Anna Doel: Today is April 18th, 2023, and I, Anna Doel, am talking with Kathleen McKeown at Columbia University, New York. Kathy, what is your current academic position?

Kathleen McKeown: Currently, I am the Henry and Gertrude Rothschild Professor of Computer Science.

Anna Doel: How would you define the discipline and the subfield that you work in?

Kathleen McKeown: The general field that I work in is computer science and my area of specialty is called natural language processing. And very generally, this is the field of enabling computers to both understand and produce language.

Anna Doel: When were you born?

Kathleen McKeown: I was born in 1954.

Anna Doel: Where did you grow up?

Kathleen McKeown: And I grew up on Long Island. We lived in Brookhaven, which is on the South Shore by the ocean.

Anna Doel: Could you tell me a little bit about your parents?

Kathleen McKeown: My parents were both scientists. They worked at Brookhaven National Lab in physics. My father was more in physics, and my mother was more in applied math. She started out in physics, but then began doing essentially programming for physicists.

Anna Doel: Do you have any siblings?

Kathleen McKeown: I do. I have three sisters, so I'm the oldest of four girls.

Anna Doel: Did your family belong to any religious congregation?

Kathleen McKeown: Yeah, my mother was fairly religious, and we went to the Bellport Methodist United Church. My father was not. So my mother took the four of us to church, and that was something my father didn't participate in, but we celebrated all the holidays.

Anna Doel: What are your most fun, enjoyable memories from your childhood?

Kathleen McKeown: Probably sailing. We had a boat, and every weekend we went out sailing. Well, where we lived, we were on a bay and Fire Island was across the bay, and the only way to get to Fire Island, which was where the ocean beach was, was to sail. So we would, every weekend on Saturday and Sunday, we would sail to the beach in the summer, of course, and we would often take longer trips out to the eastern end of the Long Island, like three weeks at a time with all six of us crammed on the boat. So yeah, that was a fun experience. And I also have memories of skiing. We skied as a family also, and I guess I started that a little bit later. I was in junior high when we started that.

Anna Doel: Has either of these two childhood pastimes survived up to now?

Kathleen McKeown: Yes. My husband and I are really into sailing, and this was how we met. Our first date was sailing. My husband asked if I would like to go sailing on a Hobie Cat and I was, like, "Yes, I definitely would like to go." And we sail now, we have a good-sized boat and we take long trips. So for example, for the last several summers, we've been sailing from the end of Long Island up to Maine and back. And my sister and her husband also sail. In fact, they sailed across the ocean a while ago, and as they're both retired, they go every summer for three or four months, and sometimes we meet, and we will go together.

Anna Doel: What kind of schools did you go to?

Kathleen McKeown: I went to the public schools. The elementary school was relatively small. We had one class per grade of about 30 students, and those were from the local village of Brookhaven. And then for high school, well, I guess junior high too, they brought together three surrounding neighborhoods. So that was Brookhaven, Bellport, East Patchogue, and North Bellport. So yeah, it was an interesting mix of people when I was in high school. A lot of my friend's parents worked at the lab. I thought everybody's parents were scientists until I got to college, and I found out, no, that was not true. There was the group of people like that. And then we had people across the political spectrum. We had students who were more liberal, students who were more conservative. And the North Bellport population was primarily Black. It was a fairly integrated school, and I don't think at any point later in my life was I in an environment that was as integrated as high school.

Anna Doel: Back in grade school. What did you enjoy most in terms of disciplines, classes?

Kathleen McKeown: Well, I always enjoyed reading. I read a lot and I think I pretty much always enjoyed math through grade school, as well as later.

Anna Doel: What did you read? What kind of books did you read?

Kathleen McKeown: When I was in elementary school?

Anna Doel: Yes. Why not?

Kathleen McKeown: Okay, that's a long time ago. Let's see, some of them I remember because I keep them, read them to my kids.

Anna Doel: Which ones?

Kathleen McKeown: Let's see, we did read Mrs. Piggle-Wiggle, all of the Mrs. Piggle-Wiggle books, Winnie-the-Pooh, and my favorite one, let's see if I can remember this one. I may have to come back to it, it's in my head.

Anna Doel: It might pop back in.

Kathleen McKeown: But I'm blocking it. I did read books as I got a little older, like *The Secret Garden*, Agatha Christie, like *A Girl of the Limberlost*, I think. Oh, and I used to for a while I would pick out all the ones in the library, which had the American women of different points in time, either president's wives, or president's daughters, or women who were influential in some way. And I liked that series. The Phantom Toll Booth is the one I was trying to remember. That definitely is one of my favorite.

Anna Doel: Where did you get your books from?

Kathleen McKeown: We went to the library. We had a local library which was within walking distance. So it was maybe a three room house, and it was like a house, a New England-style house, and it was a very pleasant place to go and sit and read, browse through the books. It was a place I was really comfortable being.

