Oral History with

Maria Gini, Ph.D.

Minneapolis, MN (via Zoom)

July 16, 2020
Abstract

This interview was conducted by CBI for CS&E in conjunction with the 50th Anniversary of the University of Minnesota Computer Science Department (now Computer Science and Engineering, CS&E). Professor Gini discusses her education in Italy, the influence of teachers and her twin sister in the study of mathematics, moving into the computing field for her doctorate, and specialization in artificial intelligence and robotics in computer science. This includes relating her years at the famed Stanford Artificial Intelligence Laboratory, SAIL. She joined the faculty in the Computer Science Department at the University of Minnesota in 1982, where she still serves, a full professor and highly prolific, path breaking scholar in robotics and artificial intelligence. She has done many fascinating and impactful projects and discusses and provides context to some of her research—from work on Pointy at SAIL to hosting the 2nd Autonomous Agents meeting in Minneapolis, and supply chain systems to Minnesota Scout, and medical language processing. She also discusses women and gender in the early decades of the department as well as within the broader context of gender and computer science education and research. Gini is an AAAI Fellow and a Distinguished Scientist of the ACM.
Yost: My name is Jeffrey Yost, and this is an Oral History that I am doing for the Computer Science and Engineering Department, as well as for the Charles Babbage Institute, where I’m Director. I’m here this afternoon on July 16, 2020 with Professor Maria Gini. May I call you Maria? Is that OK?

Gini: Yes, yes, of course.

Yost: Maria, can you tell when and where you were born?

Gini: I was born in Italy, in Milano, which is in the northern part of Italy, born in 1946. I have a twin sister and we studied together for a long time. We have done a lot of work together. I have an older sister, so there were three girls in the family. Neither of my parents went to college. My mother was an elementary school teacher, which in Italy, did not require a college degree. My father was more on the technical side—most of his studies were done in the evening while he was working. We’re kind of the first in college in the family.

Yost: I understand that a teacher of yours was very encouraging to you and your twin sister with regard to your studies in mathematics and physics. Can you tell me about that?

Gini: So, in Italy, and there is still a system like this, after the junior high school, you had to select which kind of high-school to attend. There were the schools more on the technical side, and the types of school for people who wanted to go to college. Of those fundamentally, there were two different ones. Both are called Liceo [secondary or high school], one is classical and one is scientific, so the choices were either scientific or classical studies. My sister was also deciding what school to go to, with different ideas, but we ended up going to the same place, so we ended up studying together. We selected to go to the liceo classico, which basically is a place where you study a lot of Latin, Greek, history, philosophy, and other stuff, but also mathematics, physics and chemistry. First, one thing I think it’s kind of
important, I was in a top Liceo in Milano, Liceo Parini, which is still very well-known. In my class, most of the students were women, and likely this affected us, and might have had an impact on my interest in science. There was a very small group of men, but the best students in the class were all girls. So again, very important—I never thought it at the time but reflecting now I am sure it made a difference. We had, at some point, a math professor, who is a junior professor who had just graduated from college—it was a man—which in Italy was rare because the math professors are [nearly] always women for some reason. He was very new, very junior, and he was really trying to push everybody. Being in the classical school, students were not especially interested in mathematics. I was very interested. I mean, I didn’t know what I was going to do but I was very interested in mathematics and kind of connected with him. We also had a professor who was teaching Italian literature and history, who was also a very engaging person, very interesting. This professor—this professor of Italian was running a sort of group outside of school. It was a Catholic circle group of—but not where religion was talked about, but other most important things such as integrity, ethics, personal growth, and community work. They were trying to do different things together, and they used to have a camp in summers and so I connected with him even though I didn’t really become part of his group. He and the math professor kind of encouraged us to continue. In fact, the math professor because, again, at the classical school we didn’t go very, very far in mathematics, in the last year, I think, was doing afternoon lectures for the few students in the class who were interested in studying more math. And so, I got more interested, and learn a little more advanced math through his encouragement. I really think that both of them really affected my career a lot.

Yost: And what year did you start at the University of Milan?

Gini: Let me see, I was born in 1946, so I have to kind of go back many years. In Italy you have 13 years of school, five years of elementary, three junior high and five years in high school. So, I have to kind of work back the years, 1964. I started in physics because in part, again, I didn’t want to do mathematics.
You know, mathematics was the degree for women who wanted to become teachers and I didn’t know that was what I wanted to do. So, physics looked, even though I didn’t know much about physics, I mean, I had done some physics in high school, physics looked more interesting. My twin sister initially wanted to do medical school or something else, but then she decided also to do physics, so we kept on studying together for a very long time, which I think is also kind of unusual.

Yost: And did your physics education include exposure to computing?

Gini: Yes, a little bit because at the time in Italy, the only way of studying computing was to study engineering, and I didn’t want to do engineering because it was a male field. I mean, it is still, but at the time, it was known there were no women there. You had to study at one of the very few schools of informatics in Italy. There was in Pisa and a couple more. In Italy, it is still a tradition, you don’t leave your house when you go to the university. You tend to go to the university close to where you live, so you still stay with your parents, and it’s still very much a tradition, which, again, very different from the United States. So, we went to Milan, and in Milan there is nothing specific to computing. In physics there were a few professors who were doing a little bit of computing. This is very early to mid-1960s, something like 1963, or so I mean, computing was just barely starting.

Yost: You received your degree in Physics in 1972, I understand—

Gini: Yup!

Yost: Did you go right onto graduate school after that?

Gini: Yes, so at the time, there was no official graduate school, but you could go and work with a professor, work on research. You didn’t need to take anymore classes. So, I moved again with my twin
sister, so we got to the engineering department, which is in Milan, physically located very, very close to where physics is. There was a professor who had just come back from California, he spent a year or whatever, at Stanford, working on artificial intelligence, which is very eerie and a new, hot, up and coming topic. It was kind of, again, just thinking back, was a little bit crazy sort of, thinking of California, hippie styles all the time. In Italy when in engineering, people tend to be much more formal. So, it was kind of unusual. But anyway, we got connected with him and went off with him and, “Sure, sure! You can come to work!” And he, Marco Somalvico had a very small group of students. So, we started really working with him and we—I stayed working with him. I did all my work and through him, at some point, we got a connection with Stanford University because, again, Marco Somalvico, who died a few years ago, had been at Stanford in the AI lab, which was a real, real special place and so he connected us with John McCarthy, who was the director of the lab. We wrote to McCarthy, sending a letter, it was before we had email, and asked if we could join his lab and work as post-docs. We were accepted and got a fellowship from Italy to cover us for this, and then went back and took off and went to Stanford with very little English knowledge because in Italy at the time, everybody’s was learning French in high school. I knew some French, I didn’t know English. So learned English as we were doing this, started reading papers, very, very, very, very rough. So we had kind of plunged into the real place and survive, and the two of us being together I think was useful because, you know, we could ask each other, “Do you know what they said?!” “No. I don’t. Maybe ask again.”

Yost: So, in addition to John McCarthy, the leader of the famed SAIL, Stanford Artificial Intelligence Lab, there were other luminaries Ed Feigenbaum, Terry Winograd and others. That must’ve been a really special environment to study in.

