mathematics)

Professional Affiliations

American Mathematical Association; Association for Computing Machinery; Society for Industrial and Applied Mathematics; George Taylor Teaching Development Award, 1975.

Career History

1955-present - University of Minnesota, Department of Mathematics (1955-70), Department of Computer Science (1970-present); Acting Head during Department of Computer Science's first year (1970-71); Member of Committee which organized Department of Computer Science; Chairman of committee which established the Graduate Program in Computer Science (1967-68)
1963-1964 - Guggenheim Fellow, Weizmann Institute of Science, Rehovot, Israel
1952-1955 - General Dynamics Corporation, Convair Astronautics Division, Senior Research Engineer
1947-1952 - University of California, Research Staff, Lecturer, Fellow
1943-1946 - Army Signal Corps

Research Interests & Expertise

Dr. Stein's research interests include numerical analysis, contributions to the conjugate gradient method and methods of solving linear equations by minimization techniques; continuous systems simulation (Stein-Rose sorting algorithm provides theoretical basis for research in this area), machine arithmetic (Stein-Pope algorithm for high-precision division) and numerical methods based on algorithms for parallelization of computations and architecture of machines for carrying out such methods.

WILLIAM B. THOMPSON (612) 373-0135

Associate Professor - Computer Science

MEIS Affiliation - Co-Coordinator, Intelligent Systems Project.

Educational Background

Ph.D. - University of Southern California, Los Angeles, 1975
(Computer Science)
M.S. - University of Southern California, Los Angeles, 1972
(Computer Science)
Sc.B. - Brown University, 1970 (Physics)

Professional Affiliations

Association for Computing Machinery; IEEE (Associate Editor of Transactions on Pattern Analysis and Machine Intelligence); Special Interest Group on Artificial Intelligence.

Career History

1975-present - University of Minnesota, Department of Computer Science
1975 - University of Southern California, Image Processing Institute
1975 - University of Southern California, Computer Science Program

Research Interests & Expertise

Dr. Thompson is interested in artificial intelligence, particularly in the areas of computer vision with an emphasis on the development of models for the perception of spatial organizaton; analysis of time-varying imagery; pattern recognition; expert problem solving with an emphasis on the development of models of problem solving strategies, and expert systems for diagnosis.

MATTHEW V. TIRRELL (612) 373-5276

Professor - Chemical Engineering & Materials Science

MEIS Affiliation - Small Grant Recipient.

Educational Background

Ph.D. - University of Massachusetts, 1977 (Polymer Science and Engineering)
B.S. - Northwestern University, 1973 (Chemical Engineering)

Professional Affiliations

American Chemical Society; American Institute of Chemical Engineers; American Physical Society; Society of Rheology.

Career History

1977-present - University of Minnesota, Department of Chemical Engineering & Materials Science
1973-1977 - University of Massachusetts
1970-1972 - Cincinnati Milacron Chemicals, Inc.

Research Interests & Expertise

Dr. Tirrell is interested in problems of diffusion and rheology in polymer fluids with applications to polymer welding, chromatography, enhanced oil recovery and diffusion-controlled reactions of polymers. His research interests also include bead-spring and reptation models; dynamic light scattering; fluorescence spectroscopy; and interfaces affecting local configuration and modality of macromolecules and polymers near interfaces and in narrow channels.

WEI-TEK TSAI (612) 373-0132

Assistant Professor - Computer Science

Educational Background

Ph.D. - University of California, Berkeley, 1985 (Electrical Engineering, Computer Science)
M.S. - University of California, Berkeley, 1982 (Electrical Engineering, Computer Science)
S.B. - Massachusetts Institute of Technology, Cambridge, 1979 (Electrical Engineering, Computer Science)

Professional Affiliations

Association for Computing Machinery; IEEE; National Academy of Sciences, Air Force Summer Study On Software Engineering, Participant, 1983.

Career History

1985-present - University of Minnesota, Department of Computer Science
1981-1985 - University of California, Berkeley, Electronics Research Laboratory, Research Assistant
1980 - University of California, Berkeley, Computer Science Division, Teaching Assistant
1979 - Massachusetts Institute of Technology, Laboratory For Artificial Intelligence, Programmer
1978-1979 - Massachusetts Institute of Technology, Laboratory For Computer Science, Theoretical Computer Science Group, Undergraduate Research Assistant
1978 - Massachusetts Institute of Technology, Electronic System Laboratory, Undergraduate Research Assistant

Research Interests & Expertise

Distributed system control: Routing and hierarchical routing, control philosophies, management of status information for control, control of large and/or dynamic (packet-radio based) microprocessor networks.

Software engineering and operating systems: Requirement complexity study, evolution methodology, evolution support environment, design methodology for families of operating systems.

Theoretical computer science: Formal language theory, logic, compiler theory, number theory.

ALFONS A. TUSZYNSKI (612) 373-2970

Associate Professor - Electrical Engineering

MEIS Affiliation - High Performance Integrated Circuits Project;
Supervisor, MEIS VLSI Design Laboratory.

Educational Background

D.Eng.Sc. - New Jersey Institute of Technology, 1969 (VLSI)
M.S.E.E. - New Jersey Institute of Technology, 1962
(Electrical Engineering)
B.Sc. - University of London, Great Britain, 1952
(Electrical Engineering)

Professional Affiliations

IEEE, senior member.

Career History

1970-present - University of Minnesota, Department of Electrical Engineering
1959-1969 - Solitron Devices, Etc., San Diego, R&D Manager
1957-1959 - Cossor Institute, Halifax, Nova Scotia, Communications Research Engineer
1952-1957 - Central Research of Rank-Xerox, Etc., London, Instrumentation Research Engineer

Research Interests & Expertise

Dr. Tuszynski's research interests include design techniques for high yield, high performance and high reliability VLSI with emphasis on fast arithmetic and dynamic memories, as well as error correction circuitry and fault-tolerant systems. Other areas of interest include self test, low-level and high-level redundance, and system integration problems.

ORIOL T. VALLS (612) 373-3794

Associate Professor - Physics

MEIS Affiliation - Artificially Structured Materials For Microelectronics Project.

Educational Background

Ph.D. - Brown University, 1975 (Physics)
M.Sc. - Brown University, 1972 (Physics)
B.Sc. - University of Barcelona, 1969 (Physics)

Professional Affiliations

American Physical Society; Sigma Xi.

Career History

1978-present - University of Minnesota, Department of Physics
1984-1985 - Argonne National Laboratory
1977-1978 - University of California, Berkeley
1975-1977 - University of Chicago

Research Interests & Expertise

Dr. Valls is interested in quasi-particle interactions in ^{3}He, dynamics of phase transitions, renormalization group techniques, kinetic theory, nonequilibrium properties, spinodal decomposition, and quenching.

Other interests include nonequilibrium phenomena; kinetics of first order transitions, quenching, spinodal decomposition, phase separation and related questions; critical dynamics; kinetic theory; phenomenology of quantum fluids with application to ^{3}He and heavy fermion compounds; collective phenomena; and superfluidity and superconductivity.

ANTHONY J. VALOIS (612) 373-3020

Assistant Professor - Electrical Engineering

Educational Background

Ph.D. - University of Minnesota, 1985 (Electrical Engineering)
M.S. - University of Minnesota, 1981 (Electrical Engineering)
B.S. - University of Minnesota, 1979 (Electrical Engineering)

Professional Affiliations

IEEE.

Career History

Spring, 1985-present - University of Minnesota, Department of Electrical Engineering

Research Interests & Expertise

Dr. Valois is interested in molecular beam epitaxy, deep level transient spectroscopy, III-V semiconductor contacts, and semiconductor devices.

ALDERT VAN DER ZIEL (612) 373-2460

Professor - Electrical Engineering

MEIS Affiliation - Small Grant Recipient.

Educational Background

Ph.D. - University of Groningen, Netherlands, 1934 (Physics)
M.A. - University of Groningen, Netherlands, 1933 (Physics)
B.A. - University of Groningen, Netherlands, 1930 (Physics)

Professional Affiliations

American Physical Society; IEEE.

Career History

1968-present - Regents, U of M and U.S. - Army Signal Corps, Office of Naval Research, U.S. Air Force, National Science Foundation, U.S. Army Research Office
1950-present - University of Minnesota, Department of Electrical Engineering
1947-1950 - University of British Columbia, Department of Physics
1934-1947 - N.V. Philips' Gloeilampenfabrieken (Netherlands)
1931-1934 - University of Groningen, Netherlands, Department of Physics

Research Interests & Expertise

Dr. van der Ziel is interested in noise, theory and experiments, infrared detectors, and solid-state devices such as p-n transistors, heterojunction bipolars, MOSFETS and JFETS, MESFETS and MODFETS, and PBTs.

SHANKAR M. VENKATESAN (612) 373-7515

Assistant Professor - Computer Science

Educational Background

Ph.D. - Pennsylvania State University, 1983 (Computer Science)
M.E.E. - Philips International Institute, Eindhoven, Netherlands, 1979 (Electrical Engineering)
B.Tech. - Indian Institute of Technology, Madras, India, 1977 (Electrical Engineering)

Professional Affiliations

Association for Computing Machinery.

Career History

1983-present - University of Minnesota, Department of Computer Science
1979-1983 - Pennsylvania State University, Department of Computer Science
1978-1979 - Philips Research Laboratories, Eindhoven, Netherlands

Research Interests & Expertise

Dr. Venkatesan's research focus includes the analysis of algorithms, combinatorial algorithms and optimization, computational complexity, data structures, graph theory, parallel and distributed computing, and VLSI algorithms and complexity.

ANASTASIOS VERGIS (612) 376-8115

Assistant Professor - Computer Science

Educational Background

Ph.D. - Princeton University, 1984 (Electrical Engineering, Computer Science)
M.S. - Princeton University, 1982 (Electrical Engineering, Computer Science)
B.S. - National Technical University of Athens, 1980 (Electrical Engineering)

Professional Affiliations

Association for Computing Machinery.

Career History

1984-present - University of Minnesota, Department of Computer Science

Research Interests & Expertise

Dr. Vergis' current research interests include fault detection in digital circuits, analog versus digital computation, and cellular automata.

RAYMOND M. WARNER, JR. (612) 373-2479

Professor - Electrical Engineering

MEIS Affiliation - High Performance Integrated Circuits Project.

Educational Background

Ph.D. - Case Institute of Technology (now Case-Western Reserve University), 1952 (Physics)
M.S. - Case Institute of Technology, 1950 (Physics)
B.S. - Carnegie Institute of Technology (now Carnegie-Mellon University), 1947 (Physics)

Professional Affiliations

American Association for the Advancement of Science; Federation of American Scientists; IEEE.

Career History

1970-present - University of Minnesota, Department of Electrical Engineering
1969-1970 - Union Carbide Semiconductors, San Diego
1967-1969 - ITT Semiconductors, West Palm Beach
1965-1967 - TI, Dallas
1959-1965 - Motorola, Pheonix
1952-1959 - Bell Laboratories; Murray Hill, NJ

Research Interests & Expertise

Dr. Warner is interested in new silicon devices and integrated circuits, and the modeling of devices and phenomena. Current research: Three-dimensional integrated circuits and the modeling of surfaces, step junctions, and yield-reliability linkage. Recent research: Feasibility demonstrations on two varieties of monolithic series-array solar batteries and the channel-collector transistor; modeling the BJT under high-level conditions, integrated-circuit yield, and avalanche breakdown.

JOHN H. WEAVER (612) 373-4977

Professor - Chemical Engineering & Materials Science

MEIS Affiliation - Technical Coordinating Committee; Fellowship Committee; III-V Compound Semiconductors and High Speed Devices Project.

Educational Background

Ph.D. - Iowa States University/Ames Laboratory USDOE, 1973 (Physics)
B.S. - University of Missouri, 1967 (Physics)

Professional Affiliations

American Association for the Advancement of Science; American Physical Society; American Vaccum Society; Sigma Xi.

Career History

1982-present - University of Minnesota, Department of Chemical Engineering & Materials Science
1982-present - Argonne National Laboratory
1981-1982 - University of Wisconsin - Madison, Materials Science Program
1975 - Ames Laboratory USDOE
1974-1982 - University of Wisconsin - Madison, Synchrotron Radiation Center
1973 - University of Missouri - Rolla
1969-1970 - Iowa State University, Physics

Research Interests & Expertise

Dr. Weaver's research interests include electronic interactions of ordered and disordered solids, surface phenomena, electronic interactions and morphology of interfaces and interface formation, hydrogen interactions in solids, photoelectron spectroscopy with synchrotron radiation, inverse photoemission, and microelectronic materials.

