

Sara Defregger '16
sara.irena.kikut@gmail.com

Technical And Mathematical Skill Set to Real-World Challenges

As a freshman, I found choosing a major daunting; how could I choose one thing when I found so many options to be interesting? Math was always my strongest subject, and I found problem sets to be fun, yet I was interested in social sciences, particularly concerning global health and international development. After discovering the QSS department, it seemed to be a natural fit that combined my interests and challenged me to grow. By taking on the responsibility of the unique QSS experience, I graduated well prepared for independence on data science projects in the workplace. Looking back after almost eight years since I chose the major, I can not stress enough how the decision impacted my life.

My thesis research taught me how to apply a technical and mathematical skill set to real-world challenges. The goal of my project was to use the information provided through Twitter to analyze public sentiment pertaining to breast cancer screening, a controversial health technology. I used textual analytics and machine-learning to perform an automated sentiment analysis of tweets from January 2015 to January 2016, a year in which both the United States Preventative Task Force (USPSTF) and the American Cancer Society (ACS) changed their breast cancer screening recommendations. The analysis provided an understanding of trends in Twitter sentiment and tweet type concerning the promotion or avoidance of screening technologies as recommendations change.

While conducting my thesis research, I faced challenges like the challenges I still face today as a data engineer. I had to practice patience and creative problem solving while learning to operate a machine learning application. I also learned the value of knowing how to build elegant code and added python to my toolkit to better structure my project. I also had to learn about handling data quality, a skill that is core to any data project. And most importantly, I learned how to communicate my results through the writing and presentation of my work.

The QSS experience laid the groundwork for my professional career. After graduating in 2016, I worked as a data scientist at a healthcare consulting company using what I had learned in my QSS coursework and thesis to build sophisticated analytics with healthcare data, including social network analysis and sentiment analysis. In 2019, in the same spirit as choosing the QSS major, I decided I wanted to apply my technical skillset to better healthcare directly and took a job at Iora Health, a primary care organization for Medicare patients. In February 2022, I became the first data engineer at Gatehouse Bio, working with biological data to develop disease treatments. I am currently working on the data science and engineering team building an artificial intelligence sRNA-based platform to create individualized disease models.

My degree in QSS was the start of an enriching educational experience that did not end at graduation. It also first opened my eyes to how data and analytics can be used to better people's lives and populations in need. I highly recommend the QSS journey and am incredibly grateful for the opportunity.