Gini: Right, right. It was a special environment. Since you mentioned Feigenbaum, it was kind of interesting, because Feigenbaum and John McCarthy didn’t get along. So Feigenbaum was working on
his project and was on campus while John McCarthy had the AI lab, a place up in the hills behind the Stanford campus, in a kind very old, large building. It was completely isolated from the rest of the campus. I remember we were biking up there and then occasionally driving a car, but most of the time we were biking, it was a steep hill. It was also very special because it was an isolated place and there the world was kind of crazy, part California-style, part all over the place, and part excitement to work in this area, a bunch of very interesting people. Terry Winograd was around. I worked, we worked with Tom Binford who was a researcher in Robotics at the time, he was the only person really to do robotics. Thomas Binford was mostly known for his work on computer vision, who was also running the robotics group and they had two manipulator arms, called a blue arm and a yellow arm. The yellow arm didn’t work, so everyone’s using the blue arm. And it was called blue because it was blue, right? The other one was called yellow because it was yellow. And so basically that’s the area in which we ended up working. So, working on developing a kind of programming system for the robot.

Yost: And was this developing POINTY or was that later?

Gini: Right. Yes! That’s exactly POINTY. So, when we got there, they had developed this language which was called AL, Assembly Language, which is an ALGOL-like language, and it was a compiled language, and it was complicated. At Stanford, they had a [DEC] PDP-10, which at the time was a top of the line computer, only four or five universities in the world had the PDP-10. So, the AL compiler was running on a PDP-10. It was generating code, which was downloaded onto a PDP-11, which is a much smaller machine, which then was used to control the robot. So basically, what people had to do was write their own program, compile it, download it, and run it. If it did not work, you had to go through all—go through this cycle. So just before we got there, Russ Taylor, who was a student who had just finished his PhD, had developed a kind of initial idea for a system in which you could point with the robot arm to different positions, record the positions, and then include them in the program. But, again, it was not
integrated with the programming language. So we were asked, “Oh, can you kind of help on this?” Our programming experience came from working with the LISP language because again of Marco Somalvico. Marco when he came back from Stanford was all excited about LISP, so we learned LISP. Of course, in Italy at the time, we didn’t have computer terminals or teletypes, we had only cards, punch cards. So in Italy I was using LISP, which is an interactive language with punch cards. You had to punch your cards, put them in the card reader—people now don’t know, have never seen a punch card, I guess, most of the people. I had to put the cards in the holder, read the cards, run the program, and then get a print out of the output. Oh, and if the program was not correct, you had to fix it and try again. Anyway, I’m used to LISP, which is an intelligent, interactive language. Later on when I was in Italy, I also learned Prolog, which is a language based on formal logic, which came out from Bob Kowalski work. Bob Kowalski had visited Milan when I was there to talk about his language, so the task was assigned to me to learn Prolog. The only implementation of Prolog had been done by Colmerauer who was in France. I remember, we’d say, “Ok. You want to get Prolog running on our computer.” The computer at computing center was a Univac 1108, still remember the number. So, how do we get this? Ok. So, I got on a train, and I got to visit Alain Colmerauer in Marseille. I stayed at his house, and he had a teletype in his house which was unheard of at the time. So, it could type, like on a typewriter machine, and connect with a computer on campus where prolog was running. Anyway, I stayed there a couple of days and I practiced a little bit of Prolog just to understand how to use it. Then I got two boxes of punch cards which contained the Prolog interpreter. I remember, I came back to Milan with the two boxes and put them on the Univac and we got Prolog up and running. It was kind of interesting because the implementation of Prolog is something people do now, there was a small part that was like a quick interpreter just to read the cards. Prolog was implemented in FORTRAN, with a small piece written in Prolog itself. So, this is how I learned that you can implement a language using the language itself, which is kind of a very interesting notion. Anyway, again, I came from this more interactive-type of
environment so we say, “Why don’t we try some kind of interactive ways?” and we decided to use the AL language because that was already the language they were using and make it interactive. We implemented a basic interpreter for AL, and we called it POINTY because we still kept this idea that came from Russ Taylor of pointing to the location. The interpreter who was much easier to use because you could move the arm physically to a location you wanted and then you can record the position and then you run your programs and run and you go. So that’s kind of the work that we done in—of course I’d never taken a compiler class and I had no clue. I got help from some other students in the lab. Again, it was a lot of learning, I put it that way. But I learned a lot, of course because you had to do those things. At the end it was kind of fun because they kept—they used the POINTY system for quite a long time at Stanford. As long as they used AL (a high-level manipulator language), they also kept the POINTY system because it was much more useful.

Yost: In AI and robotics, but also more broadly, in computer science at Stanford, were there many women in the graduate program, in the doctoral program at that time?

Gini: Not much. In fact, again, I didn’t think of the problems at the time because in Italy there were not too many women in physics, but in mathematics there were enough women, and again, all the way through high school, I spent most of my time in classes with women, not by choice but just because that is the way it was in Italy, in elementary classes and even junior high, the women are not in the same class as the men. So, again, it never occurred to me that women don’t belong too, and I think that’s maybe helped me because being naïve, I didn’t even think I shouldn’t be there, right? It’s just one of those things, now it is much more difficult. No, there were not too many women. I remember there was a woman in the AI lab—we were spending all the time in the AI lab and then we were also kind of attending informally a number of the courses. I was taking a class with John McCarthy, to learn the material but to also see what people were doing. I remember there was one woman, the only one that I
remember, who was working in the AI lab, Carolyn Talcott, who later became the wife of John McCarthy. I remember she was kind of talking a little bit, mumbling, that she didn’t see too many women, but I didn’t pay much attention at the time because I say, “Yes, maybe it’s true.” Again, it was not in my mind, the issue of women. But yes, it was true. There were a few master students that occasionally were in the AI lab to do work, but I don’t remember any other PhD students who were there.

Yost: And how long were you at Stanford?

Gini: We were at Stanford the first time, were there for a year and a half. Then we went back to Italy, and then we went back another year with a Fulbright fellowship, almost for nine months. And then in fact when I went back the second time, they had moved the lab from the hills, the nice, wonderful place, to campus because they decided to remodel Margaret Jackson, which was this building in the center of the quad, and of course the space was much more limited so it ended up that the robotics group was in the basement. There was a room which had the two manipulator arms and some space around and some offices. Again, all in the basement which is not the most desirable part. There were a number of students. In fact, at the time, Rodney Brooks came in as a fresh PhD student. David Lowe, famous computer vision work, was also there as a PhD student, and a few others. Again, those are the first names that come to mind. We were there all the time, basically all day working in the office, or going to the lab and using the robots. There were a couple of other PhD students, who were working with doing programming for the robot arm, all. Kind of stayed more in touch with them.

Yost: How was your research evolving at that time?

Gini: Most of the time was spent on designing the language and implementing the language but also we spent a lot of time still learning because we didn’t have a computer science program in Italy so I knew
how to program but we didn’t really know anything more. And so, again, we took classes to—I remember taking a class from Zohar Manna on formal methods, where we learned to prove properties of programs. We took a class from Susan Owicki on the operating system, of which I knew nothing. Terry Winograd was teaching a class, it was kind of more discussion, with Fernando Flores who was a person from Chile where he has been put in prison. When they freed him up, he came to Stanford where he had some kind of an adjunct faculty position. I remember going into meetings with him and a few other classes. So part was, again, a good campus for listening to lectures and learning, and the rest of the time it was up in the hill, in the AI lab, just programing. You know, one interesting thing in the AI lab, they had kind of terminals that were TV sets. Again, it was very unusual, right? So, you had basically a TV set and then a keyboard. And one of the interesting things you could—on the TV set, you could watch TV. And so, there were people watching TV when they were waiting for their programs to run—I never did it really because I wasn’t too interested. But it was kind of interesting that you could watch TVs and then switch to just the instructional keyboard, like switching to different channels. So they had a big disk where everything’s stored so you could switch to different channels and you could switch so you could see what other people were doing, unless they protected when they were working, right? So, again, you could switch and look at things, but there was a protection mechanism because at the time there was one game, trying to remember, one of those games, the dungeon games, it was kind of popular. John McCarthy and Hans Moravec, who was a student there at the time, were often playing the game. Both of them were trying to beat each other in exploring this game. And so, they had their systems protected. Nobody could see what they were doing, otherwise they could see how they were playing and copy from them. So, there was always this kind of quirky—very typical of the kind of environment up there at the AI Lab. Come up with technology and you use it also for fun and not just for work.
Yost: Were you involved with, specific professional organizations, the AAAI, and ACM and IEEE CS at that time?