HARRY M. WECHSLER (612) 373-3998

Associate Professor - Electrical Engineering

MEIS Affiliation - Intelligent Systems Project.

Educational Background

Ph.D. - University of California - Irvine, 1975 (Computer Science)
M.S. - Weizmann Institute, Rehovot, Israel, 1973 (Computer Science)
B.S. - Tel-Aviv University, Israel, 1971 (Mathematics & Statistics)

Professional Affiliations

Associate Editor for Pattern Recognition; IEEE.

Career History

1980-present - University of Minnesota, Department of Electrical Engineering
1978-1980 - University of Wisconsin - Milwaukee
1976-1978 - Purdue University

GOTTFRIED K. WEHNER (612) 373-7831

Professor Emeritus - Electrical Engineering

MEIS Affiliation - High Performance Integrated Circuits Project.

Educational Background

Ph.D. - Technical University, Munich, Germany, 1939

Professional Affiliations

American Physical Society (Fellow); American Vacuum Society (second recipient of Welch Award for his contributions to the understanding of the sputtering phenomenon - 1971, also served on Board of Directors); German and European Physical Societies; IEEE (Fellow).

Career History

1968-present - University of Minnesota, Department of Electrical Engineering, Physical Electronics Laboratory
1955-1968 - General Mills

Research Interests & Expertise

Dr. Wehner's main research interests have been and are in the area of plasma and surface physics. Presently, he is studying artifacts which may arise when sputtering is used in various surface and thin film analysis techniques, using Auger Electron Spectroscopy as a tool for obtaining a better understanding of the sputtering process and investigating the formation of epitaxial Si on Si coatings by sputter deposition.

ALBERT YONAS (612) 373-9855

Professor - Institute of Child Development

MEIS Affiliation - Intelligent Systems Project.

Educational Background

Ph.D. - University of Michigan, 1964 (Psychology)
B.A. - Cornell University, 1968 (Psychology)

Professional Affiliations

Association and Research for Vision and Ophthalmology; Psychonomics Society; Sigma Xi; Society for Research in Child Development.

Career History

1968-present - University of Minnesota, Institute of Child Development
1964-1968 - Cornell University
1964 - University of Michigan

Research Interests & Expertise

Dr. Yonas' research deals with the problem of how it is possible to perceive the three-dimensional layout of the environment, the shapes of objects and the nature of events through vision. Understanding this problem will be helpful for both building machine vision systems and for explaining biological vision. Dr. Yonas' research involves studies of visual perception with adults and studies of the development of space perception in human infants. He works with Dr. William Thompson on computational models of visual processes and is interested in the neurophysiological mechanisms underlying visual perception.

OTHER FACULTY

Steven C. Bruell, Department of Computer Science, (612) 373-0132

Mostafa Kaveh, Department of Electrical Engineering, (612) 373-2489

Robert Lysak, Department of Physics, (612) 373-3333

Louis H. Pignolet, Department of Chemistry, (612) 373-2330

William Smyrl, Department of Chemical Engineering & Materials Science (612) 373-2300

Walter V. Weyhmann, Department of Physics, (612) 373-5481

MICHAEL A. GRAY (612) 373-0132

Adjunct Professor - Computer Science

Educational Background

Ph.D. - Penn State University, 1968 (Physics)
M.S. - Penn State University, 1966 (Physics)
B.S. - Auborn University, 1960 (Physics)

Professional Affiliations

Association for Computing Machinery; IEEE.

Career History

1980-present - University of Minnesota, Department of Computer Science
1973-present - Control Data Corporation
1969-1973 - Oregon Graduate Center, Portland, Oregon
1968-1969 - University of Toronto
1964-1968 - Penn State University, Ordnance Research Laboratory
1960-1961 - RCA Laboratories

Research Interests & Expertise

Dr. Gray's research interests include automatic programming, software engineering, specification language, and automated testing.

DAVID R. LAMB (612) 373-2577

Adjunct Professor - Electrical Engineering

Educational Background

Ph.D. - London University, England, 1967 (Solid-State Physics)
M.A. - Oxford University, England, 1965 (Physics)
M.S. - London University, England, 1964 (Solid-State Physics)
B.A. - Oxford University, England, 1962 (Physics)

Professional Affiliations

IEEE, Society of Photo Optical Instrumentation Engineers.

Career History

1978-present - University of Minnesota, Department of Electrical Engineering
1978-present - Honeywell Systems & Research Center, Microelectronics and Materials, Manager
1968-1978 - Southampton University, England, Electronics Department
1964-1968 - Associated Semiconductor Manufacturers, England
1962-1964 - G.E.C. Ltd., Hirst Research Center, England.

Research Interests & Expertise

Dr. Lamb is interested in optical and electronic properties of materials, solid-state devices/circuits, and integrated circuits.

JAMES A. LARSON (612) 373-0132

Adjunct Professor - Computer Science

Educational Background

Ph.D. - Washington State University, 1977 (Computer Science)
M.S. - Washington State University, 1974 (Computer Science)
B.S. - Utah State University, 1970 (Mathematics)

Professional Affiliations

Association for Computing Machinery; IEEE.

Career History

1979-present - University of Minnesota, Department of Computer Science
1981-present - Honeywell Computer Sciences Center, Staff Scientist

Research Interests & Expertise

Dr. Larson is interested in database management systems, intelligent interfaces, and data models.

JAMES R. MILLER (612) 373-0132

Adjunct Professor - Computer Science

Educational Background

Ph.D. - Purdue University, 1979 (Computer Science)
M.S. - Purdue University, 1976 (Computer Science
B.S. - Iowa State University, 1975 (Computer Science)

Professional Affiliations

Association for Computing Machinery.

Career History

1981-present - University of Minnesota, Department of Computer Science
1980-present - Control Data Corporation, Architectural Design and Control, CIM Division, Senior Consultant

Research Interests & Expertise

Dr. Miller is interested in computer graphics, computer-aided design, and programming languages and methods.

SAEED K. RAHIMI (612) 373-0132

Adjunct Professor - Computer Science

Educational Background

Ph.D. - University of Minnesota, 1980 (Computer Science)
M.S. - University of Minnesota, 1978 (Computer Science)
B.S. - Arya Mehr University, Tehran, Iran, 1972 (Electrical Engineering)

Professional Affiliations

Association for Computing Machinery; Computer Society; IEEE.

Career History

1980-present - University of Minnesota, Department of Computer Science
1980-present - Honeywell Computer Science Center, Bloomington, Minnesota

Research Interests & Expertise

Dr. Rahimi is interested in distributed database management systems, distributed operating systems, local area communications, and simulation/performance evaluation.

DONALD H. SINGLEY (612) 373-0132

Adjunct Faculty - Computer Science

Educational Background

Ph.D. - Columbia University, 1971 (Mathematics)
B.A. - Harvard University, 1965

Professional Affiliations

American National Standards Institute; X3H31 Committee on the Standardization of Computer Graphics.

Career History

1981-present - University of Minnesota, Department of Computer Science
1980-present - Sperry Corporation, Principle Automated Design Engineer

Research Interests & Expertise

Dr. Singley is interested in computer graphics and electronic computer-aided design.

OTHER ADJUNCT FACULTY

Lionel Bening, Control Data Corporation

W. Earl Boebert, Honeywell, Inc.

Yacoub El Ziq, Sperry Corporation

Elaine Frankowski, Honeywell, Inc.

Brian Leininger, Sperry Corporation

PETER M. ANDERSEN

Graduate Student - Physics
Faculty Adviser, Walter V. Weyhmann

MEIS Affiliation - MEIS Fellow, 1983-84.

Educational Background

B.S. - St. John's University, Collegeville, MN, 1983 (Physics)

Career History

1984-present - University of Minnesota, Department of Physics, Research Assistant
Summer, 1984 - Sperry Corporation, Semiconductor Division, Research and Development, Engineer Associate
1983 - University of Minnesota, Department of Physics, Research Assistant
1980-1983 - St. John's University, Laboratory Assistant

Research Interests & Expertise

Peter is interested in the Hall effect, semiconductor devices, solid-state physics and low temperature physics.

SAAD J. BEDROS

Graduate Student - Electrical Engineering
Faculty Adviser, Mostafa Kaveh

MEIS Affiliation - MEIS Fellow, 1983-84.

Educational Background

B.S. - University of Minnesota, 1983 (Electrical Engineering)

Career History

1983-present - University of Minnesota, Department of Electrical Engineering Teaching Assistant

Research Interests & Expertise

Saad is interested in control systems, digital signal processing, and communication.

JAYRAM BHASKER

Graduate Student - Computer Science
Faculty Adviser, Sartaj Sahni

MEIS Affiliation - MEIS Fellow, 1982-83.

Educational Background

M.S. - University of Minnesota, 1982 (Computer Science)
B.S. - Indian Institute of Technology, Delhi, 1977 (Electrical Engineering)

Career History

1983-1984 - Sperry Corporation, Student Programmer, CAD Division
1981-1982 - Applied Electromagnetics, Delhi, Senior Design Engineer
1977-1981 - Continental Device, Delhi, Design and Development Engineer

Research Interests & Expertise

Jayram is interested in VLSI design automation, graph theory, algorithm design, computational complexity and geometry. The topic of Jayram Master's thesis was the implementation of a SNOBOL4 Compiler and his Ph.D. work involves fast algorithms for physical design automation problems.

JOHN E. BOLKCOM

Graduate Student - Electrical Engineering
Faculty Adviser, Allen Nussbaum

MEIS Affiliation - AEA Fellow, 1985-86.

Educational Background

M.S. - University of Arizona, Tucson, 1976 (Atmospheric Sciences)
B.A. - Gustavus Adolphus College, St. Peter, MN, 1974 (Physics)

Professional Affiliations

American Association for the Advancement of Science; American Association of Physics Teachers; Minnesota Area Association of Physics Teachers.

Career History

1976-present - Minnesota Tritec, Solar Design Consultant
1985 - University of Arizona, Department of Physics, Seminar Lecturer
1981-1985 - Gustavus Adolphus College, Department of Physics, Visiting Instructor
1983-1984 - Gustavus Adolphus College, Department of Physics, Manager of Microcomputer Laboratory.

Research Interests & Expertise

John is interested in digital computers and Fourier optics.

Publications and Presentations

"Measuring BvsH with an Apple Computer," MAAPT Spring Meeting, 1985.

PAUL D. BOYLE

Graduate Student - Chemistry
Faculty Adviser, Louis H. Pignolet

MEIS Affiliation - MEIS Fellow, 1983-84.

Educational Background

B.S. - Syracuse University, New York, 1983 (Chemistry)

Professional Affiliations and Awards

Phi Beta Kappa.

Career History

1984-present - University of Minnesota, X-ray Diffractometer Lab, Research Assistant
1983-1984 - University of Minnesota, Department of Chemistry, Teaching Assistant
1982 - University of Minnesota, Lando Research Fellow
1981 - Syracuse University, Undergraduate Researcher

Research Interests & Expertise

Paul is interested in physical inorganic and organometallic chemistry, and homogeneous catalysis.

JEFFREY C. BRAUCH

Graduate Student - Electrical Engineering
Faculty Adviser, Allen Nussbaum

MEIS Affiliation - MEIS Fellow, 1985-86.

Educational Background

B.S. - University of Colorado - Boulder, 1985 (Electrical Engineering)

Professional Affiliations and Awards

Eta Kappa Nu; IEEE; Tau Beta Pi.

Career History

1983-present - National Bureau of Standards, Engineering Technician
1982-1983 - University of Colorado, Lab Aid

Research Interests & Expertise

Jeffrey is interested in control and systems, robotics and digital signal processing.

DAVID A. BROWN

Graduate Student - Electrical Engineering
Faculty Adviser, Allen Nussbaum

MEIS Affiliation - MEIS Fellow, 1983-84.

Educational Background

B.S. - University of Minnesota, 1983 (Electrical Engineering)

Professional Affiliations and Awards

AFROTC Scholarship; Burlington Northern Scholarship; I.T. Consultative & Appeals Committee.

