

Dear Admission Committee,

My name is Luckas (Yinghong) Huang, and I am a soon-to-be graduate from University of Massachusetts --Amherst studying Computer Science (CS) and Mathematics. I am applying for the Masters of Quantum Science and Technology program at the University of Barcelona. I aim to devote myself to the field of Quantum Artificial Intelligence in the near future. As my curriculum shows, I have a concrete foundation in both CS and mathematics, and I have a propensity to explore a problem and arrive at a detailed and meaningful solution.

As a double major, I explored the intersection of theoretical knowledge and large-scale applications, and streamlining implementation methods. I've worked hard to distinguish myself among my peers by achieving high marks in challenging courses like Number Theory and Group Theory which taught me how to define a structure of high mathematical abstractions rigorously and formalize and explore those structures properly. I have also taken courses like Advanced Programming and Algorithms of Data Science to analyze and parse through complex data structures to reveal the underlying components of data efficiently. Finally, I have excelled at the intersection of my two majors in courses like Discrete Mathematics, Theory of Computation, and Scientific Computing.

My interests drive me toward research that focuses on the interplay of these ever intertwining branches. For example, in the summer of 2021, I will be part of *Boston University's Summer Institute for Research Education in Biostatistics*. During this research-based internship, I will learn principles of applied biostatistics, allowing me to finally apply the skills that I have refined during my undergraduate academic career and implement them in a more nuanced research field. This will be an opportunity for me to strengthen my science communication background to present an accurate and compelling narrative for future projects.

I am excited to take on roles that challenge me in new ways, and I'm passionate about helping uplift others who like me, come from disadvantaged backgrounds, and are eager for a chance to show the world what we are capable of when given the resources to succeed. To that end, I have volunteered as a CS tutor in an enrichment program, *TTT Mentor Program* (TTT not an acronym), at the Massachusetts Institute of Technology (MIT) to serve as a guide and advocate for science that focused on middle-schoolers from underrepresented backgrounds. I loved that program because it allowed me to refine my mentoring and science communication in a way that was impactful towards their lives by helping students master solving problems with Python and documenting with HTML. By being armed with these tools, they will be enabled to be active participants in a world that is continuously being digitized.

I have always been eager to learn about the latest advances in technology. I have never taken this for granted, as I did not have such an opportunity while growing up in Mexico. My curiosity and desire to learn more continue to motivate me through countless difficult times, such as overcoming culture shock, language barriers and calibrating myself to new environments. This program offers me the opportunity to continue exploring the intersection of CS and Math at the quantum level. Quantum science has become a novel lens to examine the physical world, and quantum computing offers us an opportunity to exploit quantum phenomena to arrive at faster convergence and explore problems with a novel and sophisticated tool. I firmly believe that my academic achievements in CS and mathematics have given me the tools needed to begin learning quantum science and continue to succeed in my pursuit of knowledge, and I hope to be considered a strong applicant in this exciting program.

Thank you for your attention.

Kind regards,

Luckas Huang