Gini: No, no, I mean there was the IEEE CS and ACM, but AAAI started much later because ACM was not interested in AI, so people decided to form their own professional society.

Yost: Ok.

Gini: I mean, I can’t remember exactly when then, but it was not there yet. One of the things we were doing outside of work was, on the campus, there was the Casa Italiana, Italian House, for students and there were some Italian professors there. So occasionally we were going there for lunch or to chat, so that was kind of the connection. We didn’t really have too many other connections with other groups outside the groups in the Casa Italiana. Then, of course, my husband was a PhD student at Stanford in a different group that was on campus, so somehow, we also connected, right?

Yost: Right. Can you tell me about how you came to, come to the University of Minnesota and joined the Computer Science Department at Minnesota?

Gini: So, again, when I was at Stanford, I met my husband Dan Boley who was then a student in the numerical analysis group. I don’t remember exactly how we met, maybe at the Casa Italiana. What I remember is Dan’s father is from Italy, and he came to the United States before the war, and Dan speaks Italian because his father was a professor and he took a sabbatical in Italy when he was like ten years old. When they got to Italy, Dan didn’t speak any Italian, they put him in an Italian public school, so he had to learn quickly Italian. He speaks good Italian, so somehow, we connected because we were speaking Italian. So, we were chatting, and then eating together, of course, Dan likes food, and I like to cook, so that was also a good way of connecting. When I got to Stanford, I had a J-1 Visa and because I
was paid by Italy, there was a waiver requirement to stay in Italy for a couple of years before I could
come back to the US. At some point we decided we were going to get married, but it was before the end
of the two years, so we decided to wait instead of trying to get the waiver. In the meantime, while I was
in Italy, Dan had finished his degree and got a faculty position, He had offers in different places and
decided to go to Minnesota. I had no idea, I had never heard of Minnesota. Never heard of Minneapolis.
In fact, when I mentioned to Italian friends, “Oh, I’m going to Minneapolis.” “Oh! Yes, where there are
the car races.” “Car races? No, not Indianapolis.” Oh, my goodness! But, again, I actually had no idea.
You know, sometimes, I often I tell the students, sometimes you should jump, right, take risks,
otherwise you might be missing a lot of things. So, say “Ok. Sure, we’re getting married.” I packed my
stuff. I arrived here and got married maybe a month or so after I was here. Of course, I didn’t have a job.
I wasn’t bothered, I mean, I wanted to have a job but didn’t think it would’ve been difficult. “Oh, we
want to do an interview with you for a faculty position.” Because at the time I got to Minneapolis, in
1982, the Computer Science program was growing, and the department was very small. Again, I didn’t
think of any of it. “Ok, let’s do the interview.” Never had an interview in Italy. We don’t do those things
for academic jobs. I have taken exams and other things, right? Ok. Sure. So, I started chatting with
people during my interview. I was very relaxed, even though I should have been scared because I did
not know what to expect. Somehow, they decided to make me an offer, which I accepted promptly. I
did not know you have to negotiate the starting salary, again it does not happen in Italy. So I got the job
and then I thought “Ok. Now I have a job. Ok. Now I have to figure out how to teach.” I had no idea. I’ve
done teaching in Italy, lectures and so, but here things were different, I was in charge of a class and I had
no clue what to do. So, you know, just figured things out and got started and slowly figured out a lot of
things about the American culture, which I didn’t know much about, again, the academic culture, the
lack of women and all those other things. Slowly, I kind of opened my eyes and I understood different
things. But I think if I had asked in advance, oh, I have to do an interview? What do I do in interview?
Woo! I have to teach? What do I do? Maybe I would’ve not have come, right? Sometimes it is good to
jump and learn to swim.

Yost: Right. Can you describe the culture in the department at the time when you arrived?

Gini: So, the department, I still remember, had 14 faculty, there were two other faculty that were hired
the same year when I was hired. One of them, if I remember right, had been a graduate student here.
The other one was from out of town. I don’t know remember exactly what they were working on, both
of them left a couple years later. So I was kind of—the year before they had hired me, they hired three
faculty, one of them was my husband, Dan, another one is David Du, who is still faculty in the
department, the other one was John Carlis. So, there were three hired before me and a few more hired
before. There was one faculty doing AI, which was Bill Thompson who worked in computer vision and
who helped me learn how to navigate the system. Then there were the powerful faculty. There was a
faculty who has written well known textbooks and so, very ambitious. Then there was Ben Rosen, who
was a numerical analyst, he was one of the faculty who was very early in the department. There was
Marvin Stein and then there was Bill Munro, both of them kind of early hires. The department head was
Kurt Maly who was an associate professor. I remember I didn’t know much about it but, but slowly I
understood the kind of strange situation because in general, you want a senior person, full professor, to
be the head of the department, instead of an associate professor. Then I kind of understood some of the
politics. He was kind of placed there as a head, you know, to do the work but he didn’t have a lot of
power. Put it that way. The power was with other people. I was the first woman hired, again, at the
time, I didn’t really think too much of it. There was the Micro Electronics, yes, MEIS, Micro Electronic
and Information Sciences Center, some kind of center that had some funding. The director of the center
I still remember was Martha Russell. So, she was a woman, and they were giving some grants to help the
researchers. So, again, that maybe, is not that I talked with her much, but maybe again, there was
another woman around, right? So I didn’t really feel like I’m really the only one, the strange one, and I think that helped because I would’ve felt more constrained if I thought, “Oh, I’m the only woman here, I have to be careful.” I started really working a lot with students and working with undergraduate students and doing a lot of things and then people were coming around,” Wow. You shouldn’t do this, right? Think about just writing your papers.” And now, again, I wasn’t tenured. Sure. Ok. I mean, I was not concerned, right? So I really started connecting with students, many other students were working on projects and doing things because I didn’t think it was going to affect my tenure decision at the time. Luckily, I got tenure, but you never know, right? One of those things. So, again, I think that’s why I say sometimes being a little bit ignorant or a little bit naïve and just being ready to take risks really gets a bigger—I mean, things could’ve gone bad right? They could’ve decided not to give me tenure and I don’t know, maybe the marriage had gone bad, there were reasons—so everything worked fine. So, I’m lucky, as women often say, “I’m lucky. I was at the right time, the right place, and the right time. It’s not that I’m good. I was lucky.” This what many women say, right? Why men don’t say the same? Yes, this even has a name, “impostor syndrome.”

Yost: Were you teaching undergraduate courses in AI and Robotics or other areas as well?