Anna Doel: Would you go to the library on your own? Or as a family?

Kathleen McKeown: We started out going with the family, but later I would go on my own.

Anna Doel: How old were you when you started going on your own?

Kathleen McKeown: Probably in elementary school, maybe even third grade. We walked to school by ourselves. I think about how different that is today. But even in elementary school we walked by ourselves

Anna Doel: By high school, did you know what you wanted to do after you graduated?

Kathleen McKeown: After I graduated high school?

Anna Doel: Yeah.

Kathleen McKeown: I knew I wanted to go to college. I knew that. Did I know more? I thought I wanted to major in math, and I remember being very angry at our math teacher because, so we had a class that was nine students, seven girls and two boys, and he would say to the boys, "Who wants to major in math?" I felt very left out of that conversation. The assumption was no. And I remember also with the same teacher, I had applied to National Science Foundation summer programs in math to go at the end of my junior year, and again talking to him, he told me he didn't think I would get in, so I also was very angry at him about that. I did, I got into every one. So yeah.

Anna Doel: Could you tell me a little bit more about the NSF program?

Kathleen McKeown: The summer school? Yeah. I ended up going to Rutgers University, and I think it was a six-week program in math. Not going to remember exactly what we studied. I remember, I think we did more with algebra, which I really liked. That was one of the things, and we did much more than we had done in high school. I remember it as being interesting, and more challenging than at home. But I also remember a lot of the social aspects up about it. I had a roommate, and we lived in a dorm. And I remember it was the first time I was really independent, walking around town and having to plan, do things on our own, and that made a big impression on me.

Anna Doel: Of course. Were the majority of summer school students young men?

Kathleen McKeown: No.

Anna Doel: What was the ratio?

Kathleen McKeown: I think it was pretty mixed. I had a number of female friends there, so I'm going to say I didn't notice it being any different, but I'm going to guess it was about 50/50.

Anna Doel: Do you remember the diversity situation in the summer school? Just curious.

Kathleen McKeown: I am guessing it was predominantly white. I do not remember that it was integrated.

Anna Doel: Yeah, just interested. Was there an expectation in your family that all the kids would go to college?

Kathleen McKeown: Yes, and actually, I want to say here because I didn't say as much when you asked about my parents before, and I want to say here a little bit more.

So my mother was probably a little more dominant than my father, and my father was very quiet, but actually he often took care of us, because my mother was busy with a million ... She belonged to every possible organization you can think of. She was often at night out at the League of Women Voters, or the conservation group, or something like this. But my mother was a real role model for me. She was a very strong, very determined woman, very determined at work, very determined to do things the best that she could. She never took no for an answer. She was going to go ahead. And I think it was more her than my father who set the expectations about that we would be going to college. There was never any assumption. I mean it wasn't even like it was a question, it was just, "This is what was going to happen."

Anna Doel: What was your parents' background? Where did they come from?

Kathleen McKeown: My mother grew up in Philadelphia. Her family was probably relatively well-off. I mean, this is during the depression when they grew up, and her father was a businessman. I think her mother worked too, and they were the kind of family they could trace their history back to when they first came to America. I'm not sure exactly when it was, but very much in the beginning of America. My father's family was pretty poor, and he was the oldest of six children, and his father left the family when he was 18, and his mother told him that he would have to quit high school, and he was now the breadwinner for the family.

He had to delay high school and then later college for high school, he went to a technical high school. He was definitely what you would call nerdy, sorry Dad, but he was definitely into science from the beginning, and he got into ham radios, that was his hobby. Later he went to college at the University of Michigan with his brothers, and because of their living situation, they couldn't go away to school. And the three of them would drive every day in their car together, which was a two-hour ride to get there, and then two hours back at the end of the day. And he did not make it all the way through college at that point. So he could continue later.

Anna Doel: Were you closer to one of your parents more than the other?

Kathleen McKeown: Yeah, I was definitely closer to my mother, just because she's very outgoing. She was very involved in caring for us. She did a lot of activities with us. She did work from the beginning, and she always told the story that when they first had me, my father expected her to stop working, and she said, "That was the one time I almost left your father." So she worked part-time through us growing up. So she was around a little more, but my father was very caring, and he was just quieter. And I thought more when my kids were older, were born, and he would come over sometimes when

my mother couldn't to be around, and he was a very easy person to have around.

Anna Doel: You mentioned that your mother did lots of activities with you. What did you do together?

Kathleen McKeown: Well, she took us skiing, so she was more in charge of that. My father was the sailor. So he took us sailing, but she took us skiing, and that was four kids, and sometimes the neighbor's kids, who she would bring and have to put on all the boots and skis, and pack us up. Let's see, she took us hiking. I was not with her when she did, she later did the Girl Scouts, led the Girl Scouts. She was very involved in the Sunday school. So these were all times when we would see her. We went out ice skating. She would take us ice skating on the bay, which froze at that point in time. It was really a very big skating activity. She took us swimming, made sure we had swimming lessons, took us to the lab pool, we would go there to swim.

