Podcast Name: *ACM ByteCast*
Episode: Jennifer Chayes

Welcome to the *ACM ByteCast* podcast, a series from the Association for Computing Machinery! The podcast features conversations with researchers, practitioners, and innovators at the intersection of computing research and practice about their experiences, lessons learned, and visions for the future of computing. In this episode, host Bruke Kifle is joined by Dr. Jennifer Chayes, the Dean of the College of Computing, Data Science, and Society at UC Berkeley, which she founded. Dr. Chayes began in academia as a Professor of Mathematics at UCLA and was a fellow at Microsoft, where she founded and directed research labs across New England, New York City, and Montreal. Dr. Chayes is widely recognized for her transformative research and leadership, with over 150 scientific papers authored and 30 patents she co-invented. Her recent work includes generative AI and machine learning theory in areas like cancer, immunotherapy, climate change, and ethical decision making.

To begin, Dr. Chayes shares her key experiences, and she starts off sharing that she was the daughter of Iranian immigrants. It was very important to her where her parents came from and what her parents stood for. She dropped out of high school and lived on the streets of NYC, which made her very tough, and she embraced risks. She scored very well on her boards and got into multiple colleges. She started off as a pre-med biology major, but fell in love with physics and switched her major to that. She received her PhD in mathematical physics, and she wanted to do things that were highly theoretical. She was married at 19, and by the age of 30, she was a tenured Professor of Mathematics at UCLA. Interdisciplinary work was frowned upon and they didn't have joint appointments. She got divorced, and then met her current husband, and they went to the job market together which led them both to Microsoft. She wanted to build interdisciplinary groups, and they started a "Theory Group" made up of math, physics and theoretical computer science. She discusses how the world wide web networks mathematically looked like magnetic systems they had studied, and how there should be a limit of graphs. She then became interested in economics and game theory, and opened a lab in 2008, called Microsoft Research New England.

Next, Dr. Chayes talks about the vision for Microsoft Research New England, which was bringing together computing and mathematics with the social sciences. They started with economics and then added in the interpretive social sciences. In one of the postdocs, they found that the image recognition algorithms didn't recognize Black faces. Microsoft walked away from the contract with the police department because of racial bias and Microsoft started product groups in this research. Then, she started working on biomedicine because of her family having health problems, and they started partnerships with the Mayo Clinic, and brought in a lot of people in healthcare and economics. They created another Microsoft research lab in Montreal and then she started thinking about climate change, and how AI could help with that. She founded Climate Change AI based on a paper that came up with 100 problems that computer scientists could work with experts to solve.

In addition, Dr. Chayes discusses the toughest challenges she has navigated, and how that has influenced her approach to interdisciplinary research. She said the biggest challenge is disciplinary respect because they often don't have that. She says departments don't need to learn each other's languages, but need to be multicultural in learning what the problems of the other disciplines are and what's important to them. She then founded the College of Computing, Data Science, and Society at UC Berkeley. She picked UC Berkeley because they are excellent in all fields, with tremendous scale, and there is a commitment to public vision. Everyone who works at Berkeley has sacrificed in some way for the good of the public mission and the human capital is amazing. The first graduating class graduated in May with 20% of the students in their college. The curriculum is called Data 8 with four parts, where students discover their aptitude and affinity. They want to empower individuals and build platforms to scale everything that they do while preparing the next generation.

Lastly, Dr. Chayes discusses the skills needed for future leaders in computing, and how they assure those students are well-prepared. She loves the data science curriculum, and they train people to look at the current problems in the world. It is important to have the ability to work across boundaries on important problems and not to tie yourself to any one technology. She also says you need to have the ability to take risks. Technology needs to empower people to solve their own problems and people need to be deeply cognizant of the potential harm. In addition, she shares that the most urgent problems of our time are climate change, biomedicine, and public health. In conclusion, her advice to young professionals interested in the field of computing is to take the risks. Opportunity always comes at the most inopportune time, but they are available.

Key Takeaways:
2:35 - Dr. Chayes shares her key experiences.
13:01 - What was the vision for Microsoft Research New England?
21:45 - What were the toughest challenges you navigated, and how did that influence your approach to interdisciplinary research?
27:05- Dr. Chayes shares her vision and goals for founding the College of Computing, Data Science, and Society at UC Berkeley.
37:29 - What are core skills for future leaders in computing, and do you assure that those students are well-prepared?
45:22 - The future of computing, specifically interdisciplinary research, in the next 5-10 years.
48:28 - What advice would you give to young professionals interested in the field of computing with a focus on interdisciplinary work?

Links
Learn more about Jennifer Chayes.
Learn more about the ACM ByteCast podcast at https://learning.acm.org/bytecast