Gini: No, the first class I taught was a class that was called Pattern Recognition, which is now called Machine Learning. At the time, it was a standard title, so it was more of a graduate class mixed with some undergraduates, like most of our classes are still. It was not so big. I don’t remember, maybe 40 students, whatever. Of course, I had to learn the material, had to figure out how to teach, and all those other things. Later, I started teaching undergraduate classes, the first class I taught was on assembly language, which I taught once. Then I started teaching LISP, which, of course, is what I love. I taught that class multiple times. I don’t remember when I started teaching AI, but we didn’t have any other robotics classes for a long time. I taught a seminar class on Artificial Intelligence and robotics but it was not a
regular class. There was a class on AI, which I taught many times now. I don’t remember when that class was started, it was already there when I joined the Department.

Yost: Can you tell me about starting a research program or lab—where you sought funding for your work and your management style in working with graduate students?

Gini: So, I started a research with a focus on robotics, kind of the intersection of robotics and AI, which is in part what I did in Italy. In fact, the first project area I worked on, was how to detect and recover from errors in robotics. If you have robots and use them for some tasks, the robots at some point will make mistakes. The problem is, can the robot figure out how to detect the mistakes and recover from them? This is still a big problem and, again, I had work on some of that problem in Italy. My first PhD student, Rick Smith, was already, I don’t remember, maybe second year or third. He was working with a different faculty, I don’t remember exactly how we connected. His wife was a medical doctor doing the residency in St. Paul. Somehow my husband knew her, so we kind of connected that way, kind of outside things. Rick had done some work in the real-time systems and so he was interested in working with me in robotics. At some point he told me that he liked the food I was cooking. I got my husband because of food. I got my first PhD student because of food. Food must be important. But he really helped me a lot because again, he was my first PhD student and got things rolling. At the time, there was a robot arm which was in Mechanical Engineering. I remember it was an IBM robot arm. In fact, I worked with quite a bit at the beginning with Max Donath who’s still a faculty in Mechanical Engineering because he was doing robotics in Mechanical Engineering. I didn’t have any robot and didn’t have enough money to begin to buy anything, so being able to use the IBM robot that Max had, the one we used for initial experiments, helped me a lot. Then I got other students and started working on other projects. And then there was a big project with, I think it was IBM, I can’t remember the dates now, called (WOKSAPE) which is an Indian word. It was a project in which IBM was basically giving money to buy personal...
computers and develop applications for them. Think about that at the time we did not have many
desktops, the Department had just a shared Vax computer with computer terminals. I ended up getting
some IBM PCs and started to get many more students, so now with computers, students could do
things. And then things grew and got NSF funding for my research on error detection and recovery.

Yost: Was your research continuously focused on robotics or did you have other interests as well in CS
at that time?

Gini: Yes, I mean, I always kind of considered myself more of an AI person. I mean, using AI robotics and
stuff. I had a period of time in which—often the work I do really was driven by students or students’
interests. So, I remember at some point I had an undergraduate student who was very interested in kind
of building robots. And so, I say, “Oh, sure.” I am always willing to give chances to students. So, we
started building some small robots, and then later on, started using Legos to build robots. So that
became work, much more kind of low-level hardware design and low-level software. And I’ve done that
for a while and then, in fact, I had a student that was really excellent in building Lego robots. I still have
the collection of Lego robots and other things and that was kind of very important. At some point, we
got a large DARPA grant, maybe in 2001, I don’t remember, after 2000, for building very small robots. It
was a DARPA project, they wanted people to build robots less than five inches by five inches by five
inches. So kind of using, again, what I’ve done with the small robots helped in getting started. I’d
worked with kind of a ball for a robotics AI competition, the ball, which was a toy could roll around. So,
it was very influential, very instrumental in starting this robotics project with DARPA, which was much
more hardware-driven than software driven. At the time, I had a student who had built many Lego
based robots, who became one of the main contributors to the DARPA project. Personally, I am not
especially knowledgeable or interested in building hardware, I am much more on the software side. So,
after that, I haven’t done any hardware development, but I am using robots. I branched out at some
point to do more work in the AI community. There was a group of AI researchers that started working on what they called Distributed AI, which then became Autonomous Agents. The group started a conference called Autonomous Agents in 1996. At some point, I don’t remember how, I got an email that said they were looking for a place willing to host the next conference of Autonomous Agents. I had no clue how to run a conference, but I said, “Looks interesting.” Then, you know, I learned how to go to the hotels, ask for costs, and all the other stuff needed to organize a conference. So I submitted a proposal and the conference came to Minneapolis. I think it was 1997, it was the second-year of the conference. And so, I started from the beginning really being part of the organization’s structure. I’m still very much involved with that conference. After a number of years, we changed it to a conference that is called the Autonomous Agents and Multiagent Systems. It used to be an ACM conference, then we became independent, with an elected board. I’ve been on the board for a long time. I just stepped down being president of the board. I’m still very much involved. It’s kind of—I feel like my conference. The conference started with maybe 100 people, and now we have 500, 600, 700 people. So, and that’s—my research now is much more on the Multi-Agent systems. I really like having multiple entities making decisions instead of having one big central entity that does everything and tell the agents what to do.

Yost: You were a pioneer with creating a virtual market. Can you describe this—a market with agents—

Gini: Yes.

Yost: Can you tell me about that?

Gini: That was kind of interesting because again, there was a student who was an undergraduate student Max Tsvetovatyy. Anyway, he got his PhD later at CMU, but he was interested in virtual markets. There was a temporary faculty who was with us, Bamshad Mobasher, who later moved to Chicago.
Anyway, so we’re kind of interested in looking—again, it’s very early time before really a lot of the web stuff and so this undergrad had this idea of trying to build some kind of market. And it was—at the time, there were a few people coming up with the idea. So we started implementing with, again, a simple idea we created MAGMA, which was a very simple system, and got a paper published, got a lot of interest and then we started developing much more and then in fact I got more students, I got funding, got a larger group and then there’s, again, the Agents community was a time when people started their own competition. There was a competition for Autonomous Agents and a competition for supply chain management, called TAC-SCM, and so we got really involved. In fact, one of my students, John Collins, who was a PhD student at the time, and he came from—after working for many years at 3M, so he had a lot of knowledge of building system, real stuff and he wanted a PhD, so he could teach. So, I really like having somebody with work experience. So really started participating. We wrote our agents who competed in these competitions many times and then we came up with new ideas. At some point we were hosting the server for the competition. Again, this is because of the students. So, it was John Collins who did and then I had another student [Wofl Ketter] from Germany who was also very interested. In fact, now Wolf is back in Europe, now he’s a full professor in Germany doing a competition for trading electricity. Similar idea but in the electricity markets. Again, those things really started because—I like, in general, to find what people like to do and if I can put them together and build the synergies, then I help getting those things going, and now I don’t do much more in that kind of area because I kind of move more, again, to robotics, to other things. More recently I started working on medical language processing, which is quite different. I like to change. I don’t like to be always doing the same thing.

