

Saqeeb Hassan

MSC · IMAGE PROCESSING SCIENTIST · RESEARCHER

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Summary

Hi! I'm an image processing scientist that recently received an MSc in Medical Biophysics. I worked on non-Cartesian image reconstructions and image quality evaluation metrics for MRI scar mapping in patients with ventricular tachycardia.

Skills

Science	Image Processing, Signal Processing, Machine Learning, Physics, MRI Physics
Research	Project-based work, Scientific and Technical Writing, Data Analysis, Operating an MRI Scanner
Programming	Python, Matlab, Java, LaTeX

Education

M.Sc. in Medical Biophysics

Toronto, Canada

UNIVERSITY OF TORONTO

January 2018 - September 2021

- Reduced scan times for scar mapping in ventricular tachycardia patients by over 70% by implementing non-Cartesian pulse sequences and image reconstruction techniques

B.Sc. in Physics, with Distinction

Kingston, Canada

QUEEN'S UNIVERSITY

September 2013 - June 2017

- Undergraduate thesis: Simulated a disk galaxy 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 SCIENTIST

September 2021 - Present

- Developed two non-Cartesian pulse using the Javascript based MRI platform 'RTHawk' by HeartVista
- Implemented iterative image reconstruction techniques and non-uniform fast Fourier transforms
- Developed image quality evaluation metrics for comparing 3D cones and stack-of-spirals trajectory images with standard clinical Cartesian images. These included measurements for image sharpness and signal-to-noise comparisons
- Measured the accuracy of different MRI sequences in representing tissue characteristics
- Operated the MRI scanner for data collection with patients, volunteers and phantoms
- Currently translating my thesis work into a paper intended for Magnetic Resonance in Medicine

Queen's University

Kingston, Canada

RESEARCH ASSISTANT

June 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 rats to perform daily data collection

Awards

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

2019-2020 **Queen Elizabeth II Graduate Scholarship in Science and Technology**, U of T and Province of Ontario

Extracurricular Activity

Social Committee President

Toronto, Canada

GRADUATE STUDENT ASSOCIATION

January 2018 - January 2020

- Organized social and networking events for graduate 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](#)