Ayesha Naeem Syeda

(647)517-2242 | ayesha.syeda@queensu.ca | linkedin.com/in/ayeshasyeda | github.com/ayeshans

Education

Master of Science, Computer Science — Kingston, ON
Queen's University — *September 2021 - Present*

Honours Bachelor of Science, Computer Science — Toronto, ON
University of Toronto — *September 2016 - May 2020*

Experience

Graduate Research Assistant — September 2021 – Present
Medical Informatics (Med-I) Laboratory — *Kingston, ON*

- Researched uncertainty-aware and self-supervised Machine Learning models for computer-assisted surgery.
- Built an uncertainty-aware cancer classifier for the Intelligent Knife (iKnife), a mass spectrometry-based surgical tool, in PyTorch. Experimental results showed an improvement in model reliability of over 15% and performance improvements of 20%.
- Wrote Python scripts to automate the selection and preprocessing of mass spectra, reducing preprocessing times by approximately 50%.
- Uncertainty architectures used: deep ensembles, Masksembles, Monte Carlo dropout.
- Self-supervised learning tasks used: reconstruction, jigsaw relative patch algorithm.

Software Engineer — May 2021 – August 2021
Wealthsimple Technologies Inc. — *Toronto, ON*

- Migrated legacy code written in JavaScript to TypeScript using Backstage and Material-UI frameworks, reducing developer toil and deprecating over 30% of legacy code.
- Automated testing to improve the reliability of existing tools, detecting security vulnerabilities over 2x faster.
- Migrated the CircleCI DevOps pipeline to GitHub Actions to improve security and efficiency of builds, reducing failing builds and improving build times by over 50%.
- Wrote and maintained scripts that ran for builds to ensure security and code quality.

Clinical Research Assistant — September 2019 – May 2020
THETA Collaborative at UHN — *Toronto, ON*

- Performed random-effects and multivariate regressions in **scikit-learn** to analyze the impact of androgen-deprivation therapy drugs on health-related quality of life in a cohort of prostate cancer patients.
- Implemented pipelines to organize, clean, and merge 500K+ rows of data, creating unified data sources for analysis
- Analyzed the impact of different treatments on patients by demographic, improving prostate cancer assessment techniques by 20%.

Data Analyst — May 2019 – August 2019
Kidney Health Research Group at UHN — *Toronto, ON*

- Implemented statistical models in **STATA** for evaluating social barriers to living donor kidney transplant (LDKT), resulting in clear directives for outreach and awareness.
- Resolved data collection errors in clinical datasets via data wrangling methods using STATA and **Python** to increase valid dataset size by over 30%.

Research Assistant — May 2019 – August 2019
UofT CS Education Research Group — *Toronto, ON*

Skills and Technologies

Technologies: Python, Java, C, STATA, C++, JavaScript, HTML, CSS, SQL
Tools & Frameworks: PyTorch, scikit-learn, Git, Docker, Flask, bash, Unix/Linux

Publications

Self-supervised learning and uncertainty estimation for surgical margin detection
Ayesha Syeda, Fahimeh Fooladgar, Amoon Jamzad et al. *SPIE Medical Imaging 2023* (to appear)

Analyzing the Effects of Active Learning Classrooms in CS2
Ayesha Naeem Syeda, Rutwa Engineer, and Bogdan Simion. *SIGCSE 2020*