Yost: Can you tell me about Minnesota Scout, that project?
Gini: So, the Scout is a DARPA project. Again, at the time, Nikos [Papanikolopoulos], was the faculty who joined the department a number of years after me, the second robotics faculty there. So, we wrote a proposal and we had a connection with people at Honeywell and other people to help. So, the proposal was kind of, I think DARPA liked it because it was like, weird, not clear it was feasible. So, the initial idea is part of some robotics competition for AI laboratory, a toy, which is called a squeaky ball, I don’t know if they still sell them. Basically, it was a ball that had a pack inside and it rolls in a very asymmetric way because the weight is not in the center and so it can kind of roll. And they were using it for the competition, so you had to grab it with a robot. And so we probably have to make very small robots, they were really unusual. I said, “Well, if you have something very small, you can’t move much, right?” If you have something that, you know, like a small mouse, it’s going to be very small. So, I suggested this idea, say, “Why don’t we think about a ball because a ball that can move maybe is partially uncontrollable, but maybe we can control it literally.” So that’s basically was the idea of the proposal. And Don Krantz who was a PhD student at the time, he worked at Honeywell, had the idea to make it to jump. So, in the proposal, say we’re going to have some rolling robots or some that can jump. So, we had a spring mechanism that could retract and then could be released so the ball could jump and go. This was in the proposal, and I think because it was crazy, DARPA liked it, right? Because it was really weird, right, and nobody’s ever thought about doing that. Then one day funding came, they kind of suggested to make some changes because the ball was a little bit difficult to control, and so then there were the DARPA people saying, “Well, if you make something like a cylinder, maybe you can fit in a grenade launcher and so that’s why the shape changed at the time. It became the Scout, which is a cylinder, with still the idea of jumping. I mean the original Scout had this mechanism, you can wind up a kind of a leg, using a battery and then release it so the scout would jump. It didn’t jump too much, some of the time it didn’t work at all, but I think, again, it was kind of impressive for DARPA. So it was part there and done some work on the software side, again, which I’m not a hardware developer and then
developed some software with—because the Scout had a camera, so we started taking the camera, trying to figure out where the robot is and right the problems and move it around, so it was kind of fun.

Yost: In looking at National Science Foundation statistics compiled on women computer science majors, the peak is in the mid-'80s at that upper 30 percent, and it falls dramatically in the next decade and a half. Do you have any ideas or insights into why women were finding computer science less attractive as a major at that time?

Gini: There are a lot of theories, and I think it is a combination of factors. Earlier there was a larger business-side component in computing. Also, there were a not clear distinction between computer science and information technology. So, part of it, if you look at it, 30 percent women, I think part are more on the information technology side. So, the fact that the field has changed may also explain. The next factor that everybody talks about is many computer science programs started moving from colleges of liberal arts to colleges of engineering. And that’s caused a big loss. I think this is true because there are fewer women who think engineering is for them, so seeing computer science as part of the college of engineering don’t even think about joining. That, I’m sure, is an important factor. Another factor some people mention, which I think is also important, is the advent of the personal computers because when personal computers started, most of the times the boy in the house had the personal computer and was tinkering with the computer and doing things, and that was not seen as something the women would like to do. In part, I think it’s a little more fear of hardware then most women have. In part this is because the men tend to be the ones who fix the car, fix the bicycle, fix things and are less afraid of breaking things. Many women are afraid of breaking things, so this keeps them far away from hardware. And so I think that’s also really made a difference because that means the women were not really part of—didn’t have this computer at home to use and why the boys spend more time writing games, playing games, and so the women were kind of left out. And I think that’s—this is clearly another important
consideration. In fact, one of the many things at, you know, I know many people do is summer camps, a little bit of exposing the girls to hardware because I think it’s still true that the women are not as comfortable. Of course, it’s a generalization, right? But, in general, not as comfortable like taking apart a computer. I’d never do it myself. Maybe, again, I am from an older generation which didn’t know about computers, if I touch it, I break it, right? So, while boys are more used to do things. And so one of the many things that in fact I recommend is to try to expose the girls at young ages to hardware, soldering things, building stuff so at least they think it is something they can do as opposed to seeing something too difficult for them. That part, I think, is still, still an important piece. Now, I think, things are not good, there is not a lot of progress in getting more women into computing. They’re learning what we should do to increase the number of women in our department. And we’re learning a lot of things which—I don’t know if some things changed recently or they had been around for a long time and we didn’t know. For instance, one thing we’ve learned very clearly, recently, is the major obstacles for the women undergraduate is not that the professors make them feel—I mean, in some cases is the professor make them unwelcome, but that’s not—is the friends, the other students in the class. So, they often say that they are not treated, they feel they are not treated even by their friends, as equal partners, right? The professor sometimes, and again, I heard a lot of stories. For instance, a girl, not from Minnesota, studying mechanical engineering, said, “You know, in mechanical engineering, we go to the lab, if one of the boys has a question, the teacher, ‘Yes, you do this, this, this, this and then, take care.’ When I have a question, ‘Come look. Let me help you,’” right? And so, he tries to help her and do the work for her rather than explaining how to do it, and I think it’s interesting because people don’t do intentionally. I mean, people are trying to be helpful but at the same time, the girls are feeling that they are not capable of doing things on their own, right? They are not the same. So, this is from often, again, from teachers, parents or whatever. And from the students in the class, again, I think it’s sometimes is intended to be helping them. And so we had a story of one of our students that reported at some point
that they were doing an evening class where we bring in students in their first computer science class to solve problems together so they kind of don’t drop the class and they learn. They work in groups, and they’re mixed, most of the groups are mixed, they form groups on their own. So one of the girls at some point said, “Well, I was on the board with a pen, because we use the whiteboards a lot, writing my solution and one of the students in the group, one of the boys, gets up and takes the pen from me and says, ‘No, no let me do it.’” And I’m sure, again, I don’t think it was bad intention, right? But she felt very, very annoyed, right? Because say, like, “I can’t do it, you had to show me how to do it.” And those kind of microaggression-type of things are much more important than what we think. We’re thinking that one issue is the faculty and sometimes it’s true. Faculty still—I don’t, I mean, I don’t think people have bad intentions but again, sometimes discriminate, indirectly. But this issue of people in their own class is much harder because we can’t really control it. I mean, it’s not a question of training the students, right, because, again, they don’t do it because they want to discriminate, they are trying to be helpful. But by trying to be helpful, at the same time is like telling the girls, “You’re not good enough. You need my help.” And we are trying to really figure it out how to address this, I think is a big part of the problem and then, of course, there is the real discrimination and all the other things. And so, it’s not simple. Only way of addressing the problem, you really need to get more women. If there are 35 percent, then things changes because then, in each group there will be not a single girl, but maybe two or three, right? So, they can control a little more, the conversation. I think everybody gains in the end. But without the numbers, it’s going to be very difficult. So, it’s a tough problem.

Yost: Can you tell me about your assessment of the impact of the Grace Murray Hopper celebration and your involvement in that event over the years?