Career History

1983-1984 - University of Minnesota, Department of Electrical Engineering, Teaching Assistant
1983 - University of Minnesota, Department of Electrical Engineering, Research Assistant.

Research Interests & Expertise

David is interested in VLSI or semiconductor research and development, fabrication design, modeling, and 3-D VLSI.

JOHN R. BUDENSKE

Graduate Student - Computer Science
Faculty Adviser, Maria Gini

MEIS Affiliation - MEIS Fellow, 1983-84.

Educational Background

B.S. - University of Minnesota, 1983 (Computer Science)

Professional Affiliations and Awards

General Motors Scholarship; Golden Key Honor Society; Lando Scholarship (1980 & 1982); Military Science Scholastic Award; Phi Kappa Phi.

Career History

1982-present - Honeywell, Inc., Systems & Research Center, Research Assistant

Summers, 1980, 1981 - General Motors Corporation, Pontiac Motors Division, Programmer

Research Interests & Expertise

John is interested in artificial intelligence, particularly in the application of learning and problem solving and automated planning with constraints.

CHARLES C. BUTLER

Graduate Student - Computer Science
Faculty Adviser, James Slagle

MEIS Affiliation - MEIS Fellow, 1983-84.

Educational Background

M.S. - Mankato State University, 1983 (Continuing Studies)
B.S. - University of Notre Dame, 1960 (Business Administration)

Professional Affiliations and Awards

Association for Computing Machinery; IEEE.

Career History

1982-present - Mankato State University, Teaching Assistant
1962-present - Motor Inn Chevrolet, Clements Auto Company,
Clements Chevrolet - Cadillac, Secretary, Treasurer
1964-1975 - Southern Minnesota Supply Company

Research Interests & Expertise

Charles is interested in compilers, data bases, distributed systems, micro computers, operating systems, and text processing.

MARK K. CLARE

Graduate Student - Electrical Engineering
Faculty Adviser, Harry Wechsler

MEIS Affiliation - MEIS Fellow, 1984-85.

Educational Background

M.A. - Ball State University, 1983 (Philosophy, Physics)
B.S. - Ball State University, 1980 (Physics)

Professional Affiliations and Awards

Golden Key Award; Outstanding Senior Award; Sigma Pi Sigma; Sigma Zeta; Whitcraft Hall Award.

Career History

1985-present - 3M Company, Software & Electrical Resource Center, Summer Intern
1982-1984 - Blackford Schools, Math and Physics Instructor
1980-1982 - Ball State University, Teaching Assistant
1979-1980 - Ball State University, Undergraduate Laboratory Instructor

Research Interests & Expertise

Mark is interested in applied magnetics, digital magnetic recording processes, and quantum mechanics.

BRADFORD E. CLEMENTS

Graduate Student - Physics
Faculty Adviser, Charles Campbell

MEIS Affiliation - MEIS Fellow, 1983-84.

Educational Background

M.S. - University of Maine, Orono, 1982 (Physics)
B.A. - University of Maine, Orono, 1980 (Mathematics, Physics)

Professional Affiliations and Awards

Bausch & Lomb Science Award; Phi Kappa Phi; Sigma Pi Sigma.

Career History

1984-present - University of Minnesota, Department of Physics, Research Assistant
1980-1983 - University of Maine, Research Associate, Teaching Assistant
1982-1983 - Unity College, Part-time Instructor
Summer,1980 - University of Maine, Problem Coordinator

Research Interests & Expertise

Bradford is interested in theoretical studies of two-dimensional systems in condensed matters physics, as well as studies in quantum fluids. He is also investigating finite temperature variational calculations for base fluids.

Publications and Presentations

"Landau-Lifshitz theory of phase transitions on stepped surfaces" (Surface Science 138, 1984) with presentation with same title given at the Rutgers Statistical Mechanics Conference, 1982.

CHRISTOPHER D. CONGER

Graduate Student - Electrical Engineering
Faculty Adviser, Mostafa Kaveh

MEIS Affiliation - MEIS Fellow, 1984-85.

Educational Background

B.A. - University of Missouri - Kansas City, 1983 (Electrical Engineering)

Professional Affiliations

Eta Kappa Nu; IEEE; Omicron Delta Kappa; Phi Kappa Phi; UMKC Outstanding Student Award.

Career History

1984 - Sperry Corporation, Computer Systems, Component Engineer
Fall,1983 - University of Missouri - Kansas City, Research Assistant
1982-1983 - Compu-Psych, Inc., Liberty, MO, Electronic Technician
1980-1981 - University of Missouri - Kansas City, Research Assistant

Research Interests & Expertise

Christopher is interested in the practice of digital signal processing (DSP) in the areas of image processing, communications, etc., as well as development of DSP theory. He is also studying image processing and biomedical applications.

JEFFREY S. CONGER

Graduate Student - Electrical Engineering
Faculty Adviser, Michael Shur

MEIS Affiliation - AEA Fellow, 1985-86.

Educational Background

B.S. - Iowa State University, Ames Iowa, 1983 (Electrical Engineering)

Professional Affiliations

Eta Kappa Nu; IEEE.

Career History

1985-present - Honeywell, Systems & Research Center
1984-1985 - University of Minnesota, Teaching Assistant
1983-1984 - Texas Instruments, Advanced Schottky Product Engineer

Research Interests & Expertise

Jeffrey is interested in GaAs devices and circuits, as well as modeling and circuit applications.

DAVID P. CRAIG

Graduate Student - Physics
Faculty Adviser, Marvin Marshak

MEIS Affiliation - MEIS Fellow, 1985-86.

Educational Background

B.S. - Southern Oregon State College, 1984 (Physics)

Professional Affiliations and Awards

Phi Kappa Phi; Society of Physics Students; Southern Oregon State College Alumni Physics Scholarship, 1983-84.

Research Interests & Expertise

David is interested in solid-state (condensed matter) physics, as well as computer microchips.

ASGEIR T. EIRIKSSON

Graduate Student - Electrical Engineering
Faculty Adviser, Richard Kain

MEIS Affiliation - MEIS Fellow, 1982-83.

Educational Background

M.S. - University of Minnesota, 1984 (Electrical Engineering)
B.S. - University of Iceland, 1982 (Electrical Engineering)

Professional Awards

Fulbright Scholar.

Career History

1978 - National Telephone Company, Microwave Communication Equipment Maintenance
National Power Company, Assistant Electrician
Siemans, A.G., Assistant Electrical Engineer

Research Interests & Expertise

Asgeir is interested in computer components and subsystems.

RICHARD J. ENBODY

Graduate Student - Computer Science
Faculty Adviser, David Du

MEIS Affiliation - MEIS Fellow, 1982-83.

Educational Background

B.S. - Carleton College, Northfield, MN, 1976 (Mathematics)

Career History

1981-1982 - University of New Hampshire, Durham, New Hampshire, Department of Mathematics and Computer Science, Instructor
1978-1981 - St. Paul's School, Concord, New Hampshire, Math Teacher
1976-1978 - Hartford High School, White River Junction, Vermont, Teacher

Research Interests & Expertise

Richard is interested in Computer-Aided Design (CAD), and CAD data bases and algorithms. During the summer of 1985, Richard is working for Dr. Du as a research assistant.

MARTIN W. FEYEREISEN

Graduate Student - Chemistry
Faculty Adviser, Wayne Gladfelter

MEIS Affiliation - MEIS Fellow, 1985-86.

Educational Background

B.A. - College of St. Thomas, 1984 (Chemistry)

Professional Affiliations

Delta Epsilon Sigma; 3M Scholarship for Outstanding Achievement in Chemistry.

Career History

1984-85 - 3M Company, Technical Aide.

Research Interests & Expertise

Martin is interested in physical chemistry.

JACOB FUCHS

Former Graduate Student - Electrical Engineering
Faculty Adviser, Phil Cohen

MEIS Affiliation - MEIS Fellow, 1982-83.

Educational Background

M.S. - University of Minnesota, 1985 (Electrical Engineering)
B.A. - Institute of Technology, Thechnion, Israel, 1982

Career History

1985-present - Tadiran Israel Electronics Industries, Inc.,
Communication Products Division

Research Interests & Expertise

The title of Jacob's Master's project is "The MBE Growth and Rheed Surface Analysis of GaAs."

THADDEUS GABARA (612) 373-2577

Graduate Student - Electrical Engineering
Faculty Adviser, Allen Nussbaum

MEIS Affiliation - MEIS Fellow, 1982-83.

Educational Background

M.S. - New Jersey Institute of Technology, Newark, 1980 (Electrical Engineering)
B.S. - New Jersey Institute of Technology, 1978 (Electrical Engineering)

Professional Affiliations and Awards

Alpha Sigma Mu; Eta Kappa Nu; IEEE; Tau Beta Pi.

Career History

New Jersey Institute of Technology, Teaching Assistant
Tuskegee Institute, Teaching Assistant
Bell Laboratories, Murray Hill, New Jersey

Research Interests & Expertise

Thaddeus is interested in solid-state physics and VLSI design. His Master's thesis topic was the "Study of Topographical Changes in Ion-Bombarded Target Surfaces of Mercury Cadmium Telluride."

LAURELLA L. GERHOLZ

Graduate Student - Computer Science
Faculty Adviser, Maria Gini

MEIS Affiliation - MEIS Fellow, 1983-84.

Educational Background

B.A. - Gustavus Adolphus College, St. Peter, MN, 1983 (Computer Science)

Professional Affiliations and Awards

Iota Delta Gamma; National Honor Society; National Merit Scholarship.

Career History

1985-present - Sperry Corporation, Summer Intern
1983-present - University of Minnesota, Department of Computer Science, Teaching Assistant
1981-1983 - Gustavus Adolphus, Programmer and Systems Analyst

Research Interests & Expertise

Laurella is interested in artificial intelligence and computer graphics.

DIANE H. GLINSMAN

Graduate Student - Computer Science
Faculty Adviser, William Munro

MEIS Affiliation - MEIS Fellow, 1984-85.

Educational Background

B.S. - University of Minnesota, 1984 (Geophysics)

Professional Affiliations and Awards

Chevron Fellowship Scholarship; Minnesota Groundwater Association; Phi Kappa Phi; Society of Economic Geologists; Women in Geosciences.

Career History

1985-present - 3M Company, Engineering Systems Division
1983-1985 - Minnesota Department of Natural Resources
1979 - Cambridge Community College, Teaching Assistant

Research Interests & Expertise

Diane is interested in development of software for the various geophysical prospecting interpretative methods.

BRUCE B. GREENWOOD

Former Graduate Student - Chemistry
Faculty Adviser, John Evans

MEIS Affiliation - MEIS Fellow, 1982-83.

Educational Background

B.A. - University of North Carolina, Greensboro, 1981 (Chemistry)

Professional Affiliations and Awards

American Chemical Society; Outstanding Achievement in Undergraduate Courses in Analytical Chemistry by the Analytical Division of the A.C.S.; Phi Beta Kappa.

Career History

1984-present - Sperry Corporation, Semiconductor Division, Etch Engineer
1983-1984 - University of Minnesota, Department of Chemistry, Teaching Assistant

Research Interests & Expertise

Bruce is interested in surface analysis of metals and metal compounds, as well as plasma polymerization mechanisms.

WILLIAMS L. HARRISON

Graduate Student - Computer Science
Faculty Adviser, William Munro

MEIS Affiliation - MEIS Fellow, 1985-86.

Educational Background

M.S. - University of Illinois, 1985 (Computer Science)
B.A. - University of Illinois, 1983 (English, Political Science)

Professional Affiliations and Awards

Children of Veterans Scholarship For DuPage County, 1982.

Career History

1985-present - University of Illinois, Center for Supercomputer Research, Research Assistant
1984 - Eye Movement Laboratory, Research Assistant
1984 - University of Illinois, Department of Computer Science, Research Assistant

Research Interests & Expertise

Williams is working on his Ph.D. and is interested in the development of software systems, especially in the area of compiler design.

VINCENT M. HIETALA

Graduate Student - Electrical Engineering
Faculty Adviser, Keith Champlin

MEIS Affiliation - MEIS Fellow, 1983-84.

Educational Background

B.E.E. - University of Minnesota, 1983 (Electrical Engineering)

Professional Affiliations

Eastman Kodak Company (1982); IEEE; Instrument Society of America; Marshall H. & Nellie Alworth Memorial Scholarship; Pacific Foundation.