Anna Doel: Did you have friends in high school?

Kathleen McKeown: Yes, I did. Thank goodness. I had had one very good friend growing up, who lived right next door to me. Her name was Louisa Floyd, and I'm still very friendly with her today. We kind of drifted apart in high school, and at that point I had two, well, I had actually a number of friends in our small town, Brookhaven. I was closer to people there than in the other towns. But yeah, I had two very close friends from Brookhaven, and then I had a bunch of other friends who we did a lot with, and then I became close with somebody from one of the other towns, who played the violin and I played the violin. So we had a number of activities together, because of that.

Anna Doel: What made you decide on Brown for college?

Kathleen McKeown: Well, we went on a tour of different colleges, and at Brown I just really clicked with the interviewer. So the interviewer was very interested, because I had taken that year a Black History class, and me and one of my friends, close friends from Brookhaven, we were the only two white people in the class. So she had seen that I took it on the transcript, and she asked about it, and we had a whole conversation about that. And she was very interested in that. So it was one of those really nice conversations. So it convinced me that this was going to be a nice place to go. But I also liked the fact that it did not have requirements, and I could make my own program. I liked the idea of having some flexibility in what I took, and I liked the campus. It wasn't too city-like, but it was nice.

Anna Doel: Could you tell me a little bit more about Brown? Did you end up majoring in what you thought you were majoring when you started school?

Kathleen McKeown: No, I didn't. When I started I thought I would major in math, and I also like literature. So the two things I liked when I was younger, and I was taking literature classes. And I actually became quite undecided between the two. Math was a little bit of a surprise in college compared to high school, because it was, well, to give an idea, my first class that I took there, it was an honors class, but it was hard, and it was a relatively small class, but it was very hard. And from the grades I got, I thought, "I'm failing." I thought, "This will be the first class I ever failed. I'm not successful." But then I got an A.

What I saw was the grading was so different, it was very hard, and the grading was curved. This was a surprise, but was, I guess, part of my feeling of why I didn't continue in it. But I did take math all the way through. I guess at some point, I decided on literature, because I had a part-time job with my roommate. We shared it. It was very part-time and we cleaned house for one of the professors, and he was in comparative literature. And when he heard I was interested in literature, he took a lot of time to talk with me about the program, and how interesting it was, and which classes I should take. It was really having a mentor in that area. He ended up being my advisor when I went through, and I would credit it to him that I decided on comparative literature. That was my major, comparative literature. I did not get into computer science until the end of my time at Brown.

Anna Doel: What was college life like, socially, for you?

Kathleen McKeown: Well, my first year I did not like living in the dorm, neither did my roommate. We felt somewhat isolated, and then we moved into, Brown had these co-ops, which were houses, and so I moved into one of these. There were 17 of us living together. They were run by the students. We did our own cooking. I felt it was more like being in a family, so that was for me socially how I spent most of my time, was with that group of 17.

Anna Doel: Was there any need for a car for a Brown student?

Kathleen McKeown: No, you could walk around.

Anna Doel: Did you have a car to get around?

Kathleen McKeown: We did eventually get a car, which actually we got from my family. My family sold them, the co-op, their truck for a very reduced price, because we needed to shop, do food shopping. And so we used that for food shopping.

Anna Doel: So by the time you graduated college, did you know what to do next?

Kathleen McKeown: I began taking computer science in my junior year at college, and mainly I began taking it, because there were some other friends of mine, who lived in the co-op, who were taking it and loved it. They were majoring in it. So I was convinced by them that I should try it, and I guess I got into it somewhat gradually. I think I took one class my junior year, and maybe two classes my senior year. I'm not quite sure. I don't remember. And I did enjoy it. Then I wasn't prepared to go to graduate school, and I was going to work, and I began working as a programmer.

It was then that I met, also, someone that influenced me, I lived with people who had graduated from Brown. We lived together, and there was another friend who told me about computational linguistics. They had that program at Brown, and he had been in it from the linguistics side. And he told me about this, and I thought this sounded really intriguing. I hadn't heard of it before. So I spent a lot of time reading, I did not love my job, my job was somewhat boring. It felt very repetitive. And one of the other students, graduated students who I was living with, was in graduate school. And he said, "No, you should not be doing that job. You should go to graduate school." And it took some convincing that I could do it.