Gini: So, the Grace Hopper celebration started a number of years ago as a very small celebration, and it’s grown over time in part because more people know about it and want to attend. And when you
attend, you see so many women, and get such a sense of excitement and a sense of freedom. You’re on
the stairways or the elevator, whatever, sit at a table and you start talking to the person sitting there,
right? You don’t do it in general, in public, with people you don’t know, even at conferences. But at
Grace Hopper, any time you are close to someone you start talking “Oh, where are you from? What do
you do?” So, there’s this kind of sense of excitement, right? And that’s really important because it gives
people the feeling, “I’m not in the wrong place. I belong to this place; I should be here.” That is a very
positive part. The other part that’s been useful is the fact that all the companies are there recruiting
people. So, one of the things I always notice there is big career fair and all the companies are there. And
when they open the doors of the exhibition area the first day, I mean, I’m always impressed. I have
some images in my mind, right? And you see a crowd of women flowing in and then you see the people
at the booths that are handing out their stuff. “You want to take this. You want”—I don’t know—“this
lipstick, this whatever,” right? Because they are trying to attract the attendees to this company and led
them this way to talk to them. And I think, for the students, I mean, you really feel like you are a queen,
right, you are in power. People come after you, right? And so, it’s this sense of power that is very
valuable. Unfortunately, Grace Hopper, now it’s too big, and it’s becoming too commercial. So, while it’s
true again, that having this sense of being in power is good, when people go to the conference only to
do interviews they spend all their time in line because the top companies have long lines, you have to
stand there for an hour before you get to talk with a person, give your name. Maybe they give you an
interview, then they miss all the other parts and then it becomes like a giant career fair and so it’s kind
of losing, I think, unfortunately, the size is a big issue. This year the conference is going to be virtual so
we’re going to see how it’s going to work. Because, again, the last few years have been good and I
always go with students, always try to get funding from the department, from the college so the
students can go. But the value, I think, again, the students love it because they all get internships or
jobs. But to me, the value has to be deeper, right? Not just, sure I get a job, but, “Oh, now I understand
that this is an area where I should stay in. I belong here. I can do it,” and that part I don’t know that they get that, because, again, it’s kind of different doing all this interviewing, talking all the time to people and trying to get jobs and collecting gazillions of small gadgets. But I don’t know, we have to see. There’s been some kind of talk about, I mean, there is some kind of regional mini Grace Hopper conference, we do one in Minnesota every two years, but they are much smaller. So now there’s some talk maybe the Grace Hopper should be split in more regional celebrations. Again, last year there were 25,000 people. This year they expected would be miracle, 40,000.

Yost: Wow.

Gini: I mean, just—it’s too much!

Yost: Yes, that’s huge.

Gini: So, I don’t know. Again, we have to see. Those things, I mean, it’s good in a sense that it’s grown so much and there are many more women and it’s much more international, not just from the US, a lot of people from other countries come, right? But sometimes success is too much success. So, we need to see what is going to happen there.

Yost: Can you comment on the work and your involvement within NCWIT?

Gini: Yes. NCWIT is more for faculty and educators and people from companies, I mean, there are also students attending NCWIT, but the proportions are different. It’s much more manageable, normal size. Again, I mean, again, I’ve been to the NCWIT national conference a few times, and also, they do a lot of activities, more academic oriented. [1.00.04] So they support a bunch of activities. So I kind of like them but it’s not the same for the students because, again, what attracts the students to Grace Hopper is not
the conference, right? It is the job offerings. At NCWIT, there are a few things, you know, they show you a few things, but it’s not really, it’s more for people to talk. NCWIT is a good group. They had some plans at some point about dismantling, I don’t remember, they told me they were hoping to reach a point where there were enough women, so they would not need to exist anymore, but we haven’t reached that yet. But, so, I don’t know, right? They try to, they hope to achieve parity in 2030, I forgot the numbers. But everybody’s hoping that they get to the point we don’t need any of the special activities. But I don’t know. I don’t think they are there yet and I’m not sure, think they are a little too optimistic but, maybe.

Yost: Can you tell me about the medical language study group project that you—

Gini: Oh, yes! So this is a project, again, I do a lot of different things because depending on, you know, whenever there is a research group interested in building a groups at the time, build a small, kind of research group with the faculty from Linguistics, Janet Gundel, she passed away recently. And so we are looking at language, looking at medical language processing, in particular for medical applications. And this was early, you know, work with linguistics has been going on for a long time, but the work in the NLP has changed a lot over the years. So, at the time, it was still more the classical kind of linguistics approaches and it was before people were starting to do, like, you know data mining of text documents like we could do now. Very early work and were just trying to bounce off and come up with some ideas. So, we had a small group with kind of mix with Linguistics people and Computer Science people, came up with some good ideas. At some point, there was no reason to continue; it kind of dropped but some of this interest in linguistics kind of stayed. In fact, one other person that was in this medical engineer group was Shana Watters, that was my PhD student. Then she went to Augsburg College as faculty, she got tenure, then I don’t know if I should say publicly, but I think it’s ok, I think, she got upset because Augsburg didn’t really value computer science much. So she decided to quit and got the industry job. I
kind of heard about, so I called her on the phone, I say, “You want to come and be an instructor for the
department?” Which, she decided to do, she agreed, so now she’s in the department. Now we are doing
a lot of work together because, again, her thesis was natural language processing on coreference
resolution. When you have long sentences in there and say ‘it’ whenever one would use for a pronoun,
what you would refer to, because often there is ambiguity. Again, that was her thesis work. And now
she’s also very passionate about women, and so now again, we’re working together, a lot of the women
activities we are doing with exposing students to research and bringing in women. Now, we’re doing a
project which is funded by the Northwestern University, the Bill and Melinda Gates Foundation to figure
out how to change the first computer science class so that it’s more welcoming for women and other
students from under-represented groups. So, we just got the funding and going, in fact, we already
started working in the fall semester. We’re going to have five PhD students teaching smaller sections of
the class, working with them, coming up with syllabus, all the details. We’re really hoping to prove that
in fact at the beginning, with smaller groups, more personal interactions, the women will stick around,
more likely. We don’t want to lose a lot in the beginning class, and if this works, the next step, we’re
going to do a second class. I think, you know, once you have two classes, you know, again, women make
it to two classes and they’re happy, they like the material, then they are much more likely to stick
around. And we started all this because we saw data on dropout and failure rates in the first computer
science class and were astonished, I mean, they were so bad. And so we said, “We said we have to do
something,” so again and now I’m doing this with Shana because I wouldn’t be able to do things on my
own, so now she’s extremely helpful in doing things. But, again, it came from this very old, old, group on
medical language processing for medical applications.

Yost: Sounds great.
Gini: And also, this time, I think there was another PhD student in linguistics, Serguei Pakhomov, who I remember took my AI class and I was in his PhD committee. He did different things, and then he came back to the U. Now he is a faculty in the School of Pharmacy, doing NLP work. So now we have a Grand Challenges project together on doing conversational agents which will use natural language processing, accuracy rate, real conversation we do application for. How many people get text messages? And so now, the last couple of years, I’ve done a lot of research in this new area, which is again, conversational agents. So now I am—there are multiple projects and funding and other things. I’m learning because I’m not a linguist by training but I’m kind of learning on the side. But some of those things started again from early knowledge and that’s why I always encourage even the students, say, you know, when you are a student you make friends right, because, even to the undergraduates, in a few years, they are going to be out and become famous and have powerful—you know, maybe you are looking to recruit people and you need help, how do you find help. You go back to friends in college, right because you trust each other. You know each other, you trust each other. And that’s why I always encourage, you know, my students to do social things, know each other, work with each other, and I benefit myself again, to—when I have worked with somebody, I’m very confident in working with them because I know them. And so, it’s more social and I think there is maybe more women kind of things, right, because we value social interactions. But I think it’s good for everybody.

Yost: So, your list of awards is very long. In 2001, you received the distinguished Women Scholars award at the University of Minnesota, the ACM Distinguished Scientist in 2006, the AAAI Fellow in 2008. Can you talk about what these meant to you and this recognition in your career?

