Tab 1

When I was studying mathematics, I often wondered how these concepts were applied in real life. After classes, I would spend time researching how mathematics connects to the world beyond textbooks, and that is when I came across data science. I was fascinated by how data and statistics could be used to solve real problems. This curiosity led me to start learning the Python programming language on my own. I enjoyed combining coding with mathematics, but I wanted to understand how coding could be applied in practical and impactful ways.

This growing interest encouraged me to attend various events and conferences related to data science. At one such event, I met the founder of Atomcamp, a leading data science and AI EdTech platform. He noticed my curiosity and engagement and offered me a merit-based scholarship for their six-month data science bootcamp. The program was rigorous, especially as I was completing my undergraduate degree at the same time, but it allowed me to connect mathematics, data, and programming through real-world projects.

Learning from the bootcamp helped me understand the core concepts of data science, starting from data cleaning to data analysis, data extraction, and manipulation using tools like SQL and Python. This eventually led me to core concepts like machine learning, NLP (Natural Language Processing), computer vision, and LLMs (Large Language Models). 2 months after the bootcamp, I got my first internship as a data analyst. Right before my internship ended, seeing my enthusiasm for data science, I got hired by the same company where I had taken the bootcamp as a trainee. Now, I work as a teaching assistant, helping train other trainees from diverse backgrounds. I assist them in learning core concepts and troubleshooting problems. This teaching experience has opened my eyes to how much I enjoy helping students.

During my time as a teaching assistant, I also had the opportunity to work on a natural language processing (NLP) project focused on detecting human emotions. In this project, I applied my Python skills to scrape large datasets from multiple sources like Facebook, X, YouTube, Reddit, and editorial sites using libraries like BeautifulSoup, Selenium, and Scrapy. I then performed sentiment analysis to evaluate textual data. This experience helped me better understand how theoretical concepts translate into applied machine learning workflows.

After completing the bootcamp, and later as a teaching assistant at atomcamp. In these roles, I enjoyed helping students refine their understanding of data science concepts and apply what they had learned in practice. While these experiences strengthened my applied skills, they also made me aware of questions I could not fully address independently, particularly related to building better models, conducting deeper analyses, and using data more rigorously to inform decisions. While my professional roles strengthened my applied skills, they also revealed methodological and theoretical questions that I could not resolve independently. Having explored industry, teaching, and research-adjacent work, I am now looking for a formal doctoral

training to rigorously investigate these challenges. mathematical foundation with advanced technical skills and to engage more deeply in research. This motivation drives my goal of studying data science at the doctoral level and contributing to meaningful, real-world decision-making through data-driven research.

Tab 2

When I was studying mathematics, I often wondered how these concepts are actually used in real life. After classes, I would spend time exploring how mathematics connects to the world beyond textbooks, and that's when I discovered data science. I was fascinated by how data and statistics could be used to solve real problems, and I wanted to understand how coding could make these applications practical and impactful. Motivated by this curiosity, I began learning Python on my own, combining my mathematical knowledge with programming to explore problem-solving in new ways.

To deepen my understanding, I attended various events and conferences related to data science. At one such event, I met the founder of Atomcamp, a leading data science and AI EdTech platform. He noticed my curiosity and engagement and offered me a merit-based scholarship for their six-month data science bootcamp. The program was rigorous, especially as I was completing my undergraduate degree at the same time, but it provided an incredible opportunity to connect mathematics, data, and programming through real-world projects.

During the bootcamp, I gained hands-on experience with the full data science workflow: data cleaning, data extraction, data analysis, and manipulation using SQL and Python. I gradually explored advanced topics including machine learning, NLP (Natural Language Processing), computer vision, and large language models. Two months after the bootcamp, I secured my first internship as a data analyst. Impressed by my enthusiasm, the same company later hired me and I now work as a teaching assistant, helping train other trainees from diverse backgrounds. Assisting students with core concepts and troubleshooting problems has shown me how much I enjoy teaching and mentoring skills I know will also support my growth as a researcher.

While working as a teaching assistant, I had the chance to lead an NLP project focused on detecting human emotions. I applied my Python skills to scrape large datasets from Facebook, X, YouTube, Reddit, and editorial sites using libraries like BeautifulSoup, Selenium, and Scrapy. I then performed sentiment analysis to evaluate textual data. This project not only strengthened my coding and analytical skills but also showed me how theoretical concepts translate into applied machine learning workflows.

These experiences clarified that while I had developed strong applied skills, there were deeper methodological and theoretical questions I could not fully address independently especially regarding model building, rigorous analyses, and using data to inform real-world decisions. Having explored industry, teaching, and research-adjacent work, I realized the need for formal doctoral training to develop a stronger mathematical foundation, advanced technical skills, and research expertise.

I am particularly drawn to **X's PhD in Data Science** because of its focus on combining theoretical rigor with applied research, and its collaborative research environment. Working with **Dr. Y** whose research in Topological Data Analysis, Machine Learning, and applied category theory aligns closely with my interests, presents an incredible opportunity to explore advanced methodologies and tackle complex problems. His mentorship would allow me to contribute to impactful projects that merge rigorous analytics with practical relevance.

X's PhD program provides the ideal environment to develop my expertise in data science while contributing to meaningful research. I am highly motivated to utilize my background in mathematics, coding, and applied data science to advance methodologically, develop innovative solutions and support data-driven decision-making in real-world contexts.