Yeah, so I did apply that fall. I spent a lot of time reading. I went to the Brown Library, I was looking at books there. I knew that this was what I wanted to do, and I felt it brought together my interest in language and math and computer science. I only applied to a few schools, and I got into University of Pennsylvania, which at the time was the best school for natural language processing, just by chance I applied there. I didn't know, but at the time, it was the best school in the field of natural language processing, and I worked with Aravind Joshi who was my advisor. Yeah, so that was how I got into what I do now.

Anna Doel: What was the other school you applied to?

Kathleen McKeown: The other school was University of Illinois at Chicago, and there was a woman there who did natural language processing. I thought, "I would want to be in either one of those locations," and that's how I chose where I would apply.

Anna Doel: Forgive my ignorance. I want to ask a question about technology. When you were taking classes in computer science, and then later when you were working as a programmer, what kind of access did you have to computers, and what kind of computers were they?

Kathleen McKeown: This was before the age of the PC. I think they were called PDP 10s or PDP 8s. It was that time. They were centrally located. So at Brown there was a computer center. You had to do all your work for programming at the computer center. You could plan it out at home. You could plan what

your program was like at home and design it. But when you were ready to actually work on it, you had to go into the computer center, and we programmed on cards. So there were punch cards, and we had huge decks of punch cards. I remember, I had a huge box of these punch cards, which were in order of how, each card was a step in the program. So you did not want to drop that box on your way home from school.

And at Penn when I first went there, I think initially we were working with, that was the time of the VAX came in play. And began to be, although I did not have access to this, the symbolic list machines came in at that point in time. And at Penn we were not working on cards anymore, I think. Maybe the first year, but we were not working on with cards. And this was the first time, at some point through my time at Penn, I could have a terminal, which I brought at home. Everything, we dialed in through a modem. So it was by phone. And your program was now printed out on paper.

Anna Doel: Can you tell me a little bit about your Master's and PhD programs at Penn? How did that go? I know you went through it really fast.

Kathleen McKeown: Didn't feel really fast. So when I started, I mean I was going in to work with Aravind Joshi, and I started with a small group of people who were also working with him. I had a lot of fear that I was not going to do well, because I did not come with a computer science undergraduate. I would say that was a little bit the way I felt when I started at Brown, that perhaps I wasn't as well-prepared as everybody else. So in both places I worked really hard, because I was sure that I was not as good as everybody else, though I worked very hard.

But I felt, I liked the professors. I had a few good professors for my introductory class, and for a database class. I felt like it was an environment where you could get to know people a little bit better. I had those, there were some classes I did not like, they were taught by older people, who I felt were kind of out of touch--in architecture, or operating systems. These were areas I did not like as much, but I did it. And we had to, being with this small group, we had the focus on research. We met regularly with my advisor, one of the PhD students, senior PhD students, took us five who came in, under his wing. And we were working together on a project that he was leading. So we felt like we were part of something really exciting. We all had a role on it. So I felt Penn felt like a good place to me. People were friendly. And because of that research group, I got close to people I worked with. Yeah.

Anna Doel: Did you take any language classes throughout undergraduate and graduate school?

Kathleen McKeown:	As an undergraduate, yes. I took French, and I took that pretty much all the way through. As a graduate student, no, but I did take linguistics, and I took linguistics with Ivan Sag, who was I think quite well known in linguistics at that time. He then moved to Stanford, and I also really enjoyed that class. We had a smaller class. It was a very interdisciplinary program. So I got to know a few of the people in linguistics, Ivan Sag and Ellen Prince. I think I took one of her classes, and we worked on pragmatics.
	So this was really interesting to me about what kinds of syntactic constructions people use to emphasize what they were talking about, she worked on what was called the Given-New distinction. And I began taking some of these theories, and using them in my approach to programming. I like that Penn had a cognitive science program that my advisor was very involved with. So we regularly had meetings between people in computer science, linguistics, philosophy, and psychology. And I can remember that the faculty very clearly, so Ellen Prince, Ivan Sag from linguistics, Scott Weinstein from philosophy, Lila Gleitman from psychology, and there were others too, but these are the ones I really remember, yeah.
Anna Doel:	Thinking about the very beginning of your career, from your vitae, it looks like you were hired fresh from graduate school into Columbia?
Kathleen McKeown:	Yes, I was.
Anna Doel:	Was it easy to find a job?
Kathleen McKeown:	It wasn't hard. I did get multiple job offers. I was looking, my husband had to, wanted to stay in Philadelphia when he finished. He hadn't finished his degree yet, and he was working as well. So I was looking in a pretty constrained area. I didn't do across-the-country search. I looked in the northeast. And yeah, I did get multiple offers. I did not get NYU, which I wanted, because it felt like it would be more convenient. And it was a good school. And I was very divided when I got the offers between actually Bell Labs, which was not academia, and Columbia. That was a very hard decision for me, although I had always thought I would go into academia.
Anna Doel:	In which discipline was your husband working on a degree?
Kathleen McKeown:	He was in electrical engineering.
Anna Doel:	When did you meet, was it in graduate school?
Kathleen McKeown:	Yeah, we met in graduate school.

