

# Mohamed Harmanani

M.Sc. Candidate, Queen's University, Kingston ◊  
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## Research Interests

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Computer Vision, Deep Learning, Medical Imaging, Trustworthy AI, Uncertainty Quantification

## Education

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### M.Sc. in Artificial Intelligence

Queen's University, Kingston, Canada

Advisor: Parvin Mousavi

Sep 2022 - Present

GPA: 4.24/4.30

### B.Sc. in Computer Science & Philosophy

University of Toronto, Canada

Sep 2016 - Dec 2021

GPA: 3.43/4.00

## Publications

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\*, † indicates equal contribution

### Peer Reviewed Journal Publications

1. **M. Harmanani**, P.F.R. Wilson, M.N.N. To, M. Gilany, A. Jamzad, F. Fooladgar, B. Wodlinger, P. Abolmaesumi\*, P. Mousavi\*.  
*TRUSWorthy: Towards Clinically Applicable Deep Learning for Confident Detection of Prostate Cancer in Micro-Ultrasound.*  
Under review at: **Int. J. Comput. Assist. Radiol. Surg. (IJCARS), 2024. (IF: 3.0)**
2. P.F.R. Wilson, **M. Harmanani**, M.N.N. To, M. Gilany, A. Jamzad, F. Fooladgar, B. Wodlinger, P. Abolmaesumi, P. Mousavi.  
*Towards Confident Prostate Cancer Detection using Ultrasound: A Multi-Center Study.*  
**Int. J. Comput. Assist. Radiol. Surg. (IJCARS), 2024. (IF: 3.0)**
3. M.N.N. To, F. Fooladgar\*, P.F.R. Wilson\*, **M. Harmanani\***, M. Gilany, A. Jamzad, S. Sojoudi, S. Chang, P. Black, P. Mousavi†, P. Abolmaesumi†.  
*LensePro: Label Noise-Tolerant Prototype-Based Network for Improving Cancer Detection in Prostate Ultrasound with Limited Annotations.*  
**Int. J. Comput. Assist. Radiol. Surg. (IJCARS), 2024. (IF: 3.0)**

### Peer Reviewed Conference and Workshop Publications

1. **M. Harmanani**, P.F.R. Wilson, F. Fooladgar, A. Jamzad, M. Gilany, M.N.N. To, B. Wodlinger, P. Abolmaesumi, P. Mousavi.  
*Benchmarking Image Transformers for Prostate Cancer Detection from Ultrasound Data.*  
**SPIE Medical Imaging 2024.**

2. **M. Harmanani.**

*Modelling the Spread of COVID-19 in Indoor Spaces using Probabilistic Automated Planning.*

**Scheduling and Planning Applications woRKshop (SPARK) — International Conference on Automated Planning and Scheduling (ICAPS), 2023.**

3. S. Fujimori, **M. Harmanani**, O. Siddiqui, L. Zhang.

*Using Deep Learning to Localize Errors in Student Code Submissions.*

**ACM Technical Symposium on Computer Science Education (SIGCSE), 2022.**

## Industry Experience

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**Data Scientist**

*Sep 2021 - Sep 2022*

Flinks, Montréal, Canada

Topic(s): Large Language Models for Financial Categorization

**Software Engineer**

*May 2019 - May 2020*

Vennage, Toronto, Canada

Topic(s): Probabilistic Models for Design Generation

## Research Experience

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**Graduate Research Assistant**, Vector Institute/Queen's University

*Sep 2022 - Present*

Topic(s): Computer Vision, Medical Imaging

Supervisor: Parvin Mousavi

**Research Intern**, CEd Research Group, University of Toronto

*May 2021 - Sep 2021*

Topic(s): NLP, Automated Program Repair

Supervisor: Lisa Zhang

**Research Assistant**, Plant Epigenetics Lab, University of Toronto

*Sep 2020 - May 2021*

Topic(s): Bioinformatics, Epigenetics

Supervisor: Katharina Braütigam

## Teaching Experience

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**Head Teaching Assistant**, Queen's University

*Jan 2024 - Present*

Course: CISC365, Algorithms I

Instructor: Ting Hu

**Teaching Assistant**, Queen's University

*Sep 2023 - Dec 2023*

Course: CISC452, Neural and Genetic Computing

Instructor: Hazem Abbas

**Teaching Assistant**, Queen's University

*Jan 2023 - Apr 2023*

Course: CISC151, Introduction to Data Analytics

Instructor: Samir Mohammed

## Honours and Awards

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**Vector Research Grant**, Vector Institute (\$4,000)

*Jun 2023*

**2nd Place**, MediCREATE Central Line Challenge

*Jun 2023*

<b>Robert Sutherland Fellowship</b> , Queen's University \$15,000 over 1 year awarded to distinguished students from a minority group	<i>Sep 2022</i>
<b>Undergraduate Research Award</b> , University of Toronto (\$1,000)	<i>Dec 2022</i>
<b>Undergraduate Entrance Award</b> , University of Toronto (\$3,000)	<i>Sep 2016</i>

## Talks, Abstracts, Presentations

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<b>Towards Trustworthy AI for Prostate Cancer Detection in Ultrasound</b> Centre for Health Innovation, Kingston, Canada	<i>Apr 2024</i>
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<b>Multi-objective Transformers for Improving Prostate Cancer Detection in Ultrasound</b> Vector Institute Research Symposium 2024, Toronto, Canada	<i>Feb 2024</i>
Imaging Network of Ontario (ImNO 2024), Mississauga, Canada	<i>Mar 2024</i>

## Skills

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### Programming Languages and Frameworks

Python, PyTorch, C, SQL, R, MATLAB, Java, JavaScript, HTML, CSS

### Languages

English (fluent), French (fluent), Arabic (fluent), Spanish (intermediate)