Saqeeb **Hassan**

MSc · Software Engineer · Image Processing Scientist · Researcher

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Summary

Analytically-minded image processing scientist with 3+ years of experience with programming and medical imaging. Open to opportunities in the software engineering/tech industry. Well-spoken with experience regularly presenting work to a multidisciplinary audience. Most proficient in Python.

Skills

Programming Proficient: **Python (3 years)**. Comfortable: Pytorch, Matlab, Git, Linux. Familiar: Java, Javascript, C, C++, Docker, Tensorflow

Research Medical Imaging, Experimental Design, Project-based work, Scientific and Technical Writing, Data Analysis

Science Image Processing, Signal Processing, Machine Learning, Computer Vision, Physics, Mathematics

Work Experience

Circle Cardiovascular Imaging

Toronto, Canada

Software Developer - Machine Learning

November 2022 - Present

- Deliver value to users (cardiologists) by automating their workflows using computer vision on medical images
- Improve deep learning medical image segmentation model performance by processing new data, running training experiments, and implementing new model architectures based on novel literature and in-house experiments
- Increase developer efficiency by developing validation and data visualization tools and processes for others to use
- Ensure smooth regulatory approval processes by writing and updating FDA documentation

Sunnybrook Research Institute

Toronto, Canada

Research Engineer

September 2021 - November 2022

- Improve internal software tools by integrating new 3D MRI image processing algorithms in a modular way (e.g. Python modules) for convenient use by others - sometimes integrate 3rd party tools
- Develop a deep learning model to automatically segment lungs in chest images and deploy with Docker, enabling a future collaboration with a startup interested in using patient specific lung geometry - also took several online machine/deep learning courses
- Test and validate imaging pipelines against the clinical standard by identifying and implementing image quality evaluation metrics related to image sharpness, contrast, and signal-to-noise comparisons
- Validate the accuracy of different MRI sequences in representing tissue characteristics using quantitative measurements

Education

Master of Science in Medical Biophysics

Toronto, Canada

University of Toronto

Completed September 2021

- Reduced scan times for MRI scar mapping in ventricular tachycardia patients by over 70% by implementing new or underutilized image processing pipelines and reconstruction techniques
- Implemented image reconstructions in Python and Matlab to convert raw scanner data into images using knowledge of MRI physics

Bachelor of Science in Physics, with Distinction

Kingston, Canada

Queen's University

Completed June 2017

- Developed strong mathemathical background, including signal processing, mathematics, linear algebra, algorithm development
- Undergraduate thesis: Investigated rotational dynamics of disk galaxies by simulating them as a series of concentric massive rings which interact with one another gravitationally. This was to model the disk warping of galaxies such as UGC 3697
- GPA: 3.93

Extracurricular Activity

Social Committee President

Toronto, Canada

Graduate Student Association

January 2018 - January 2020

- Improved the graduate student experience by organizing social and networking events for students in the Department of Medical Biophysics
- Determined the best use of the events budget and developed strong interpersonal skills

Let's Talk Physics Symposium Co-organizer

Kingston, Canada

Let's Talk Science

December 2016

- Led a team of physics students in organizing a successful science outreach effort hosting over 200 local high school students
- Was featured in a local newspaper article here