Anna Doel: And you got married, and you had two graduate students running parallel careers, trying to figure out how to have a family?

Kathleen McKeown: Yes, that's right.

Anna Doel: Did you have to commute?

Kathleen McKeown: Yes. It was a little while, we lived in Princeton so that he could go to Philadelphia. He had to drive, because it was on the outskirts, and I took the train to New York. Yeah, so it was a long commute, but there was a benefit, because it was a train ride, and I got a lot of reading done on the train ride. I used to go in pretty early, so I would get in not too late. I think it was also hard to get parking at the train station if you didn't get there early. And when we started in 1982, we had these different careers, and I had my first daughter in '85, and it was that point that I said, "I can't do this anymore, because children go to bed," and by the time I got home she would be in bed, so this just wasn't going to work. So we both looked for new jobs, and he ended up finding one up in northern New Jersey, and we moved up there. So then I still had to commute, but it was much better than going from Princeton.

Anna Doel: When you started your career, how much presence and visibility did women researchers have in your field?

Kathleen McKeown: Well, at Columbia, very little, I was the only female faculty in the School of Engineering. I was the only one in the Computer Science Department, but I was the only one in the School Of Engineering. There was an older woman who had been there on and off, but she wasn't there full-time. She went off to another job. So really when I went to faculty meetings, it was just me and a sea of 100 men.

Anna Doel: How did that feel?

Kathleen McKeown: Definitely felt, I felt it, and I felt out of place. I felt odd. And when I started, so the Computer Science Department was pretty small, when it was started. It was started by Joe Traub, and I think before I came there were maybe nine faculty. And the year I joined, it became 13, something like that. Maybe eight. And there were five who were hired the year I joined. It was relatively small, and they had just started the department maybe the year or two before that. And they were building a building, and it wasn't done yet. My office and a couple, maybe one other new person that year, we had it in Electrical Engineering, which I would say was even worse than Computer Science in terms of the men – they were older. I did not feel they were friendly. I mean, I was not in my department. The men in my department were great. They were friendly, and that was fine. But yeah.

Anna Doel:	What helped you counter-balance this inequity?
Kathleen McKeown:	Well, that's a good question. We did hire a woman, I think by 1985, Gail Kaiser. And that helped a lot. Just having one other woman in the room, I felt, helped. I mean, the group of men I was with were all good and well-intentioned and so forth. But you still had things like jokes, which when there was another woman in the room, there were less jokes. I guess also, you focused on getting things done. I mean, I have the same feeling when I came to Columbia that I had when I went to Penn, that I had when I went to Brown, which was, "They must have made a mistake hiring me and I really am going to have to work hard to show them that they did not." So yeah, I was very focused on the work, and working really hard, and I think that kept me going. And I had an outside life, so friends and things like that.
Anna Doel:	What was the state of the field when you started your career? What was the situation in the field?
Kathleen McKeown:	Well, it had been around for a while, so I don't want to say it was very young. But I think even back in the 1960s, there was work. My advisor was older, so he had been working in it for a while. But it was a small field. There was a lot of focus then on, it was a little more interdisciplinary, more linguistics at that point. Now I would say our field has much less linguistics. So there was a lot of focus on taking theories from other fields, and implementing them in our field, seeing how we could implement them, and whether one theory would improve how we could have the computer communicate, or not. It was small.
	At my first conference, which was in 1977, maybe 1979, there were about a 100 people attending. So we all fit in one room. All sessions were all day with everybody. You really got to know everybody. It was definitely a community. There was somebody who had been secretary treasurer of the main organization, which was called the ACL, the Association for Computational Linguistics. He was very an inclusive person, reaching out to young people who came in. So I felt I had joined a community. And perhaps that counterbalanced, because there were women, there were more women always in the field of computational linguistics, or natural language processing.
Anna Doel:	What were some of the research questions that you were asking early on? Was there any concepts that you wanted to explore or challenge?
Kathleen McKeown:	I was interested, I took on the problem of generation of natural language, as opposed to understanding. In the first work that I did as my Masters, this was where I used theories from Ellen Prince on Given-New for looking at how to generate paraphrases of questions that people posed to a

database system. Our team, this team that I was part of, was working on cooperative interfaces in natural language to database systems. And for my thesis, I began working on text generation. So generating responses that required long answers in response, like paragraphs. So more open-ended questions as opposed to questions that were just factual.

And I was very interested in the form of the language that I was generating. So both with the paraphrase, and with the text. So I was looking at discourse structure and how that played a role. And again, how focus played a role in what you talked about as the texts progressed. I have stayed within that field all the way through. So my expertise is definitely more in generation, and I moved a little bit into summarization. But that's also generation of text, but not from data, from text, text to text. Text as input and a paragraph text as output.

