Admissions, MIT Advanced Study Program,

I am very enthusiastic about applying to MIT’s Advanced Study Program. My intended area of concentration would be computational economics.

As my resume shows, I have significant education and experience in computer science; in my undergraduate education, my graduate work, and in my employment. However, although not as immediately apparent, I have always had a strong interest in economics. While at Olin College, I took both micro and macro economics via cross registration at Wellesley College, and even tried to pursue a minor in economics, but Olin was not able to accommodate this. I greatly enjoyed these economics courses, especially macroeconomics, where policy and politics come into play.

What is also not immediately apparent is the extent to which my technical experience has integrated significant principles of the social science underlying economics. I have affirmatively sought to do this. At Olin my focus was on user-oriented design, where I learned to how to address needs I identified from product users. At Cornell Tech, my Masters program was heavily based on principles of product design and entrepreneurship. I was able to combine the skills of user research, design and computer programming.

I have spent the last four years working at Raytheon, BBN Technologies. While I was there I worked with a small team making modeling and simulation logistics software for a variety of defense organizations including US Transportation Command, the Air Force Research Lab, and the Office of the Secretary of Defense Cost Assessment and Program Evaluation (part of the pentagon).

These programs varied in technical implementation; some of them were traditional Java applications, while others were React powered web apps. They also varied in team size, from the largest, with its team of more than ten, to some where I programed the tool myself.

However, the unifying features behind these tools was their deep technical complexity and the importance that domain rules had on their creation. In order to even start programming one of these tools, it required me to truly understand the workflows, operations and rules that governed the world that these tools would have to work in.

As I progressed at BBN Technologies, I realized that one of the most enjoyable aspects of my job was my learning and then utilization of the logistics domain; similarly, I look forward to apply these same skills towards the learning and utilization of economics, specifically that of agent based, and behavior modeling. I would like to expand my work in this area.

One example of a current economic issue which I believe could utilize a rigorous computational analysis is the current COVID-19 pandemic. While traditional analytical and statistical analysis must wait on reliable data sets to become available, it is possible to create a structured computational simulation of the pandemic now. Such a simulation could explore not just the multitude of governmental and central bank economic and monetary decisions that have been taken, but also increase our understanding of the coming tradeoff between further quarantine efforts and the spread of the disease.

I have tried to convey that I find the intersection of economic and computer science to be fascinating. It is my hope that MIT’s Advanced Study Program can help me gain the economic skills to complement my computer science skills to pursue such fascinating work.

Brendan Ritter