Career History

1982-present - University of Minnesota, Department of Electrical Engineering, Research Assistant
Summer, 1982 - University of Minnesota, Physical Electronics Laboratory

Research Interests & Expertise

Vincent's research interests include microwave/millimeter integrated circuits & measurement, solid-state devices and digital electronics. He is also investigating micro-dimension coplanar waveguides.

DAVID W. KAISER

Graduate Student - Chemistry
Faculty Adviser, Wayne Gladfelter

MEIS Affiliation - MEIS Fellow, 1985-86.

Educational Background

B.S. - Portland State University, 1985 (Chemistry)

Professional Affiliations and Awards

Fred G. Zohn Scholarship Award; Leonard Howarth Scholarship Award; Outstanding Student Award; President's List of Honored Students; Trustee Scholarship Award; UPS Honors Convocation.

Career History

1984-present - Portland State University, Electronics & Chemical Research Assistant
1983-1984 - Life Science Instrumentation, Portland, Quality Assurance Engineer
1983 - Lloyd I/O, Portland, Business Manager, Programmer
1983 - Bagaard Automation Systems, Portland, Engineering Technician

Research Interests & Expertise

David is interested in physical chemistry, electronic and magnetic effects at the atomic level, photochemistry, and laser chemistry.

DARIUSH KEYANI-YAZDI

Former Graduate Student - Electrical Engineering
Faculty Adviser, Allen Nussbaum

MEIS Affiliation - MEIS Fellow, 1982-83.

Educational Background

B.S. - Purdue University, W. Lafayette, Indiana, 1982
(Electrical Engineering)

Career History

1983-1984 - University of Minnesota, Department of Electrical Engineering, Teaching Assistant

Dariush is pursuing a Ph.D. at the University of California, Los Angeles.

BRUCE D. KOSKI

Graduate Student - Electrical Engineering
Faculty Adviser, William Plice

MEIS Affiliation - MEIS Fellow, 1984-85.

Educational Background

B.S. - Iowa State University, 1983 (Computer Science)

Career History

1985-present - Norsk Data, Oslo Norway
1983-1984 - Honeywell Information Systems, Associate Systems Analyst
1982-1983 - Iowa State University Computer Center Engineering Laboratory, Associate Engineer

MARK R. KOZLOWSKI

Graduate Student - Chemical Engineering & Materials Science
Faculty Adviser, William Smyrl

MEIS Affiliation - MEIS Fellow, 1984-85.

Educational Background

B.S. - University of Illinois, Champaign, 1984 (Chemical Engineering)

Professional Affiliations and Awards

Alpha Chi Sigma; Inland Steel Company Scholarship; International Harvester Scholarship; Outstanding Chemistry Student Award; Phi Eta Sigma; Staffer Chemical Company Scholarship; Tau Beta Pi.

Career History

Summer, 1985 - University of Minnesota, Department of Chemical Engineering and Materials Science, Research Assistant
Summer, 1984 - IBM, Rochester, Contamination Control
1982-1983 - University of Illinois, Champaign, Laboratory Assistant

Research Interests & Expertise

Mark is interested in semiconductor properties of metal oxide films and breakdown mechanisms for passive oxide films. He is specifically investigating the photoelectrochemistry of corrosion at Ti/TiO_2/electrolyte interfaces.

KURT D. KREBSBACH

Graduate Student - Computer Science
Faculty Adviser, William Munro

MEIS Affiliation - MEIS Fellow, 1985-86.

Educational Background

B.A. - Lawrence University, Appleton, Wisconsin, 1985 (Mathematics/ Computer Science; Music)

Professional Affiliations and Awards

Mortar Board Member; Phi Beta Kappa; Pi Kappa Lambda.

Career History

Summer, 1985 - Sperry Corporation, Knowledge Systems Center
1982-present - Lawrence University, Orientation Lab Assistant
1982-present - Lawrence University, Computer Center, Consultant
1983,1984 - Lawrence University, Computer Center, Summer Staff, Computer Programmer
1982-1983 - Lawrence University, Department of Mathematics, Freshman Calculus Tutor

Research Interests & Expertise

Kurt is interested in artificial intelligence, programming languages, numerical analysis, data base management, and optimization. His senior honors thesis was titled, "Smart Database Management: An Implementation in LISP, Using Knowledge Representation Theory and Artificial Intelligence Programming Techniques.

DUANE E. LENN

Graduate Student - Physics
Faculty Adviser, Robert Lysak

MEIS Affiliation - MEIS Fellow, 1984-85.

Educational Background

B.S. - Northwest Nazarene College, Idaho, 1984 (Physics)

Professional Affiliations and Awards

Honor, Coate and American Nuclear Society Scholarships.

Career History

1985-present - University of Minnesota, Department of Physics,
Research Assistant
1981-1984 - Northwest Nazarene College, Teaching Assistant
1983 - Northwest College and University, Summer intern in surface
science group

Research Interests & Expertise

Duane is interested in mathematical physics.

HENG-CHEN LIN

Graduate Student - Computer Science
Faculty Adviser, William Munro

MEIS Affiliation - MEIS Fellow, 1982-83.

Educational Background

B.S. - University of Minnesota, 1982 (Computer Science)

Career History

University of Minnesota, Department of Computer Science, Teaching Assistant.

Heng-Chen is currently living in California.

BRUCE B. LOEHLE

Former Graduate Student - Computer Science
Faculty Adviser, Steven Bruell

MEIS Affiliation - MEIS Fellow, 1983-84.

Educational Background

M.S. - University of Minnesota, 1985 (Computer Science)
B.S. - University of Georgia, Athens, 1979 (Microbiology)

Professional Affiliations and Awards

Phi Beta Kappa; Phi Kappa Phi.

Career History

1985-present - 3M, Engineering Systems Division, Systems Research & Development
1984 - 3M, Engineering Systems Division, Summer Internship, Systems Engineer
1984 - University of Minnesota, Department of Computer Science, Teaching Assistant
1983-1984 - Colorado State University, Fort Collins
1979-1982 - Arizona Health Sciences Center, Research Assistant

Research Interests & Expertise

Bruce is interested in operating systems, and computer systems research and development.

LAURIE E. LYNCH

Graduate Student - Chemistry
Faculty Adviser, Larry Miller

MEIS Affiliation - MEIS Fellow, 1984-85.

Educational Background

B.S. - Canisius College, Buffalo, NY, 1984 (Chemistry)

Professional Affiliations and Awards

Alpha Sigma Nu; Alumni Scholarship; American Chemical Society; Distinguished Student Award from Western New York American Chemical Society; Jesuit Honor Society; New York State Regent's Scholarship; Stanley Ruskovich Award for Distinguishment in Chemistry.

Career History

1984-present - University of Minnesota, Department of Chemistry, Research Assistant
1983 - University of Utah, Research Assistant
1982 - Canisius College, Laboratory Assistant
1981,1982 - Canisius College, Research Assistant

Research Interests & Expertise

Laurie is interested in organic chemistry and drug delivery from conducting polymers.

Publications and Presentations

"Reaction of α-trimethylsilylated cyanobydrins with α-bromoesters: A new synthesis of tetrinic acids," Tet. Lett. 26(8):981-84, 1985. Presented at American Chemical Society meeting in Florida, April 27-May 3, 1985.

"Reactions of unsaturated carbenes with metal-metal bonds. Insertion reactions with Se-Se and Te-Te bonds." J. Org. Chem. 44:1653-1654, 1984.

CHEINAN M. MARKS

Graduate Student - Chemical Engineering & Materials Science
Faculty Adviser, Lanny Schmidt

MEIS Affiliation - MEIS Fellow, 1984-85.

Educational Background

B.C.H.E. - University of Delaware, Newark, 1984 (Chemical Engineering)

Professional Affiliations

Academic Incentive Scholarship; Tau Beta Pi.

Career History

1985-present - University of Minnesota, Department of Chemical Engineering and Materials Science, Research Assistant
1979-1984 - University of Delaware, Office of Computer Based Instruction, Computer Programmer

Research Interests & Expertise

Cheinan is interested in thermodynamics, kinetics and theoretical studies, physics (particularly quantum mechanics and statistical thermodynamics), and the study of surface chemistry by laser induced fluorescence.

JOHN G. MARTIN

Graduate Student - Computer Science
Faculty Adviser, Valdis Berzins

MEIS Affiliation - MEIS Fellow, 1983-84.

Educational Background

B.S. - California State College, California, PA, 1981 (Mathematics, Computer Science)

Professional Affiliations and Awards

Association for Computing Machinery; Society of Engineers.

Career History

1984-present - University of Minnesota, Department of Computer Science, Teaching Assistant
1981 - University of Minnesota, Department of Computer Science, Teaching Assistant
1981 - Union Switch & Signal, Computer Engineer

Research Interests & Expertise

John is interested in syntax directed editing and attribute grammars. He has also studied the design of a language based editor for MSG.

JAMES R. MCGEE

Graduate Student - Electrical Engineering
Faculty Adviser, Larry Kinney

MEIS Affiliation - MEIS Fellow, 1982-83.

Educational Background

M.S. - University of Minnesota, 1983 (Electrical Engineering)
B.S. - Iowa State University, 1981 (Electrical Engineering, Physics)

Career History

1983 - project leader for a design team in the VLSI Design Lab.

Research Interests & Expertise

James is interested in the design of Very Large-Scale Integrated Circuits (VLSI).

DANIEL B. MCGREGOR

Graduate Student - Electrical Engineering
Faculty Adviser, James Holte

MEIS Affiliation - MEIS Fellow, 1982-83.

Educational Background

M.S. - University of Minnesota, 1985 (Electrical Engineering)
B.S. - Purdue, W. Lafayette, Indiana, 1979 (Physics)

Professional Affiliations and Awards

Phi Beta Kappa; Sigma Pi Sigma.

Career History

GTE Labs, Waltham, MA, Research & Development Physicist
Honeywell, Student Aide.

Research Interests & Expertise

Daniel is investigating a transformation method of line detection in digital images.

Daniel is currently studying in Europe.

KURT W. MECHELKE

Graduate Student - Computer Science
Faculty Adviser, William Munro

MEIS Affiliation - MEIS Fellow, 1983-84.

Educational Background

B.S. - Duke University, 1983 (Computer Science)

Professional Affiliations and Awards

Phi Beta Kappa; Phi Eta Sigma.

Research Interests & Expertise

Kurt is interested in artificial intelligence and systems design.

Kurt has enlisted in the Air Force, and is currently stationed in Illinois.

STEVEN A. MURPHY

Graduate Student - Electrical Engineering
Faculty Adviser, Alfons Tuszynski

MEIS Affiliation - MEIS Fellow, 1984-85; High Performance Integrated Circuits Project.

Educational Background

M.S. - Johns Hopkins University, 1983 (Electrical Engineering)
B.E.E. - University of Minnesota, 1980 (Electrical Engineering)

Career History

Summer, 1985 - Bell Laboratories, Murray Hill, New Jersey
1980-1983 - U.S. Navy, National Security Agency, Design Engineer

Research Interests & Expertise

Steven is interested in VLSI design and is investigating a strategy for entropic error correction in smart memories.

SURENDRA NAHAR

Graduate Student - Computer Science
Faculty Adviser, Sartaj Sahni

MEIS Affiliation - MEIS Fellow, 1982-83.

Educational Background

M.S. - University of Minnesota, 1985 (Computer Science)
B.S. - IIT Karpur, India, 1982 (Electrical Engineering)

Career History

1982-present - Sperry Corporation, Computer Aided Design.

Research Interests & Expertise

At Sperry, Surendra is examining algorithm design for Computer Aided Design. He is especially interested in algorithms for supercomputers.

Publications and Presentations

"Experiments with simulated annealing," S. Nahar, S. Sahni and E. Shragowitz, Design Automation Conference, June, 1985.

JEFFREY A. NAYLOR

Graduate Student - Computer Science
Faculty Adviser, William Munro

MEIS Affiliation - MEIS Fellow, 1985-86.

Educational Background

B.A. - Haverford College, Pennsylvania, 1984 (Psychology)

Professional Affiliations and Awards

Phi Beta Kappa.

Career History

1984-present - Walonick Associates, Computer Programmer
1983-1984 - Haverford College, Computer Operator/Consultant

Research Interests & Expertise

Jeffrey is interested in algorithm design, computer architecture, assembly languages, operating systems, compilers, software development, and organization of data base systems.