Anna Doel: Could you give an example of summarization that you would use?

Kathleen McKeown: Yeah. Well when I first began the work on summarization here at Columbia, we were looking at summarization of an event in the news. So we took multiple news articles as an input on this event, and then we generated a paragraph which would highlight the most salient things which had happened. And this was about the same time as Google News came out, but we launched a platform called News Blaster where, and I was trying to do, it was right around the time, 2001, when we had the World Trade Center bombing. And we said, "This is going to be in the news. We have to get this, our platform up and running. We'll have stories on the same event over multiple days in time. Those stories are going to evolve." We did a platform, where we had an online version of this system, which we call NewsBlaster, which could track events over time. In general, my approach to many of these things, and all the way through, is I like to go in a different direction from how other people are going.

When I did the work on text generation for my PhD, that was not something... People were doing interfaces to databases, but they were generally short answer responses. So this work on long answer was new, and people hadn't done it. And I liked that feeling of getting there first, and getting a solution out. And so the same with the summarization. We were, at the point in time when I began working on that, I felt like the field is ready. No one had done work on summarization, but we're at a point in time where we have enough success in interpretation and generation that we can do it. We can put these things together. And I felt that it was my first grant proposal on that to NSF was turned down, and they said, "This is too ambitious." And I said, I had a graduate student who came in then, and we were both very intense, and very focused. Like, "This is what we want to show, that now is the time we can do this." And we did. So I think that was some of the earliest work on summarization in the field.

Anna Doel:	Your research lies at an intersection of several fields. I was wondering if you could talk more about the interdisciplinarity of what you do, and if you were to describe a pie chart, which disciplines would go in it?
Kathleen McKeown:	How my work is interdisciplinary changes over time. In the beginning, really, I drew a lot on linguistics, philosophy, and psychology, more this field of pragmatics. If I drew a pie chart, I would say computer science was half to maybe two thirds, and then there would be, linguistics was maybe the next largest one. And then psychology and philosophy, smaller slices in there. As I've gone on, I've done a lot of work with, I like working on applications, and often those applications are with people from different fields. So I've spent a period of my life working with people from the medical school, where we developed applications on medical areas. And then we had some pretty big teams where maybe half of the people were from the medical domain, and the rest of us were from computer science.
	We had two projects in that time. One was on generating descriptions of patients right after they had go undergone a bypass operation. And we were taking the data that was gathered during the operation, and generating multimedia explanations, which could go to the caregivers, so they could prepare. Then later I worked on a medical digital library, where we were doing personalized search and summarization over medical literature. I've worked also with people in comparative literature. So that was a smaller project, but there again, it's half-and-half. Very recently I've worked with people in social work.
Anna Doel:	Does brain physiology feature in your research interests at all?
Kathleen McKeown:	It really hasn't. There is somebody at Columbia now who's working in that area, Computational Neuroscience. I've been hearing more about it, and it's possible that I could, would find a way to connect with those too. But so far, no.
Anna Doel:	Could you talk a little bit more about applications of your research?
Kathleen McKeown:	Yeah, so I like working on a program which, in the end, does something useful, often for different people. The summarization system, so when we had this News Blaster running, one of the things we were thinking about was during disasters, being able to provide updates as a disaster happened, and as it unfolded over time. So that people could hear about what had happened, what was the current status. So that would be one example, again, in the news domain, where we took news on disasters, and we looked at what had happened up to a certain point. And then we would take news articles of the next hour, for example, and generate, "What's new," what we hadn't reported on so far. So what had changed. In this

same space, I had a student working on summarizing personal narratives, and again, we were thinking of it in the realm of disaster, being able to get summaries of what people had experienced as they lived through a disaster.

Anna Doel: Do you have a definition of disaster for this project?

Kathleen McKeown: We were thinking more of weather kinds of disasters.

Anna Doel: Natural disasters?

Kathleen McKeown: Natural disasters like hurricanes or fires or tornadoes.

Anna Doel: Earthquakes?

Kathleen McKeown: Earthquakes, yes, but could be bombings also, could be terrorists.

Anna Doel: You did mention the World Trade Center?

Kathleen McKeown: Yeah, it could be terrorist events. That is one example of an application. Right now, an application that we're working on, and this is joint with a faculty member from Social Work that I've worked with, I don't know for five or more years now, and also a linguist, where we're looking at being able to detect emotions of distress that people have, and post about online. And to be able to detect what are the events that are causing them. We have an NSF grant on this, and we were thinking about the events of our time, so events like COVID, when we started, or police brutality. And we're looking at it particularly in Black communities. The idea for the application is that we might, through analysis of language, we might identify when somebody was writing about something where they were in such distress that they need some kind of intervention.

