

## Summary

Highly skilled and accomplished data scientist with an M.S. in Computing and 3 years of demonstrated experience in advanced data analytics and machine learning using Python libraries Pandas, scikit-learn, and TensorFlow. Skilled in Python, SQL, Git and data visualization libraries like Seaborn and Matplotlib. Proven ability to effectively communicate technical work to non-technical audiences through close collaboration with biologists. Excellent written and verbal communication skills through published papers in high-impact journals and conference presentations.

## Education

**MS IN COMPUTING** | QUEEN'S UNIVERSITY

**BS HONOURS BIOLOGY MINOR: COMPUTER SCIENCE** | UNIVERSITY OF WATERLOO

## Experience

**DATA SCIENTIST** | MED-I LAB | SEP 2019 – JAN 2022

- Implemented a machine learning-based pipeline in Python using modern ML methods, resulting in a 10-30% increase in model performance and successful identification of prognostic factors for patient outcomes in high-dimensional cellular data
- Developed a deep learning convolutional autoencoder using TensorFlow for automated cell annotation, saving biologists 10+ hours of work
- Created TITAN, a data analysis program performing all visualization, segmentation, and simple analysis tasks for high-dimensional cellular data, achieving a 14% higher accuracy and 11x faster execution than available software
- Presented findings from all projects at various conferences and published papers in IEEE and Cytometry Part A

**LEAD TEACHING ASSISTANT** | QUEEN'S UNIVERSITY | SEP 2020 – APR 2021

- Provided weekly appointments and 1-on-1 meetings for students, helping over 10 students per week
- Marked over 50 assessments per month and verified the accuracy of other TA's marking for an additional 300+

**TECHNICAL ANALYST** | CIBC | SEP 2017 – APR 2018

- Assisted in creation of design documents and diagrams using Visio for various projects
- Facilitated communication and coordination between design team and developers, closely tracking progress of projects
- Monitor resource allocations of various departments and updating accordingly

**COMMUNICATIONS ASSISTANT** | CANADIAN CANCER SOCIETY | JAN 2016 – APR 2016

- Successfully led the Wheels of Hope campaign in multiple elementary schools, resulting in increased participation and fundraising efforts
- Skillfully designed and executed a mass email campaign using HTML & CSS, resulting in an increase of 10% in sponsorships

## Publications

Thirumal, S., et al. (2022). "[Automated Cell Phenotyping for Imaging Mass Cytometry](#)," IEEE Engineering in Medicine & Biology Society (EMBC), 426-429

Thirumal, S., et al. (2022). "[TITAN: An End-to-End Data Analysis Environment for the Hyperion™ Imaging System](#)." Cytometry Part A, 101(5), 423-433.

Thirumal, S., et al. (2021). "[Utility of High-Throughput Imaging Mass Cytometry for Cancer Research: A feasibility study](#)." IEEE Biomedical and Health Informatics (BHI) (pp. 1-4).

## Awards

- 3 Minute Thesis Finalist (Queen's University, 2022)
- Best Paper – 2<sup>nd</sup> Prize (IEEE BHI, 2021)
- R. Samuel McLaughlin Fellowship (Queen's University, 2021)

## Technical Skills

- Python: pandas, scikit-learn, TensorFlow
- SQL
- R
- Data visualization: seaborn, matplotlib
- Supervised & unsupervised learning methods, neural networks (CNN, autoencoder)
- Git