PAUL PUKITE

Graduate Student - Electrical Engineering
Faculty Adviser, Phil Cohen

MEIS Affiliation - MEIS Fellow, 1982-83.

Educational Background

M.S. - University of Minnesota, 1984 (Electrical Engineering)
B.S. - University of Minnesota, 1983 (Electrical Engineering)

Career History

1982-present - University of Minnesota, Department of Electrical Engineering, Research Assistant
1981-1982 - University of Minnesota, Department of Electrical Engineering, Undergraduate Teaching Assistant

Research Interests & Expertise

Paul's research has focused on the role of surface wave resonances in reflection high-energy electron diffraction (RHEED).

STEVEN J. RATERING

Graduate Student - Computer Science
Faculty Adviser, William Munro

MEIS Affiliation - MEIS Fellow, 1984-85.

Educational Background

B.A. - Central College, Pella, Iowa, 1984 (Mathematics, Computer Science)

Professional Affiliations and Awards

Mathematical Association of America; Rolscreen Scholarship.

Career History

1985 - Sperry Corporation, Artificial Intelligence Group, Student Summer Intern
1981-1984 - Central College, Computer Programmer

Research Interests & Expertise

Steven is currently working on his Ph.D. degree in Computer Science and is interested in the theory of computation and artificial intelligence.

NANCY E. REED

Graduate Student - Computer Science
Faculty Adviser, William Munro

MEIS Affiliation - MEIS Fellow, 1984-85; AEA Fellow, 1985-86.

Educational Background

B.S. - University of Minnesota, 1977 (Biology)
A.G.S. - Anoka-Ramsey Community College, Coon Rapids, 1975

Professional Affiliations

American Association of Artificial Intelligence; Association of Computing Machinery; IEEE.

Career History

1985-present - University of Minnesota, Department of Computer Science, Teaching Assistant
1983-1984 - University of Colorado, Boulder, Simian Virus 40 Research Laboratory, Research Assistant
1982-1983 - U.S.A. Environmental Hygiene Agency, Fitzsimons Army Medical Center, Aurora, CO, Physical Science Technician
1978-1981 - Mayo Clinic, Rochester, Gastrointenstinal Research Unit, Research Laboratory Technician

Research Interests & Expertise

Nancy is interested in artificial intelligence, specifically expert systems.

KEVIN T. RIGGS

Graduate Student - Chemical Engineering & Materials Science
Faculty Adviser, E. Dan Dahlberg

MEIS Affiliation - MEIS Fellow, 1983-84; III-V Compound Semiconductors and High Speed Devices Project.

Educational Background

M.S. - Case Western Reserve University, Cleveland, OH, 1982 (Physics)
B.S. - University of Wisconsin - River Falls, 1981 (Physics, Mathematics)

Professional Affiliations and Awards

Kappa Mu Epsilon; Phi Sigma Epsilon; Sigma Pi Sigma; Society of Physics Students.

Career History

Summer, 1985 - University of Minnesota, Department of Physics, Research Assistant
1984-1985 - University of Minnesota, Department of Physics, Teaching Assistant

Research Interests & Expertise

Kevin is interested in the study of microelectronics interactions in surface/interface systems with special emphasis on semiconductor/metal and metal/metal systems using techniques such as photoelectron spectroscopy, luger elecron spectroscopy, and low energy diffraction.

RICHARD J. ROIGER

Graduate Student - Computer Science
Faculty Adviser, James Slagle

MEIS Affiliation - MEIS Fellow, 1984-85.

Educational Background

M.S. - Mankato State University, 1976 (Mathematics)
B.S. - Mankato State University, 1970 (Mathematics)

Professional Affiliations and Awards

Association of Computing Machinery; Kappa Delta Pi.

Career History

1979-present - Mankato State University, Department of Computer Science, Assistant Professor
1972-1979 - LeCenter Public Schools, Instructor in Mathematics & Computer Science
1971-1972 - Madelia Public Schools, Instructor in Mathematics

Research Interests & Expertise

Richard is interested in theory of computation and algorithms, artificial intelligence, expert systems, and learning.

KAREN RYAN

Former Graduate Student - Computer Science
Faculty Adviser, John Carlis

MEIS Affiliation - MEIS Fellow, 1982-83.

Educational Background

Ph.D. - University of Minnesota, 1983 (Linguistics)
M.S. - University of Minnesota, 1984 (Computer Science)
M.A. - University of Minnesota, 1981 (Linguistics)
B.A. - University of Wisconsin - Milwaukee, 1976 (Linguistics)

Professional Affiliations

Association for Computational Linguistics; Association of Computing Machinery; IEEE; Linguistics Society of America; Phi Kappa Phi; President, Special Interest Group on Artificial Intelligence, Twin Cities Chapter, 1985.

Career History

1984-present - Honeywell, Inc., Artificial Intelligence Section,
Principal Research Scientist

Research Interests & Expertise

Karen is interested in database/knowledge base systems, and Natural Language Processing.

Publications and Presentations

"An architecture for integrated access to databases, expert systems, and applications programs through natural language," with W. Kaemmerer, J.A. Larson, J. Slagle, and W.T. Wood. Proceedings of 3rd International Working Conference on Command Languages and User Interfaces, 1985.

"Capability schemas for databases, expert systems and application programs," with W. Wood, Honeywell Technical Report, 1984.

"Current research in database design at the University of Minnesota," with S. March, S. Mendu, P. Palvia, M. Prietula, D. Ridjanovic, J.V. Carlis, D. Beyer, Database Engineering, Dec., 1984, Vol. 7, No. 4, pp. 58-64.

"Automatic generation of representative query sets," with John Carlis, Trends and Applications, 1984, pp. 262-270.

MATTHEW F. SCHMIDT

Graduate Student - Physics
Faculty Adviser, Allen Goldman

MEIS Affiliation - MEIS Fellow, 1984-85.

Educational Background

B.A. - Gustavus Adolphus College, St. Peter, MN, 1984 (Physics, Mathematics)

Professional Affiliations and Awards

Phi Beta Kappa.

Career History

1985-present - University of Minnesota, Department of Physics, Research Assistant
1982-1984 - Gustavus Adolphus, Laboratory Assistant
1983 - U.S. Department of Energy, Ames Laboratory, Summer Student Trainee
1981 - Sperry Univac, Semiconductor Division, Technical Aide

Research Interests & Expertise

Matthew's main research interest is in ternary chevrel-phase superconductors.

THOMAS P. SCHMITZ

Graduate Student - Computer Science
Faculty Adviser, William Munro

MEIS Affiliation - MEIS Fellow, 1983-84.

Educational Background

B.A. - Lawrence University, Appleton, WI, 1983 (Mathematics)

Career History

1983-present - University of Minnesota, Department of Computer Science, Teaching Assistant
Summers,1980, 1981,1982 - Lawrence University, Administrative Programmer
1979-1983 - Lawrence University, Programmer, Consultant

Research Interests & Expertise

Thomas is interested in software and systems programming, and language and compiler design.

RONALD D. SCHRIMPF

Graduate Student - Electrical Engineering
Faculty Adviser, Raymond Warner, Jr.

MEIS Affiliation - MEIS Fellow, 1982-83; AEA Fellow, 1985-86; High Performance Integrated Circuits Project.

Educational Background

M.S.E.E. - University of Minnesota, 1984 (Electrical Engineering)
B.E.E. - University of Minnesota, 1981 (Electrical Engineering)

Professional Affiliations

Eta Kappa Nu; IEEE; Tau Beta Pi.

Career History

1981-present - University of Minnesota, Department of Electrical Engineering, Research Assistant
1977-1981 - University of Minnesota, Microelectronics Laboratory, Technician

Research Interests & Expertise

Ron is interested in semiconductors, device modeling, device processing, and 3-D integrated circuits.

Publications and Presentations

"Explaining the saturation of potential drop on the high side of a grossly asymmetric junction," R.M. Warner, Jr., R.D. Schrimpf, and P.D. Wong, J. Appl. Phys. 57, 1239 (1985).

"Scaling lengths for regions containing inversion layers," R.D. Schrimpf and R.M. Warner, Jr., Solid-State Electron., to be published.

ROLAND K. SCHULZE

Graduate Student - Chemistry
Faculty Adviser, John Evans

MEIS Affiliation - MEIS Fellow, 1984-85.

Educational Background

B.S. - University of Minnesota - Duluth, 1984 (Chemistry)

Professional Affiliations and Awards

American Chemical Society; 1984 Undergraduate Award in Analytical Chemistry.

Career History

1985-present - University of Minnesota, Department of Chemistry, Teaching Assistant

Research Interests & Expertise

Roland, currently working toward his Ph.D. degree, is interested in thin films, solid-state device fabrication and processing, electrochemistry and surface analysis.

URSULA M. SCHWUTTKE

Graduate Student - Electrical Engineering

MEIS Affiliation - MEIS Fellow, 1983-84.

Educational Background

Sc.B. - Brown University, 1983 (Electrical Engineering)

Career History

1982-1983 - Brown University, Teaching Assistant
1982 - IBM, Poughkeepsie, NY, Pre-professional Engineer
1981-1982 - Brown University, Research Asssistant
1981 - IBM, East Fishkill, NY, Pre-professional Engineer

Research Interests & Expertise

Ursula is interested in microelectronics, problem definition and resolution, and development of semiconductor materials and devices, especially for advanced technology process applications.

JOHN SLAVIK

Graduate Student - Computer Science
Faculty Adviser, William Munro

MEIS Affiliation - MEIS Fellow, 1982-83.

Educational Background

B.A. - University of Texas, Austin, 1982 (Computer Science)

Career History

University of Minnesota, Department of Computer Science, Teaching Assistant

JERRI L. SMITH

Graduate Student - Electrical Engineering

MEIS Affiliation - MEIS Fellow, 1982-83.

Educational Background

M.S. - University of Minnesota, 1984 (Electrical Engineering)
B.S. - Washington University, St. Louis, MO, 1980 (Electrical Engineering)

Professional Affiliations and Awards

Eta Kappa Nu, IEEE, Tau Beta Pi.

Career History

Mostek Corporation, Carrollton, TX, Product and Applications Engineer
Honeywell, Corporate Technology Center
Hewlett-Packard
GM Technical Center

Research Interests & Expertise

Jerri is interested in integrated circuit design.

WARREN R. SMITH

Graduate Student - Computer Science
Faculty Adviser, Steven Bruell

MEIS Affiliation - MEIS Fellow, 1982-83.

Educational Background

B.S. - Purdue University, West Lafayette, Indiana, 1982 (Computer Science)

Career History

University of Minnesota, Department of Computer Science, Teaching Assistant
GibcoLabbs, Merrimack, MA, Programmer
Indiana University Hospitals, Programmer

BENHOOR SOUMEKH

Graduate Student - Electrical Engineering
Faculty Adviser, William Robbins

MEIS Affiliation - MEIS Fellow, 1983-84.

Educational Background

B.E.E. - University of Minnesota, 1983 (Electrical Engineering)

Professional Affiliation

Eta Kappa Nu.

Career History

1983 - University of Minnesota, Department of Electrical Engineering, Research Assistant.

Research Interests & Expertise

Benhoor is interested in controls, communications, and digital signal processing.

LANCE E. STOVER

Graduate Student - Physics

MEIS Affiliation - MEIS Fellow, 1985-86.

Educational Background

B.A. - Concordia College, Moorehead, MN, 1985 (Physics)

Professional Affiliations and Awards

Omicron Delta Kappa.

Career History

1983-1985 - Concordia College, Lab Assistant, Tutor
1984 - Argonne National Lab, Student Researcher

Research Interests & Expertise

Lance is interested in solid-state physics and biophysics.

BRIAN M. TRAFAS

Graduate Student - Chemical Engineering & Materials Science

MEIS Affiliation - MEIS Fellow, 1985-86.

Educational Background

B.S. - St. John's University, Collegeville, 1985 (Physics)

Professional Affiliations and Awards

Wasie Foundation Scholarship.

Career History

1985-present - IBM, Yorktown Heights Semiconductor Plant
1985 - 3M Company, Magnetic Memories Division, College Intern
1984 - St. John's University, Department of Physics, Lab Technician
1983-1984 - St. John's University, Department of Physics, Teaching Assistant
1982-1983 - St. John's University, Department of Mathematics, Teaching Assistant

Research Interests & Expertise

Brian is interested in semiconductors and electronic devices, as well as solid-state electronics.