Gini: In general, personally, I never really care too much about awards. But, in fact, I think the first award I got at the U was the Morse Teaching award, which, again, I didn’t expect. I didn’t think about. Again, in general, I don’t care much but then I learned that very few women receive a lot of awards, so it
really becomes important try to collect more of them just because it helps other people say, “Oh, I can
do this.” You know, like the AAAI Fellow award, initially it was one of my PhD student that nominated
me and, you know, it was faculty and so I say, “Ok. Good for me.” Now, I understand kind of how kind of
makes me be considered more connected because I’m a fellow. So, then I got, you know, I became IEEE
Fellow and ACM Fellow and got other awards for teaching and other things. Again, I don’t care, really,
personally. I mean I like, of course, everybody likes it but it’s not like I’m desperate to go after, but
again, I think it’s important to get more women to win major awards. And we’re trying in fact, in a
systematic way, trying to make sure more women get nominated to get multiple different awards. And
I’m offered in many, many, many committees and I’m really trying to pay attention. Women are, of
course now, the next big issue is really the underrepresented groups, African American and Latins. And I
think again it’s important in their case, not because they necessarily need the award but it’s more an
indication that they have the skills and the recognition of the community. So, I think it’s important what
to do, and I always try to nominate people. I just learned like this year, and I’m going to try to change it,
the AAAI, which is big society, I don’t know how many fellows, there’s only one African American. And
this–and again, I don’t think anybody’s done it intentionally, but you know for most of these awards,
somebody has to nominate you, right? You don’t sit around and wait, and so often, even for women
often not they don’t think, but they don’t think, the woman name doesn’t come up first. So, now, again,
many, many women in the community saying—there is one other person in the ACU group, and every
two months or so, she sends a list, those are all the awards that are out there. Think about women to
nominate. Because, again, it’s not that the people don’t think the women deserve them, but if
somebody doesn’t nominate you, you don’t get it, right? So, again, now I know enough people so they
nominate me for things. And again, I like, because again the more visibility we get, the more we’re
telling the younger women, say you have space here and just, you know, and you have the right to be
here. There’s nothing that prevents you from being here and getting all this kind of awards. Still a long, still a long battle.

Yost: Can you tell me about your recent research? I understand one area is MiNERS, the Minnesota Emergency Response Squad, doing work with distributed robotics. Can you talk about the areas you’re interested in now and have been in the past decade?

Gini: So, again, I’ve done different projects, some projects die for a while and then they come back, so I am kind of interested in general emergency response and this in part is because there is a competition which is part of Robo Cup which is an international competition, robot playing soccer, and there is a competition which is a search and research competition, and is a software competition. So, initially when I started looking this, it looked good because it’s just software, you don’t need to build the robots and go there and play soccer. And I found it very interesting. The software—so I had students working on the project. Often things start with students want to do an independent study or so I suggest something then it looks interesting, then I’ll keep people going and other things. So started that way and so we started really taking software and writing agents, and the nice thing about the competition, you don’t need to compete, just learn the software yourself. But because it is a competition, you can compare your solution with the winners, right? After the competition, they post the scores for the winners, and so you say, “Oh, in this city 70 people were killed but in this other, the winner, only 50 killed,” right? So, it gives you a benchmark, which I find very, very important when you have to compare. Again, we started doing that informally and have done a number of papers. And then one of my students for his PhD, again, it was kind of started with this competition, look at what happens when, again, this in the competition was also real life, and you have a fire. So, at the competition there are fire trucks, and you have to try extinguish the fire when you find it. And the way it’s done, the fire kind of grows almost exponentially so really have to find a way of attacking early, which is true also in real life.
So, he came up with the idea of trying to kind of model tasks in which the cost of the task grows over time. Task and task allocation are very central to computer science and in many different applications we do for robotics. And in this case, you have your agents, which are fire trucks and ambulances and so on, you have to give them tasks to do and so the choice that they make affects the outcome. So again, he started working on this, and I say, “Well, in general we assume a task have a fixed cost. Don’t know if it takes, you know, five units to get to a place, which five units?” But the task there is to extinguish the fire, which of course grows with time and now have to come up with a very different set of strategies to figure out where is the best place to deploy your resources so that you avoid this exponential growth.

Again, this was for his PhD thesis, wrote some papers and he’s also teaching faculty in our department, James Parker. So that’s again, started with him. We haven’t done much more in that area because they change the—the problem with the software we get from this competition keeps on changing and at some point, it may be a radical change in software so every time it takes quite a bit of time just to get back up to speed, and so I didn’t think there was much real interest in there, so didn’t really follow the line of research. Kind of ran out of research I work on for a long time, and I’m not doing anything right now but still interested in task allocation for robots. Again, I worked on this for many years, and what we are specializing in, we started bringing up the issue when you allocate tasks. In general, task location is done in computer science labs as a graph matching problem. You have agents, you have task and you some other function of who does what. But we started this and well, suppose that the task have a time window component because either you have to go to the library after 4’o clock, between four and five, or whatever, or they will suppress the constraints, like I have to go to a library, pick up a book and then I can go and make copies, right, so it’s not—so there are different kind of constraints. Really focus—even those constraints, how can we do this task location in a distributed way. And so we came up with a different way to do actions, which is, again, one of the many methods used but again, focusing on this specific properties of this tasks [1.15.40] And the last thing we’ve done, and this is something I’d like to
continue but I’m waiting to get the right students, because I don’t tell the student, “You do this,” right? I try to see what they want to do and that kind of thing. So, the part that I’m having still a lot of work to do is what happens when something goes wrong, right? Think that you are a manager and you want to allocate a different kind of task to different people, you do this, you do that, and you do this like a day in advance and then, the day the—the moment of execution comes and something goes wrong, I’m always interested in what happens, what is the error, right? Something goes wrong and then what happens. Can you fix the existing plan? Again, maybe, I say, “Oh, again, maybe I had an extra hour for lunch and running late, I’m using my lunch time to finish the task.” Sometimes locally you can fix it. Sometimes you can find another agent that can take care of the job. Maybe another is close by. Sometimes you cannot. So again, I am very interested in looking at the problem from a different point of view, the mechanism, how do you do these things, and that’s something we haven’t really done. We have some ideas of what to do. Again, I’m kind of waiting for maybe the right student to continue because I’m really interested in this kind of—I think task location is so essentially in many, many different things. Again, you can look at tasks in that sense and try to have resources and needs and how do you connect them. So, I kind of find this area—big interest of mine. Again, I hope to get back in and do more work.

Yost: In recent years, in society, there’s been increasing concern about certain applications of artificial intelligence. I’m wondering if ethics is a growing part of the curriculum with regard to educating students with AI.