This is where social work would come in. And a lot of social workers apparently filter through a lot of this information online by hand. But there's so much, it can be hard to identify when there's a real problem, where you'd have to intervene. So our work looks at being able to identify cases that are problematic, and it would be helpful to have somebody talk to the people. Since we're working with the Black community, the linguists who we're working with is an expert in African-American language, and so we're looking at how to develop these tools that can work with African-American language.

Anna Doel: So what kind of identifiers of the stress are you looking for? Is it semantic markers, like specific words? Or something completely different?

Kathleen McKeown: Well, typically it would have to do with the words that are being used. But we don't look for individual words, as that is more the understanding of the whole post, an integral understanding of the post. So it may be the intensity of the words as a whole that are being used. We are looking to detect emotions that are expressed, anger, grief. Sadness.

Anna Doel: Would you describe that program as one of your projects for social good?

Kathleen McKeown: Yes, that's definitely one of our projects for social good.

Anna Doel: Could you say more about those projects and their significance in your professional life?

Kathleen McKeown: Let me back up a little bit, with the work on disaster, when we got into that, one of the reasons that I got into that, was that I think it was when Hurricane Sandy happened. And the students were affected. We had students who were in Brooklyn, students who had families on the Jersey Shore, they wanted to help. And in computer science, you don't usually think about helping. How can you help through your work? It's not a common thing. So we thought about what we could do to help, and this is another point in time when we began really working on the update summaries.

In the social work, to me, when I started the work with social work, I was looking at gang involved youth, and how they posted online, and when they posted about feelings of aggression, and when they posted about loss. And the idea, again, was intervention. How can we see what's going on and identify when there's a problem to intervene? His name is Desmond Patton, then when he first came and talked to me about this, it was a very interesting problem in many ways, because one, the language is very different. It's not just African American language, but it's very hyper-localized to the language of the gangs in that area.

So it was somewhat of a challenge to develop tools. I saw it as a real challenge, but it was also something that was designed to help the community through intervention and help. And it appeals to students, you get a lot ... We didn't have a grant at the beginning when we were working on that. We did all the work with undergraduates who were really interested in working on this problem. And Columbia has really good undergraduates, so they were really good, and we were able to make a huge amount of progress in that way. Now we've broadened to look at the Black community, for example, in Harlem, or on campus, a much broader group of people. And again, the feeling that people are experiencing problems to a greater degree in reaction to COVID. This is when we first started it, because of police brutality, and it is a way to help. And doing it

interdisciplinary, I could not do it on my own. So it's necessary really to do it with other people.

Anna Doel: What was the significance of the intersection of COVID and the George Floyd murder for this project?

Kathleen McKeown: Well, I think both of those were triggering events. They were things that happened in the world that were very difficult, and I think particularly difficult for people in the Black community, and things that, like when we were in our meetings, so this is one of the things I enjoy about social work, is the people in the Social Work School were very tuned in to how people were feeling in general, and how upsetting this was, and how difficult it was. And had ideas about what kinds of things could be done to help. In some ways it was the same, similar to when we launched News Blaster after the World Trade bombing. Something happened, and we knew we could react to it in a way that would be helpful.

Anna Doel: You mentioned student involvement in your projects, and I know your students come from all over the world. What is the place of teaching and advising in your professional life?

Kathleen McKeown: Oh, it's a major part of my life. It's definitely my favorite part about my job. I love working with the students. I love working with my PhD students, and I love involving undergraduates and masters. Undergraduates and masters, I often work with them, undergraduates in particular, to mentor them, how to help them with what they're doing on research in their independent projects. So they put themselves in a good position for applying for graduate school. And what do they need to do to be successful that way.

Anna Doel: What are your advising strategies?

Kathleen McKeown: Well, that's a tough question.

Anna Doel: How do you interact with your advisees?

Kathleen McKeown: I meet with them. My PhD students I meet with every week. Typically, I feel like it's a two-way involvement to get to the point where we know what their PhD dissertation is going to be on. Typically, when they start, I have some project that I want to involve them in. So initially I may give them something fairly concrete to work on, or guide them towards something fairly concrete. It often has to happen with one of our grants that we're working on. Then as we're working, I learn from them about what they like, what they're interested in, which parts of it are more appealing, and give them space to develop in the direction that they want to go in. So I feel like we start off a little more guided, and then end up

with a little bit more of their branching out and flowering on their own, how they want to go.

Anna Doel: Do you follow your students career trajectories? Do you know what happens after they graduate?

Kathleen McKeown: Oh yes, I definitely do. I stay in touch with many of them. I get them calling. A number of them, I will, if I'm in the area where they are, I will always stop in and see them. If we're at a conference together, I often will arrange like a Columbia dinner, where we all get together. I have my email mailing list of all of them, and I'll reach out for various things. And I do track them. They're amazing, I love to see what they've done and where they are. I have some pretty impressive graduate students.