NORMAN J. TROULLIER

Graduate Student - Chemical Engineering & Materials Science
Faculty Adviser, John Weaver

MEIS Affiliation - MEIS Fellow, 1985-86.

Educational Background

B.S. - University of Wisconsin - Platteville, 1985 (Physics, Mathematics)

Professional Affiliations and Awards

Phi Kappa Phi; Sigma Pi Sigma; Society of Physics Students.

Career History

1984 - University of Wisconsin - Platteville, Research Assistant.

Research Interests & Expertise

Norman is interested in laser technology, vacuum systems, and physical properties of materials under stress.

THOMAS J. WAGENER

Graduate Student - Chemical Engineering & Materials Science
Faculty Adviser, John Weaver

MEIS Affiliation - MEIS Fellow, 1985-86.

Educational Background

B.S. - St. John's University, Collegeville, 1985 (Physics)

Career History

1984-present - St. John's University, Department of Physics,
Electrical Technician
1984-1985 - 3M Company, Computer Interfacer and Programmer
1983 - St. John's University, Department of Mathematics, Student
Teacher Assistant
1982,1983, - Carver County Highway Department, Engineering
1984 Technician Aid

Research Interests & Expertise

Thomas is interested in surface science and semiconductors.

ARTHUR C. WALL

Graduate Student - Chemical Engineering & Materials Science
Faculty Adviser, Alfonso Franciosi

MEIS Affiliation - MEIS Fellow, 1983-84; III-V Compound Semiconductors and High Speed Devices Project.

Educational Background

B.A. - Gustavus Adolphus College, St. Peter, MN, 1983 (Physics)

Professional Affiliations

American Physical Society; Iota Delta Gamma Honor Society;
Julian A. Crawford Physics Award.

Career History

1985-present - University of Minnesota, Department of Chemical Engineering and Materials Science, Research Assistant
1983,1984 - Sperry Corporation, Lexington, Semiconductor Division, Summer Intern
1982-1983 - Gustavus Adolphus College, Academic Assistant
1982 - Ames Laboratory and Iowa State University, Solid-state Physics Summer Student Trainee
1981-1982 - Gustavus Adolphus College, Laboratory Assistant

Research Interests & Expertise

Art is interested in physics applications to microelectronic devices, and is currently concentrating on ternary semiconductor substrates.

Publications and Presentations

"Electron properties of ternary semimagnetic semiconductors," P. Philip, A. Wall, A. Franciosi, and D.J. Peterman, MRS proceedings (1984).

M.A. Listran, M. Swanson, A. Wall, and S.A. Campbell, SPIE Proceedings on Optical Microlithography III: Technology for the Next Decade, 470, 85 (1984).

LOUISE M. WHEELER

Graduate Student - Chemistry
Faculty Adviser, Timothy Lodge

MEIS Affiliation - MEIS Fellow, 1983-84.

Educational Background

B.S. - Case Western Reserve University, Cleveland, Ohio, 1983
(Polymer Science, Engineering)

Professional Affiliations

American Chemical Society; Eastman Kodak Fellowship; Society of Plastics Engineers; Society of Women Engineers; Theta Tau National Engineering Fraternity; Tau Beta Pi.

Career History

Summer, 1985 - University of Minnesota, Department of Chemistry, Research Assistant
1983-1985 - University of Minnesota, Department of Chemistry, Teaching Assistant
1981,1982 - Eastman Kodak Corporation, Summer Intern

Research Interests & Expertise

Louise is interested in diffusion of branched polymers in concentrated ternary solutions by dynamic light scattering.

MICHAEL R. WICK

Graduate Student - Computer Science
Faculty Adviser, William Munro

MEIS Affiliation - MEIS Fellow, 1984-85; AEA Fellow, 1985-86.

Educational Background

B.S. - University of Wisconsin, Eau Claire, 1984 (Computer Science, Mathematics)

Career History

1982-1983 - University of Wisconsin, Eau Claire, Department of Computer Science, Grading and Programming Assistant

Research Interests & Expertise

Mike is interested in operating systems and non-numeric programming including artificial intelligence and systems programming.

ANDREW M. WOWCHAK

Graduate Student - Electrical Engineering
Faculty Adviser, Philip Cohen

MEIS Affiliation - MEIS Fellow, 1984-85; High Performance Integrated Circuits Project.

Educational Background

B.S. - University of Minnesota, 1984 (Electrical Engineering)

Professional Affiliations

IEEE; Mortensen Award for the Department of Psychology.

Career History

Summer, 1985 - University of Minnesota, Department of Electrical Engineering, Research Lab Assistant
1983 - University of Minnesota, Department of Electrical Engineering, Research Assistant

Research Interests & Expertise

Andrew is interested in properties and growth of various thin films on different surfaces, physics of materials, especially the subdivision of surface physics.

RENE P. ZINGG

Graduate Student - Electrical Engineering

MEIS Affiliation - MEIS Fellow, 1982-83.

Educational Background

M.S. - Swiss Federal Institute of Technology, Zurich (Computer Science)
B.S. - Swiss Federal Institute of Technology, 1981 (Computer Science)

Career History

Swiss Federal Institute of Technology, Research Assistant.

Research Interests & Expertise

René is interested in semiconductor technology, particularly in the area of recrystallized silicum layers for a stacked CMOS process.

GRADUATE STUDENTS

POST-DOCTORAL RESEARCHERS

MARTHA E. ARTERBERRY

Graduate Student - Institute of Child Development
Faculty Adviser, Albert Yonas

MEIS Affiliation - Intelligent Systems Project.

Educational Background

B.A. - Pomona College, Claremont, California, 1983 (Psychology)

Career History

1983-1984 - University of Minnesota, Department of Child Development, Research Assistant
1982 - Swarthmore College, Research Assistant

Research Interests & Expertise

Martha is currently working on a Masters degree, and is interested in the development of space perception and the resolution of conflicting depth information.

Publications and Presentations

"Infants' sensitivity to accretion and deletion of texture as information for depth at an edge," Granrud, C.E., Yonas, A., Smith, I.M., Arterberry, M.E., Glicksman, M.L., & Sorknes, A.C. Child Development 55:1630-1636, 1984.

"Accretion and deletion of texture as information for depth at an edge," Arterberry, M.E., Glicksman, M.L., & Sorknes, A.C. Fourth Biennial International Conference on Infant Studies, New York, 1984.

"The effect of surface layout on motion generated depth," Yonas, A., Arterberry, M.E., Opland, E.A., & Thompson, W.B. Association For Research in Vision and Ophthalmology, Sarasota, Florida, April 30 - May 5, 1984.

"Size constancy in 12-week-old infants," Granrud, C.E., Arterberry, M.E. & Yonas, A. Society for Research in Child Development, Toronto, April, 1985.

KEITH BELLAIRS

Graduate Student - Management Sciences
Faculty Advisor, Paul Johnson

MEIS Affiliation - Intelligent Systems Project.

Educational Background

J.D. - University of Michigan Law School, Ann Arbor, 1970 (Law)
A.B. - Dartmouth College, Hanover, New Hampshire, 1965 (Mathematics)

Professional Affiliations and Awards

American Association of Artificial Intelligence; Association for Computing Machinery; Member of Minnesota and Michigan Bar Associations.

Career History

Thirteen years private practice of law
Governor's Office of Science and Technology, Consultant

Research Interests & Expertise

Keith is interested in legal expert systems and artificial intelligence models of legal reasoning.

Publications and Presentations

Houston Law Center Conference on Law and Technology, participant in workshop on theories of legal reasoning.

BRUCE A. BERNHARDT

Graduate Student - Electrical Engineering
Faculty Adviser, Michael Shur

MEIS Affiliation - III-V Compound Semiconductors and High Speed Devices Project.

Educational Background

B.S. - Iowa State University, Ames, IA, 1983 (Computer Engineering)

Professional Affiliations

IEEE; Eta Kapp Nu.

Career History

1985-present - University of Minnesota, Department of Electrical Engineering, Research Assistant
1984-1985 - University of Minnesota, Department of Electrical Engineering, Teaching Assistant
1983-1984 - Tektronix, Oregon, Design Engineer

Research Interests & Expertise

Bruce is interested in integrated circuit design and GaAs circuits with application to computer design.

ANN M. BREARLEY

Graduate Student - Chemistry
Faculty Adviser, Paul Barbara

MEIS Affiliation - Artificially Structured Materials For Microelectronics Project.

Educational Background

B.A. - St. Olaf College, Northfield, MN, 1981 (Chemistry)

Professional Affiliations and Awards

American Chemical Society; Amoco Fellow in Chemistry, 1983-84; Phi Beta Kappa.

Career History

Summer,1981 - E.I. Dupont, Wilmington, Delaware
Summer,1980 - Ames Laboratories, Iowa
Fall, 1980 - Oak Ridge National Laboratories, Tennessee

Research Interests & Expertise

Ann is interested in laser spectroscopy of organic materials. Her research also includes picosecond time and wavelength resolved studies of the solution torsional dynamics of biaryls.

CHUNG-HSU CHEN

Graduate Student - Electrical Engineering
Faculty Adviser, Michael Shur

MEIS Affiliation - III-V Compound Semiconductors and High Speed Devices Project.

Educational Background

B.A. - National Taiwan Normal University, Taipei, 1979 (Physics)

Career History

Honeywell, Inc., Systems & Research Center

Research Interests & Expertise

Chung-Hsu's main research interests include device physics, device modeling and the characterization of device parameters such as intrinsic capacitance and resistances. His work involves him in characterizing GaAs MESFET parameters by using HP equipment as well as SPICE modelling. Chung-Hsu's dissertation topic is "GaAs MESFET, Temperature Effect and Characterization."

Publications

"Traps enhancement of the temperature dependence of the threshold voltage of GaAs MESFET" (pending publication).

LINCOLN G. CRATON

Graduate Student - Institute of Child Development
Faculty Adviser, Albert Yonas

MEIS Affiliation - Intelligent Systems Project.

Educational Background

B.A. - Tufts University, Medford, Massachusetts, 1983 (Psychology)

Research Interests & Expertise

Lincoln is currently working on a Masters degree, and is interested in space perception and computer vision.

RAJKUMAR S. DOSHI

Graduate Student - Computer Science
Faculty Adviser, Maria Gini

Educational Background

M.S. - University of Minnesota, applied for and expected, 1985
(Computer Science)
B.S. - University of Minnesota, 1981 (Chemistry)

Professional Affiliations and Awards

AAAI; Cognitive Science Society; Graduate School Fellowship; Special Interest Group on Artificial Intelligence.

Career History

Summer, 1985 - Honeywell, Systems & Research Center, Research Associate
1983-1985 - University of Minnesota, Department of Computer Science, Research Assistant

Research Interests & Expertise

Rajkumar is currently working on a Ph.D. degree in Computer Science, and is interested in artificial intelligence as it relates to research implementations in reasoning about uncertainties, incomplete knowledge, planning, and error recovery.

Publications and Presentations

"The role of knowledge in the architecture of a robust robot control," M. Gini, R. Doshi, M. Gluch, R. Smith, and I. Zualkernan. MEIS Technical Report #23.

"The importance and design of the student model data structure," H. Wechsler, et al. MEIS Technical Report #31.

STEVEN R. FLOM

Graduate Student - Chemistry
Faculty Adviser, Paul Barbara

MEIS Affiliation - Artificially Structured Materials For Microelectronics Project.

Educational Background

Ph.D. - University of Minnesota, 1985 (Chemistry)
B.A. - Trinity College, Hartford, Connecticut, 1974 (Theatre Arts)

Professional Affiliations

American Chemical Society.

Research Interests & Expertise

Steven is interested in laser spectroscopy of organic materials. His Ph.D. dissertation is titled, "Dynamics of Electronically Excited Molecules in Solution."

Selected Publications and Presentations

"Picosecond time-resolved emission spectra: Techniques and examples," A.M. Brearley, A.J.G. Strandjord, S.R. Flom, and P.F. Barbara. Chem. Phys. Lett. 113:43 (1985).

"Proton transfer and hydrogen bonding in the internal conversion of S_1 anthraquinones," S.R. Flom and P.F. Barbara. In press, J. Phys. Chem., April, 1985.

