Sindhura Thirumal | sindhura.thirumal@gmail.com | 416-898-2304 | sindhurathiru.github.io

Summary

Highly skilled and accomplished data scientist with an M.S. in Computing and 3 years of demonstrated experience in machine learning and data visualization in healthcare. Expertise in developing predictive models and implementing machine learning methods to optimize outcomes in clinic, specifically with large datasets. Proven track record of success in collaborating cross-functionally with clinicians to develop and deploy advanced analytical solutions. Strong background in biology and computer science, with proficiency in Python and SQL. Published papers in IEEE and Cytometry Part A. Strong communication and team-working skills with passion to drive positive change through the use of data-driven insights.

Education

MS IN COMPUTING | QUEEN'S UNIVERSITY
BS HONOURS BIOLOGY *MINOR: COMPUTER SCIENCE* | UNIVERSITY OF WATERLOO

Experience

RESEARCH DATA SCIENTIST | MED-I LAB, QUEEN'S UNIVERSITY **|** SEP 2019 – JAN 2022
- Implemented a machine learning-based pipeline for medical imaging data in Python using modern ML methods, resulting in a 10-30% increase in model performance and successful identification of prognostic factors for patient outcomes
- Developed a deep learning convolutional autoencoder using TensorFlow for automated cell annotation, saving biologists 10+ hours of work and increasing classification accuracy by 3%
- Created TITAN, a 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 diagrams and documents for various projects
- Successfully migrated applications to different file transfer protocols
- 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 – 2nd 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)