Anna Doel: So where have they taken their degrees to? Do you have an example? What do people do?

Kathleen McKeown: Yeah. So some of them go into academia. So I have one PhD student who is a professor at MIT. She continued doing natural language, but then she switched, and she got breast cancer. And she looked at all the things that were not known in that field, even to the point of how do you find the journal articles that tell you about your disease? And so she switched, and she's been working in the field of cancer and has developed AI tools for analyzing mammograms. Yeah, so that would be one example.

I do look a lot at my students in academia since they're more like, it's closer to me. I had one student, I think I mentioned this, who recently died. This was unexpected. And he was a professor at Yale, and had just a huge number of honors. He was one, who when he came in, he and I worked very hard together on the summarization problem. I have, they're pretty much all over the world. I have another one in Hong Kong, and she recently met the Pope, because of her worth of work on ethics in AI. They were having some kind of small group discussion, and she got invited to go, and got to meet the Pope. Yeah, no, I have them everywhere. One in Australia who works at their National Research Institute. Then I have people in industry at Google, a number of people at Google, a few at Facebook.

Anna Doel: Adobe, I think there's somebody working at Adobe on the list? Possibly.

Kathleen McKeown: I think I have someone at Amazon. I don't think I have any at Adobe.

Anna Doel: I must have been mistaken. As a successful academic, you wear several hats and we've talked about your own research and teaching and advising. I also know that you were founding director of the Data Science Institute

here at Columbia, and you've held other leadership positions. Could you tell me more about them?

Kathleen McKeown: Yeah, I served as department chair late 1990s, early 2000s. The department was relatively small at that point, 32 faculty and I, oh no, let's see, started at 23 and I grew it to 32. It was real, it was a time of growth, which was nice. We did some work on strategic planning for where the department should go. So that was one which I started with. I got asked to be Vice Dean for research at some point after that. And it was during that role, that I helped in writing a proposal to the city for a Data Science Institute. This was at the time when New York, the New York mayor at that point in time, Bloomberg decided that there should be another engineering school in the city. And he opened up a call for bids for, they were going to provide funding for it, but there was some indication that they would also provide funding to schools that were here.

So I spearheaded that proposal out of Columbia for that, and we got it. So then I became the founding director. That was really interesting, because we had to grow something of nothing, figure out the structure, how to get people involved, what would the education look like, what areas of research did we want to include. It was also very interdisciplinary. So thinking of how we could reach out to different schools across campus and involve them. I think that was one of the appeals of Columbia's proposal, because we were proposing something that was centered in a whole school, could involve people from many different disciplines.

Anna Doel: You mentioned a commission, was it, for the status of women on the Columbia campus? I was wondering if you could talk about that?

Kathleen McKeown: Yeah, so that was early before I was department chair, but probably not a lot before. It was after I had my children, and the Commission on the Status of Women approached me and said they were working on a parental leave policy, and would I be interested in joining? I said, "Definitely yes, because there was no policy when I had my children," and there was no one in Engineering who had gone through this before me. I was definitely the most senior woman in Engineering. So it wasn't as if there was somebody who had had children who I could go and talk to about their experience.

Anna Doel: When you had your children, did you have no parental leave?

Kathleen McKeown: Well, the only leave that they had was a six-week disability, and I had my children in the summer, so I didn't even get that. I thought I was, well, you don't really plan. I thought I was planning well, and then found out... I felt, when you're in that situation, you feel like you have to continue working. I arranged a part-time situation with my department chair, only to find out

later that this part-time situation was something that in the Humanities, people did unofficially, without going part-time. At any rate, I was very pleased to join the Commission on the Status of Women. I then became chair of it. We worked for a period of three years, it was to try to get this parental leave policy through. We had great support staff, who knew what kinds of things you needed to do to convince the university to move. Things like comparison with your peers. And Harvard had just put in a parental workload relief. Getting a copy of theirs and circulating it. And then working with, we went to many senate meetings to convince people. In the beginning, there was a lot of animosity about the idea. A lot of pushback, different places said no. Then we got a new president, and we met with him, and he said, "Well, if you could get some schools to do it individually, that might be a way to move forward." And that worked really well at Arts and Sciences, was a woman who was Dean at that point in time, so she was supportive.

So she put it in place for Arts And Sciences, which immediately caused competition among the other schools. So I think Engineering was next, who was led by a man, Zvi Galil, at the time. When you see other people doing this, but it was a tremendous amount of negotiation and talking to different places. Coming to the senate again and again, and doing the background work. I feel Columbia doesn't change very often in terms of policy. So this felt like a tremendous achievement to push that through.

Anna Doel: Kathy, I think we are at time, so I'm going to stop the recording now, thank you so much for the conversation.