"Double well isomerization in solution: A new comparison in theory and experiment," S.R. Flom, A.M. Brearley, M.A. Kaylow, V. Nagarajan, and P.F. Barbara. In press, J. Chem. Phys., April, 1985.

"The dynamics of the excited state rotamerism of substituted anthracenes," S.R. Flom, A.M. Brearley, and P.F. Barbara. The Fourth Annual Meeting of the Midwest Discussion Group on Radiation Chemistry and Photochemistry, Spring Green, WI, February 10-12, 1895.

SHARON R. GARBER

Graduate Student - Computer Science

MEIS Affiliation - Intelligent Systems Research Project.

Educational Background

M.S. - University of Minnesota, 1985 (Computer Science)
Ph.D. - University of Minnesota, 1975 (Communication Disorders)
M.A. - University of Minnesota, 1973 (Communication Disorders)
B.S. - University of Minnesota, 1971 (Communication Disorders)

Professional Affiliations

Acoustical Society of America; Association for Computing Machinery; IEEE; Phi Beta Kappa; Sigmaxi; Special Interest Group on Artificial Intelligence, Twin Cities Chapter, Member of Executive Board.

Career History

1985-present - 3M-SERC (Software and Electronics Resource Center), Artificial Intelligence and Expert Systems
1980-1982 - University of Pittsburg, Department of Speech and Communication, Assistant Professor
1978-1980 - University of Minnesota, School of Dentistry and Department of Communication Disorders, Assistant Professor
1975-1978 - University of Minnesota, School of Dentistry, Post-doctoral Fellow

Research Interests & Expertise

Sharon's research interests include knowledge acquisition and knowledge representation for expert systems.

MARCIA L. GLICKSMAN

Graduate Student - Institute of Child Development
Faculty Adviser, Albert Yonas

MEIS Affiliation - Intelligent Systems Project.

Educational Background

B.A. - University of Pennsylvania, Philadelphia, 1982 (Psychology)

Professional Affiliations and Awards

National Honor Society in Psychology; President, Psi Chi.

Research Interests & Expertise

Marcia is interested in spatial representation.

Publications and Presentations

"Infants' sensitivity to accretion and deletion of texture as information for depth at an edge," Granrud, C.E., Yonas, A., Smith, I.M., Arterberry, M.E., Glicksman, M.I., & Sorknes, A.C. Child Development 55:1630-1636, 1984.

"Social and emotional development in infancy," Colloquia presentation. Minnesota Early Learning and Development (MELD), Minneapolis, June, 1984.

"Accretion and deletion of texture as information for depth at an edge," Arterberry, M.E., Glicksman, M.L., & Sorknes, A.C. Fourth Biennial International Conference on Infant Studies, New York, 1984.

ROGER J. GRAVROK

Graduate Student - Electrical Engineering
Faculty Adviser, Raymond Warner, Jr.

MEIS Affiliation - High Performance Integrated Circuits Project.

Educational Background

B.S. - University of Minnesota, 1985 (Electrical Engineering)

Professional Affiliations

Eta Kappa Nu; IEEE.

Career History

1984 - Sperry Corporation, MDS Development, EEPROM Research, Student Summer Intern

Research Interests & Expertise

Roger is currently working on his Masters degree in Electrical Engineering, and is interested in semiconductor applied physics, device design, and process development.

Publications and Presentations

"Tunnel junction research presentation to semiconductor research corporation (SRC)," May, 1985.

CHOONG H. HYUN

Graduate Student - Electrical Engineering
Faculty Adviser, Michael Shur

MEIS Affiliation - III-V Compound Semiconductors and High Speed Devices Project.

Educational Background

M.S. - University of Minnesota, 1982 (Electrical Engineering)
B.S. - University of Minnesota, 1980 (Electrical Engineering)

Professional Affiliations and Awards

IEEE.

Research Interests & Expertise

Choong is currently working on a Ph.D. degree in Electrical Engineering, and is interested in modeling, simulation and design of GaAs, heterojunction and amorphous silicon devices, and ICs.

Selected Publications and Presentations

"Simulation and design of self-aligned modulation doped AlGaAs/GaAs integrated circuits," M.S. Shur, T-H Chen, C.H. Hyun, P.N. Jenkins, N.C. Cirillo, Jr. Proceedings of the International Solid-State Circuit Conference, February, 1985, New York, New York, pp. 264-265.

"Simulation and design analysis of (AlGa)As/GaAs MODFET integrated circuits," C.H. Hyun, M.S. Shur, N.C. Cirillo, Jr. Submitted for publication to the IEEE Transactions on Computer Aided Design of Integrated Circuits and Systems.

"Comparative study of MODFET integrated circuits operating at 77 and 300K," C.H. Hyun, M.S. Shur, J. Baek, N.C. Cirillo, Jr. To be presented at the 1985 IEEE/Cornell University Conference on Advanced Concepts in High Speed Semiconductor Devices and Circuits, July 30, 1985.

PHILIP N. JENKINS

Graduate Student - Electrical Engineering
Faculty Adviser, Michael Shur

MEIS Affiliation - III-V Compound Semiconductors and High Speed Devices Project.

Educational Background

M.S. - University of Minnesota, 1985 (Electrical Engineering)
B.S. - University of Minnesota, 1982 (Electrical Engineering)

Career History

1982-present - University of Minnesota, Department of Electrical Engineering, Teaching Assistant
1981 - CPT Corporation, Electrical Engineering Summer Intern

Research Interests & Expertise

Philip is interested in analysis of digital logic families and development of design guidelines for MODFET integrated circuits.

Publications and Presentations

"Design and simulation of self-aligned modulation doped AlGaAs/GaAs integrated circuits," 1985 International Solid State Circuits Conference.

MIECZYSTAW KACZOROWSKI

Post-Doctoral Researcher - Chemical Engineering & Materials Science
Faculty Advisers, William Gerberich and
Lanny Schmidt

MEIS Affiliation - Artificially Structured Materials For
Microelectronics Project.

Educational Background

Ph.D. - Warsaw Technical University, Warsaw, Poland, 1976
M.S. - Warsaw Technical University, Warsaw, Poland, 1972

Career History

1976-present - Warsaw Technical University, Institute of Forming,
Casting and Welding, Assistant Professor
1983-1984 - Aviation Institute in Warsaw, Research Assistant

Research Interests & Expertise

Mieczystaw is interested in relations between structure and properties of materials during cyclic loading, structure and phase transformations, scanning and transmission electron microscopy. He is also investigating dislocation distributions associated with fatigue cracking on cleavage planes.

DEVESH KAPUR

Graduate Student - Chemical Engineering & Materials Science
Faculty Adviser, Klavs Jensen

MEIS Affiliation - III-V Compound Semiconductors and High Speed Devices Project.

Educational Background

M.S. - University of Minnesota, 1985 (Chemical Engineering)
B.S. - Banaras Hindu University, Varanasi, India, 1983 (Chemical Engineering)

Career History

1985-present - University of Minnesota, Department of Chemical Engineering and Materials Science, Research Assistant

Research Interests & Expertise

Devesh is currently working on a Masters degree in Chemical Engineering, and is interested in chemical reaction engineering and fluid mechanics, as well as aspects of the growth and characterization of III-V Semiconductors. The topic of Devesh's Master's thesis is metal organic chemical vapor deposition of gallium arsenide.

YOUNG H. KIM

Graduate Student - Electrical Engineering
Faculty Adviser, Gottfried K. Wehner

MEIS Affiliation - High Performance Integrated Circuits Project.

Educational Background

B.S. - Yonset, Seoul, Korea, 1982 (Physics)

Research Interests & Expertise

Young is currently working on a Ph.D. degree in Electrical Engineering, and is interested in sputtering epitaxy.

TZE MAN KO

Graduate Student - Chemical Engineering & Materials Science
Faculty Advisers, William Gerberich and
Lanny Schmidt

MEIS Affiliation - Artificially Structured Materials For
Microelectronics Project.

Educational Background

B.S. - Cooper Union, New York, NY, 1984 (Chemical Engineering)

Professional Affiliations

AICHE, Association of Computing Machinery.

Career History

1985-present - University of Minnesota, Department of Chemical
Engineering and Materials Science, Research Assistant

Research Interests & Expertise

Tze is currently working on a Ph.D. degree in Chemical Engineering and is interested in microelectronic device processing and characterization of microstructure of integrated circuits.

PAUL L. KRUEGER

Graduate Student - Computer Science
Faculty Adviser, James Slagle.

MEIS Affiliation - Intelligent Systems Project.

Educational Background

B.S. - University of Minnesota, 1972 (Mathematics)

Professional Affiliations and Awards

AAAI; Association for Computing Machinery (Twin Cities Chapter); Center for Research and Human Learning, Predoctoral Trainee - 1983-84, Fellowship Recipient, 1983-84, Predoctoral Associate, 1984-present, Special Interest Group on Artificial Intelligence; SIGGRAPH.

Career History

1985-present - University of Minnesota, Department of Computer Science, Research Assistant
1980-1981 - University of Minnesota, Department of Computer Science, Teaching Assistant
1975-1978 - Computer Techniques, Inc., Vice President
1973-1975 - Burroughs Corporation, Systems Representative

Research Interests & Expertise

Paul's Ph.D. dissertation topic is "Empirical Induction of Prototype Rulebases for Expert Classification Systems." He is interested in machine learning, knowledge acquisition for expert systems, and cognitive strategies for classification problems.

CHIA-PYNG LEE

Post-Doctoral Researcher - Chemical Engineering & Materials Science
Faculty Adviser, Lanny Schmidt

MEIS Affiliation - Artificially Structured Materials For
Microelectronics Project.

Educational Background

M.S. - Stevens Institute of Technology, Hoboken, NJ, 1981
(Chemical Engineering)
B.S. - Tunghai University, Taiwan, 1977 (Chemical Engineering)

Career History

1984-present - University of Minnesota, Department of Chemical
Engineering and Materials Science, Research Assistant

Research Interests & Expertise

Chia-Pyng is currently working on a Ph.D. thesis, the title being "The Effect of Structure on the Kinetics of CO Hydrogenation over SiO_2 Supported Metal Catalysts." Research interests include microelectronic devices processing, and the characterization of microstructure of integrated circuits for the improvement of existing devices and solving problems in developing new devices.

Publications and Presentations

"Shape and orientation of supported Pt particles," Surface Science, accepted for publication.

"Effects of particle structure on the kinetics of CO Hydrogenation on Ni on SiD_2," Journal of Catalysis, submitted for publication.

"Alterations in noble metals on SiO_2," AICHE 1984 Annual Meeting, paper no. 127a.

PETER W. LEE

Graduate Student - Chemical Engineering & Materials Science
Faculty Adviser, Klavs Jensen

MEIS Affiliation - III-V Compound Semiconductors and High Speed Devices Project.

Educational Background

B.S. - University of California, Berkeley, 1983 (Chemical Engineering & Materials Science)

Career History

1985-present - University of Minnesota, Department of Chemical Engineering and Materials Science, Research Assistant

Research Interests & Expertise

Peter is interested in ZnSe and GaAs thin film processing using MOCVD, and gas phase kinetics during growth. The title of Peter's Ph.D. dissertation is "Metalorganic Chemical Vapor Deposition."

RAYMAN D. MESERVY

Graduate Student - Accounting
Faculty Advisor, Andrew Bailey

MEIS Affiliation - Intelligent Systems Project.

Educational Background

Ph.D. - University of Minnesota, 1985 (Accounting)
M.Acc. - Brigham Young, School of Accounting, 1977 (Accounting)
B.S. - Brigham Young, School of Accounting, 1977 (Accounting)

Professional Affiliations and Awards

Coopers & Lybrand Scholarship; 3M Scholarship; University of Minnesota Representative to Big 10 Doctoral Consortium.

Career History

Four years senior EDP Auditor
Systems Consulting
Research/Teaching Assistant (EDP Auditing, Accounting)

Research Interests & Expertise

Rayman is interested in professional judgement and expertise in auditing, decision support systems (expert systems), and human information processing.

Publications and Presentations

"'TICOM' and the analysis of internal contracts," with A. Bailey, G. Duke, J. Gerlach, C. Ko, and A. Whinston. Accouting Review, April, 1985.

"Auditing, artificial intelligence and expert systems," with A. Bailey, Jr., G.L. Duke, P.E. Johnson, and W. Thompson. Forthcoming in Decision Support Systems: Theory and Application.