Gini: Yes, I mean, it should be. It’s not become a big part of—one thing that, in general I teach in an undergraduate AI class. It’s a popular class, we teach each twice each semester. So, lots of students take the class. So, in a class there, I started bringing in some of those topics—they’re not really covered in the textbook, the textbook is a few years old. Ten years old. It doesn’t cover it. The class is a writing-intensive class, you know, they do one of those writing intensive classes because I really like getting the
student to write. I think writing is so essential. So, I gave the students a paper on ethics of AI, which I got from Ben [Kuipers] who is a faculty at Michigan. I was giving a talk at Michigan earlier in January to the women group and to the department. I talked with Ben Kuipers and asked him about papers on AI ethics, and he said “Oh, I just wrote this article for this encyclopedia.” And I say, “Can I have a copy of it?” And, you know, of course, it was just right—not too long, but very interesting, looking at different situations. I gave the paper to the students in the undergraduate AI class. Say, “Read this and write your comments.” And many students told me they really liked it, right? Again, it talks about ethics but not in a very abstract sense in those specific situations. So, I’m looking at trying to do more, and we’ve been talking—we have been doing a class which is ethics in computing, but I like to merge things together like, I don’t like a writing class. I think you should write as you go on a topic, right? So, I think we should do ethics as you learn the topics. So, I’m planning on trying to add some more to the class when I teach it again in spring. And I know other faculty have been talking about. I know that Barbara Gross at Harvard has been working with other people on developing small models in ethics that can be imbedded in different classes. So, I need to find a little bit of time and go and see what they have done. Other faculty are interested but kind of need, you know, little, some examples on the time and energy because, you know, you do one thing, you can’t do something else. But it’s more a topic of discussion, and I think in fact it should be a topic of discussion because I don’t think it’s just for AI, it’s more in general. But AI maybe is a place where it seems to be more obvious, easier to bring the issues because people kind of want this. Hoping again we do more. And that, I don’t know, honestly, I don’t know if there’s any useful classes, maybe philosophy? I mean, I haven’t really had time to look into if there are any other class in other departments are really addressing some of those issues maybe from a different point of view because, you know, after all, we’re not experts in ethics so, I mean, you know, kind of see the ethical problems that come in the AI community. But I think, again, it would be valuable maybe to
do something more. So, it’s one of the things that I think the department, is long list of thing we’d like to do whenever we have somebody who’s willing to work on it, and I think ethics is an important one.

Yost: In History of Science, Technology and Medicine, we have a science and engineering ethics course.

Gini: Oh! Ok. I should look into it. Maybe I’ll—is it 5011 or a 4000, which? I can look online.

Yost: I don’t remember.

Gini: No, no. I should look online. Again, we talked a few times but nobody is kind of in charge of looking into, and if there is a class already offered, I always encourage the students to take classes from people in different disciplines because I think you really get a much better perspective, right? Like it’s not the computer science perspective of things but it’s someone else who looks at the same problem. So, there’s class—I’ll take a look at it. If it’s a good class, we can kind of include it in some list of recommended courses for the undergrads. Yes, that’s excellent. I really didn’t think about it. I was thinking about philosophy because that’s what you expect. Ok, yes.

Yost: And actually our Institute, the Charles Babbage Institute, I’m co-leading a symposium that’s now going to be on-line instead of a physical symposium in the fall. It’s called Just Code, as in Justice, and Power, Inequality and the Political Economy of IT, and we have a number of really interesting papers on gender, on race, HCI, disability and computing.

Gini: When is this symposium?

Yost: It is October 23 and 24, and I’ll send you information on it.

Gini: I’d like to share with faculty.
Yost: And Mats, generously, one of our department sponsors, co-sponsors, is computer science and engineering.

Gini: I mean, I kind of like again, I can mention to students and, you know, mention it to the faculty of the department because when there is something that is accessible and is already put together, we just have to sit there and listen. I know, I have a chance to learn something, I really value that. [1.23.07] Oh, excellent. I didn’t know. There are so many things. I mean a good part of the U, there’s a lot going on but sometimes hard to keep up.

Yost: Yes. I’ve talking to a number of people in both computer science and EC over the years that don’t realize that the most extensive archive in the world to study computing is our institute here at Minnesota.

Gini: Yes, I’ve kind of known, known—after Arthur Norberg, I mean, he was kind of part of the department a long time, and in fact I think the search for the previous director, I was on the search committee.

Yost: Right.

Gini: I kind of know the Babbage Institute. At least I know you exist and are central place so if I ever have a question, I know where to go. I didn’t think about it. I mean, I’m thinking more history of computing, right?

Yost: Right.

Gini: You also see these newer, kind of, topics. But, yeah. Excellent.
Yost: The University of Minnesota is so big. There’s over 200 centers.

Gini: Right. Faculty, you know, we think—

Yost: Are there topics I haven’t brought up that you’d like to discuss, either research topics or other topics that you’d like to talk about before we conclude?

Gini: No, I mean, I don’t really want to address but I imagine you know there was a kind of bad period in the history of the department.

Yost: Yes.

Gini: Right. Again, I don’t really want to necessarily to bring it up but I just kind of want to, try to figure out whether it’s intentional you didn’t want to touch because I think it’s better not to touch it, personally. I mean, whatever, right? I just—

Yost: Yes. I—in doing these for computer science and engineering, I talked to Mats a little bit about that and I want to just kind of open things up with broad questions with regard to management and leadership of the department and lessons learned but leave it up to the interviewees, whether they want to talk about and discuss.

Gini: Yes. The reason I think I would prefer not to talk about it because lots of departments had problems, you know, everywhere, and I think it was a problem because it came out so much in the newspapers and so it was very public and it really ruined the reputation of the department for a long time. So I would prefer to leave it out. I tend to be always, talk about more positive stuff. I don’t really want to talk about negative things, and again, I think the rank, the reputation of the department’s been
really hurt because some of those things stick around forever and so prefer not to reopen a can of worms but again, I want to make sure this is an intentional decision that I’m not talking about. I think the department has changed a lot, has grown a lot, and has a lot of positive stuff and I like to talk about some positive things rather than, you know, old past.

Yost: Yes, it’s fascinating all the different areas of research that are being done and so many terrific faculty in your department.

Gini: I don’t know exactly how it happened. But I think, I know, it’s still very unusual compared to many departments, we are very friendly to each other. We’re very collegial and very friendly, and that’s not the case in many other places. And you know, when we interview junior faculty we always tell them how friendly we are and then people tell us the same thing, and I don’t know if it’s somehow a natural reaction to say, no, let’s fix things. I know Vipin Kumar has done a lot to things to really grow the department. When I was working with him, I have a great respect for him and I think you know him,— Vipin, from what I recall, has started every faculty meeting announcing awards or other things that people received and sending an email of congratulations. Somebody gets an award, he messages everybody, sends an email of congratulations, right? It didn’t used to be like that. Not that every department is like that. Sometimes you might say, “Huh, why you got this award, I should’ve have gotten it,” right? It’s this sense—and having it, again, explicitly supporting each other and congratulating each other really contributes a lot to a positive environment, and again, I remember Vipin started doing it. I don’t remember if it was done before. Maybe, again, I didn’t—but now I know because many other groups which I’m a part of, anytime I see that somebody got an award, I immediately send to the group an email if I know the person, of course, right? I say, “Great, you got this award.” It’s just again, supporting each other and saying I’m happy your work was recognized, as opposed to saying, “Hmm, I should get the same thing,” right? And it’s a very different kind of climate.
Yost: Yeah, it seems really important to build community and a good environment that people feel comfortable and can achieve at a high level.

Gini: Right, right. Absolutely.

Yost: Ok. Well, thank you so much for taking the time this afternoon and the process is I’ll give the video to the department, and then we’ve long had an oral history program at the Babbage Institute so, with the audio, it will be transcribed and then I’ll send a draft of the transcription to you to edit however you want, and then that becomes part of the Babbage Institute Oral History collection, the PDF of the transcript.

Gini: Ok. It was a fun interview. I’m learning a lot of things. I mean, I was really impressed.

Yost: Well, it was very interesting to interview you. I’ve done several projects on history of gender and computing and so that topic is especially interesting to me and also my predecessor, Tom Misa, that’s a primary area of his research.

Gini: Right, right. I remember him.

Yost: So, it’s an important area to us at the Babbage institute, and so I found this really fascinating interview, and I thank you for your time.

Gini: Sure. Yes, thanks. Thanks for taking the time.

Yost: Bye Maria.

Gini: Bye.