Saqeeb **Hassan**

MSc · Image Processing Scientist · Researcher

(647) 224-8873 | saqeeb@saqeeb.com | saqeeb.com | saqeebhassan

Summary

I'm an image processing scientist that recently received an MSc in Medical Biophysics. I worked on non-Cartesian imaging pipelines and image quality evaulation metrics for faster MRI scar mapping in patients with ventricular tachycardia. I am most proficient in Python.

Skills

Programming Proficient: **Python (2 years)**. Comfortable: Pytorch, Pandas, Matlab, Git. Some Experience: Java, Javascript, C, Docker, LaTeX

Research Project-based work, Scientific and Technical Writing, Data Analysis, Operating an MRI Scanner

Science Image Processing, Signal Processing, Machine Learning, Medical Imaging, Physics, MRI Physics

Education

M.Sc. in Medical Biophysics

Toronto, Canada

University of Toronto — *January 2018 - September 2021*

- Reduced scan times for MRI scar mapping in ventricular tachycardia patients by over 70% by implementing underutilized, non-Cartesian image processing pipelines and reconstruction techniques. Mainly used Python with some development in Matlab and Javascript.

B.Sc. in Physics, with Distinction

Kingston, Canada

Queen's University — *September 2013 - June 2017*

- 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

Work Experience

Sunnybrook Research Institute

Toronto, Canada

Research Developer — *September 2021 - Present*

- Developed two MRI sequences (with 3D cones and stack-of-spirals k-space trajectories) using the Javascript-based MRI platform 'RTHawk' by HeartVista to enable faster data acquisition in time-sensitive scans
- Created image quality evaluation metrics for comparing novel imaging pipelines against the clinical standard to validate results. These included measurements for image sharpness and signal-to-noise comparisons
- Developed a deep learning model to automatically segment lungs in chest images, enabling a future collaboration with a startup interested in using patient specific lung geometry
- Engaged with patients while operating the MRI scanner to ensure a good experience for them

Queen's University

Kingston, Canada

Research Assistant — *May 2016 - September 2016*

- Organized and preprocessed data for a research lab investigating chronic kidney disease in rat models
- Evaluated the lab's data analysis needs and carried out the transition to Microsoft Access for database functionality
- Interacted with animals to perform daily data collection

Awards

2018-2019 **Queen Elizabeth II Graduate Scholarship in Science and Technology**, U of T and Province of Ontatio

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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