JAMES B. MOEN

Graduate Student - Computer Science
Faculty Advisor, William Thompson

MEIS Affiliation - Intelligence Systems Project.

Educational Background

B.S. - University of Minnesota, 1979 (Computer Science)

Professional Affiliations and Awards

American Association of Artificial Intelligence; Association of Computing Machinery; SIGART.

Career History

Designed and implemented GALEN, an expert system in pediatric cardiology
Consultant to IBM, Rochester in an expert systems project

Research Interests & Expertise

James is interested in knowledge representation methods in expert systems, and programming languages for artificial intelligence applications.

Publications and Presentations

"Recognition based diagnostic reasoning," Thompson, W.B., Johnson, P.E., Moen, J.B. Procedures of the Eighth IJCAI, Karlesruhe, West Germany, August 1983.

"Garden path errors in medical diagnosis," Johnson, P.E., Moen, J.B., Thompson, W.B. To appear in Computer Expert Systems, L. Bolc & M.J. Coombs (eds.), Saringer Verlag.

HARRY K. MOFFAT

Graduate Student - Chemical Engineering & Materials Science
Faculty Adviser, Klavs Jensen

MEIS Affiliation - III-V Compound Semiconductors and High Speed Devices Project.

Educational Background

B.A. - University of Pennsylvania, Philadelphia, 1982 (Physics, Mathematics)

Career History

1985-present - University of Minnesota, Department of Chemical Engineering and Materials Science, Research Assistant

Research Interests & Expertise

Harry is interested in computational studies of chemically reacting flows in chemical vapor deposition reactors.

V. NAGARAJAN

Post-Doctoral Researcher - Chemistry
Faculty Adviser, Paul Barbara

MEIS Affiliation - Artificially Structured Materials For Microelectronics Project.

Educational Background

Ph.D. - University of Notre Dame, Indiana, 1984 (Physical Chemistry)
M.S. - University of Madras, India, School of Chemistry, 1980 (Physical Chemistry)
B.S. - D.G. Vairhnar College, Madras, India, 1978 (Chemistry)

Research Interests & Expertise

Dr. Nagarajan is interested in laser spectroscopy of organic materials.

JOSE E. NANEZ

Graduate Student - Institute of Child Development
Faculty Adviser, Albert Yonas

MEIS Affiliation - Intelligent Systems Project.

Educational Background

M.A. - California State University, Chico, 1982 (Developmental Psychology)
B.A. - California State University, Chico, 1979 (Psychology)

Research Interests & Expertise

José is currently working on a Ph.D. degree, and is interested in the field of perceptual psychology in general, and visual perception in particular.

Publications and Presentations

"Large doses of exogenous glycerol produce nighttime weight gain in weanling rats." Presented at the Western Psychological Association, Los Angeles, 1981.

ANDREW T. PHILLIPS

Graduate Student - Computer Science
Faculty Adviser, J. Ben Rosen

MEIS Affiliation - Research Assistant For Small Grant Recipient.

Educational Background

B.S. - The Pennsylvania State University, University Park, 1984
(Mathematics, Computer Science)

Career Professional Affiliations and Awards

ONR Graduate Fellowship; Pi Mu Epsilon.

Career History

Summer, 1983 - Pennsylvania State University, Department of Biochemistry, Computer Consulter and Programmer
Summer, 1983 - Pennsylvania State University, English Department, Computer Programmer
Spring, 1983 - Pennsylvania State University, Applied Research Lab, Mathematician
1982-1983 - Pennsylvania State University, Department of Mathematics, Mathematics Grading Assistant

Research Interests & Expertise

Andrew is interested in implementing efficient algorithms for large-scale constrained global optimization on the Cray X-MP/48.

MARK W. RUCKMAN

Post-Doctoral Researcher - Chemical Engineering & Materials Science

MEIS Affiliation - III-V Compound Semiconductors and High Speed Devices Project.

Educational Background

Ph.D. - Rensselaer Polytechnic Institute, Troy, NY, 1984 (Physics)
M.Sc. - Rensselaer Polytechnic Institute, Troy, NY, 1980 (Physics)
B.Sc. - Pennsylvania State University, University Park, 1977 (Physics)

Professional Affiliations

American Association for the Advancement of Science; American Physical Society; Phi Beta Kappa.

Career History

1985-present - University of Minnesota, Department of Chemical Engineering and Materials Science, Research Assistant
1980-1984 - Rensselaer Polytechnic Institute, Research Assistant
1977-1980 - Rensselaer Polytechnic Institute, Teaching Assistant
Brookhaven National Laboratory, Guest Researcher with M. Strongin

Research Interests & Expertise

Mark is interested in surface science, metal-metal, metal-semiconductor interfaces, chemisorption, photoelectron spectroscopy, Auger electron spectroscopy, and LEED.

Publications and Presentations

"Temperature dependent growth morphology of a semiconductor/metal interface: Ge/Ta (110)," M.W. Ruckman, M. del Guidice, and J.H. Weaver. Phys. Rev. B (in press).

"Cluster formation and atomic intermixing at the reactive V/Ge (111) interface," M. del Guidice, J.J. Joyce, M.W. Ruckman, and J.H. Weaver. Phys. Rev. B (in press).

"A photoemission study of the development of the Ti/GaAs(110) interface," M.W. Ruckman, M. del Guidice, J.J. Joyce and J.H. Weaver. Phys. Rev. B (submitted).

MAX G. SCHAIBLE

Post-Doctoral Researcher - Chemistry
Faculty Adviser, Robert Hexter

MEIS Affiliation - Artificially Structured Materials For Microelectronics Project.

Educational Background

Ph.D. - University of Connecticut, Storrs, 1983 (Materials Science)
M.S. - Clarkson University, Potsdam, NY, 1975 (Electrical Engineering)
B.S. - Clarkson University, Potsdam, NY, 1973 (Electrical Engineering)

Professional Affiliations

Adhesion Society; Eta Kappa Nu; IEEE; Phi Kappa Phi; Phi Lambda Upsilon; SPE; Tappi.

Career History

1980-1984 - University of Connecticut, Storrs, Graduate Teaching and Research Assistant
1978-1979 - EHV/Weidmann Industries, St. Johnsbury, VT, R&D Engineering
1977 - Union Camp R&D Labs, Princeton, NJ, Process Engineer
1974-1976 - Westinghouse Electric, Large Power Transformer Division, Muncie, IN, Development Engineer

Research Interests & Expertise

Max is interested in characterization and development of materials for electonics industry.

Publications and Presentations

"Voltage endurance committee round robin, aging by full and wave signals," M. Schaible, J. Tanaka, CEIDP (IEEE), 1982, pp. 578-85.

"Chemical changes in polyethylene by high energy ions," J. Tanaka, M. Schaible, CEIDP, (IEEE), 1984, pp. 148-54.

"The effect of ion implantation variables on the character of the ESR," M. Schaible, H. Hayden, J. Tanaka, to be presented in IEEE China Conference, summer, 1985.

THOMAS J. SKAAR (612) 373-5563

Graduate Student - Electrical Engineering
Faculty Adviser, William Robbins

MEIS Affiliation - High Performance Integrated Circuits Project.

Educational Background

B.A. - St. Olaf College, Northfield, 1983 (Physics)

Career History

1982 - SunTec Systems, Summer Intern

Research Interests & Expertise

Thomas is currently working on a Masters degree in Electrical Engineering, and is interested in microelectronics, and IC fabrication and design.

LONG PHUNG TRAN

Former Graduate Student - Electrical Engineering
Faculty Adviser, Alfons Tuszynski

MEIS Affiliation - High Performance Integrated Circuits Project;
MEIS VLSI Laboratory Manager

Educational Background

M.S. - University of Minnesota, 1984 (Electrical Engineering)
B.S. - University of Minnesota, 1981 (Electrical Engineering)

Career History

1985-present - Honeywell, Inc., Solid-State Electronic Division.
1983-1985 - University of Minnesota, MEIS VLSI Laboratory, Project Assistant

Research Interests and Expertise

Long is interested in computer design automation.

HILMI UNLU

Graduate Student - Electrical Engineering
Faculty Adviser, Allen Nussbaum

MEIS Affiliation - High Performance Integrated Circuits Project.

Educational Background

M.S. - University of Minnesota, 1984 (Electrical Engineering)
B.S. - University of Istanbul, Turkey, 1978 (Physics)

Career History

Three years experience as a teaching assistant.

Research Interests & Expertise

Hilmi is currently working on a Ph.D. degree in Electrical Engineering, and is interested in the understanding of equilibrium and non-equilibrium behavior of hetero-structures (band structure-electrical behavior).

Publications and Presentations:

"Physical modeling of heterojunction devices," H. Unlu and A. Nussbaum. To be published in Solid States Electronics, special issue on heterojunction topics.

PAILU D. WANG

Graduate Student - Electrical Engineering
Faculty Advisers, Gottfried K. Wehner and
Raymond Warner, Jr.

MEIS Affiliation - High Performance Integrated Circuits Project.

Educational Background

M.S. - Ohio State University, Columbus, 1983 (Electrical Engineering)
B.S. - National Taiwan University, Taipei, 1979 (Electrical Engineering)

Professional Affiliations

Phi Kappa Phi.

Research Interests & Expertise

Pailu is currently working on a Ph.D. degree in Electrical Engineering, and is interested in epitaxial growth, and fabrication process-related research.

Publications and Presentations

"Explaining the saturation of potential drop on the high side of a grossly asymmetric junction," J. Appl. Phys. 57, pp. 1239-1241 (1985).

"Optical properties of GaAs on (100) Si using molecular beam epitaxy," Appl. Phys. Let. 45, pp. 1309-1311 (1984).

"Summary abstract: Growth of n-type Ge on Si by MBE," J. Vac. Sci. Tech. (B), pp. 209-210, June, 1984.

"Growth of n-type Ge on Si by MBE," presented at 5th MBE Workshop, Georgia Institute of Technology, October, 1983.

ALEX WEGMANN

Post-Doctoral Researcher - Chemistry
Faculty Adviser, Larry Miller

MEIS Affiliation - Artificially Structured Materials For Microelectronics Project.

Educational Background

Ph.D. - University of Basel, Switzerland, 1981

Research Interests & Expertise

Alex is interested in organics, especially heterocyclic synthesis, dyeshift/color - chemistry, monolayers and aggregation phenomena, and surface density.

GREGORY J. WHALEY

Graduate Student - Electrical Engineering
Faculty Adviser, Philip Cohen

MEIS Affiliation - High Performance Integrated Circuits Project.

Educational Background

B.S. - University of Minnesota, 1984 (Electrical Engineering)

Career History

1981-1984 - Honeywell, Inc. SSED, Intern in Thin Film Labs.

Research Interests & Expertise

Greg is currently working on a Masters degree in Electrical Engineering, and is interested in MBE III-V semiconductor device fabrication.

YANG XIANG

Graduate Student - Physics
Faculty Adviser, Charles Campbell

MEIS Affiliation - Artificially Structured Materials For Microelectronics Project.

Educational Background

B.S. - Zhongshan University, China, 1982 (Physics)

Career History

1984-present - University of Minnesota, Research Assistant
1984-1985 - University of Minnesota, Teaching Assistant

Research Interests & Expertise

Yang is currently working on a Ph.D. degree in Physics, and is interested in many body systems.

GEORGE L. ZIMMERMAN

Graduate Student - Electrical Engineering
Faculty Adviser, Harry Wechsler

MEIS Affiliation - Intelligent Systems Project.

Educational Background

B.S. - University of Utah, Salt Lake City, 1984 (Electrical Engineering)

Professional Affiliations and Awards

Eta Kappa Nu; IEEE.

Career History

1985-present - University of Minnesota, Department of Electrical Engineering, Research Assistant
1982-1984 - University of Utah, Department of Electrical Engineering, Teaching Assistant
1984 - Symbion, Inc., Utah, Research and Development Technician
1981 - Edwards Air Force Base, Engineering Aid

Research Interests & Expertise

George is currently working on a Ph.D. degree, and is interested in sensory information processing and distributed associative memories.

Publications and Presentations

"Analysis of non-subtractive dither," presented at the IEEE Student Paper Content, 1984.

INSTITUTE OF TECHNOLOGY
UNIVERSITY OF MINNESOTA

207 Lind Hall / 207 Church Street S.E.
Minneapolis, Minnesota 55455
612/376-9142