

I have always been fascinated by the high-level information that people can extract from noisy and ambiguous environments. We can understand what people mean, apart from the limited number of words they say; we can compute emotion from widely variable facial expressions. My long-standing curiosity in these topics led me to consider an academic career, and early on I began exploring possible pathways to studying abstract inference. In college, I became a neuroscience major to gain an interdisciplinary background in psychology, computation, and biology. I took a variety of science and computational classes to maximize my opportunities to pursue this goal. I joined two other research labs before immersing myself in Prof. Conway's lab to study high-level visual cognition. Throughout these ventures I felt fully supported as one of many women pursuing her passions in STEM within an all-women's college.

My dedication to exploring new opportunities eventually took me outside Wellesley College. My interests in studying high-level cognition led me to consider computational cognitive science, which uses computational techniques to model the algorithms used in human inference. During my senior fall, I enrolled in the combined graduate / undergraduate course, "Computational Cognitive Science", at MIT. To further my knowledge of the mathematics used in this course, I took "Introduction to Machine Learning" at MIT in the spring. Suddenly, in both courses, I was one of a few women in classrooms dominated by men who seemed to have far more comprehensive understandings of computational principles and mathematics than I.

At Wellesley, I had known conceptually that there were barriers facing minorities in classrooms, but I personally had never had any trouble raising my hand or heedlessly pushing towards opportunities even in the few situations in which I found myself a minority. At MIT, I found myself inexplicably afflicted by a profound sense of intimidation and insecurity. Suddenly I was calculating male / female ratios every time I walked into a room. I was spending valuable moments in lecture wondering if I could not do this, if this was not my place. The lecture rooms were large, the female role models were few and far between, and all of my female classmates seemed more capable than I. No non-computer science Wellesley student had attempted to transition fields like this in recent history. I was having trouble making friends for the necessary group work because I was commuting ten hours a week between Wellesley and MIT. Lastly, I rushed to take Machine Learning before I graduated, so I was forced to skip the pre-requisite course: all of the content was novel. I received my worst grade in college on the midterm.

I loved the topics. Both classes helped me see the world differently, fit into how I naturally observed the world, and gave it a structural basis. I wanted to use these computational techniques for the rest of my life in studying inference. I studied more. I tied in my work in Computational Cognitive Science with a project at Wellesley so that I could be advised by a Wellesley professor. I spent hours with the graduate student TAs. I am immensely proud of the B I received in Machine Learning and am currently auditing another Machine Learning course to advance my understanding. This fall, I doubted that professors in computational labs would be interested in my profile as a graduate student, but my Wellesley advisor encouraged me to contact them anyway. Many of these professors responded by encouraging me to pursue this passion.

Today, being a woman in computational fields does not preclude you from maximizing your learning or pursuing your interests. However, it forces you to think hard about whether you enjoy a topic enough to pursue it despite the obstacles. It has made me

evaluate my priorities, and my strategies for motivating myself. It has made me conscious of the people around me, and how important role models and encouragement are for those who are facing implicit pressures and expectations. It has made me sensitive to what resources are available for underrepresented students, and has made me far more aware of the obstacles other students face, whether educational, gender-based, racial, economic, physical, or others, and their myriad interactions.

I am no longer the only non-computer science Wellesley student who will take “Introduction to Machine Learning” at MIT. Younger peers at Wellesley are now following in my footsteps. Even after I have graduated, several current students contact me with questions or to discuss science at Wellesley or MIT, and I make sure to always take the time to advise them. For four years I wrote a weekly blog for the Wellesley College Admissions Office, describing my daily life and any struggles I faced or overcame as a female scientist, which allowed prospective students internationally and current Wellesley students to seek me out for advice. I continue to post weekly to provide an example pathway as a woman in STEM to younger students interested in science.

My experience in exploring computational techniques has made me ardent in encouraging others to pursue paths for which they feel imperfectly prepared, and at this stage in my career I take every opportunity to encourage my peers, often women, to apply for positions to advance their learning. I also seek to support students already involved in science and in college I served as a tutor for female undergraduates in Wellesley’s MATLAB and neuroscience courses. Moreover, to support students in research, this past summer I supervised and worked with four female undergraduate and high school students in the Conway research lab. As a graduate student, I hope to continue mentoring younger students in science and, ultimately, I hope to accept an academic position in which I can pursue my passion for scientific research while also teaching and mentoring students in my lab. I needed an extra push to help me maximize my potential; I plan to continue to reach out to underrepresented students to ensure that they are encouraged to reach for opportunities to pursue their interests.

My personal history—specifically, my efforts to approach the topic of abstract inference from as many directions as possible—forced me to face difficulties that led me to question and refine my own goals, as well as gain a deeper empathy for the challenges that others face in pursuit of their passions. This process has made me confident in my desire to pursue computational techniques, and I discovered that my curiosity for learning is my greatest strength in driving me past unforeseen obstacles. I am continuing to pursue opportunities that will give me greater experience in computational modeling: I am currently pursuing a one-year Masters program at the University of Cambridge in a lab that has been employing a Bayesian participant-response tracking model to examine the internal strategies that subjects engage to predict upcoming stimuli in probabilistic temporal sequences. I am eager to begin working on a new experiment related to this project, studying the high-level information that people can extract from noisy and ambiguous environments.