MOHAMED HARMANANI

M.Sc. Candidate, Queen's University, Kingston

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RESEARCH INTERESTS

Computer Vision, Medical Imaging, Precision Medicine, Trustworthy AI, Uncertainty Estimation

EDUCATION

Queen's University *Sep 2022 - Present*
M.Sc. in Artificial Intelligence GPA: 4.24/4.30
Advisor: Parvin Mousavi

University of Toronto *Sep 2016 - Dec 2021*
B.Sc. in Computer Science GPA: 3.43/4.00
Minor: Philosophy

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: Transformer Ensembles for Confident Detection of Prostate Cancer in Micro-Ultrasound. *The 15th International Conference on Information Processing in Computer-Assisted Interventions (IPCAI 2024 ,under review).*

[2] 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. *The 15th International Conference on Information Processing in Computer-Assisted Interventions (IPCAI 2024 ,under review).*

[3] **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 (to appear).*

[4] P. F. R. Wilson, **M. Harmanani**, M. N. N. To, M. Gilany, B. Wodlinger, P. Abolmaesumi, P. Mousavi. Towards Confident Prostate Cancer Detection using Ultrasound: A Multi-Center Study. *International Journal of Computer-assisted Radiology and Surgery (IJCARS) (under review).*

[5] **M. Harmanani**. Modelling the Spread of COVID-19 in Indoor Spaces using Probabilistic Automated Planning. *ICAPS 2023 Scheduling and Planning Applications woRKshop (SPARK 2023).*

[6] S. Fujimori, **M. Harmanani**, O. Siddiqui, L. Zhang. Using Deep Learning to Localize Errors in Student Code Submissions. *The 53rd ACM Techinical Symposium on Computer Science Education (SIGCSE 2022).*

INDUSTRY EXPERIENCE

Flinks   Montréal, QC, Canada
Data Scientist   *Sep 2021 - Sep 2022*
Topic(s): NLP, LLMs, Financial Categorization

Venngage   Toronto, ON, Canada
Software Engineer   *May 2019 - May 2020*
Topic(s): Probabilistic Models for Design Generation

RESEARCH EXPERIENCE

Queen's University, Graduate Research Assistant   *Sep 2022 - Present*
Topic(s): Computer Vision, Medical Imaging
Supervisor: Parvin Mousavi

University of Toronto, Research Intern   *May 2021 - Sep 2021*
Topic(s): NLP, Automated Program Repair
Supervisor: Lisa Zhang

University of Toronto, Research Assistant   *Sep 2020 - May 2021*
Topic(s): Bioinformatics, Epigenetics
Supervisor: Katharina Braütigam

TEACHING EXPERIENCE

Queen's University, Head Teaching Assistant   *Jan 2024 - Present*
Course: CISC365, Algorithms I
Instructor: Ting Hu

Queen's University, Graduate Teaching Assistant   *Sep 2023 - Dec 2023*
Course: CISC452, Neural and Genetic Computing
Instructor: Hazem Abbas

Queen's University, Graduate Teaching Assistant   *Jan 2023 - Apr 2023*
Course: CISC151, Introduction to Data Analytics
Instructor: Samir Mohammed

ABSTRACTS AND PRESENTATIONS

[1] **M. Harmanani**, P. F. R. Wilson, F. Fooladgar, A. Jamzad, M. Gilany, M. N. N. To, B. Wodlinger, P. Abolmaesumi, P. Mousavi. Multi-objective multiple-instance learning for improving prostate cancer detection in ultrasounds. *Imaging Network of Ontario (ImNO 2024, to appear)*

[2] M. Gilany, P. F. R. Wilson, A. Jamzad, **M. Harmanani**, M. N. N. To, B. Wodlinger, P. Abolmaesumi, P. Mousavi. Test Time Training for Prostate Cancer Detection: Addressing Distribution Shift with Self-Supervised Learning. *Imaging Network of Ontario (ImNO 2024, to appear)*

SKILLS

Programming Languages and Frameworks
Python, PyTorch, C, SQL, R, MATLAB, Java, JavaScript, HTML, CSS

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

HONOURS AND AWARDS

Vector Research Grant, Vector Institute	*Jun 2023*
Robert Sutherland Fellowship, Queen's University	*Sep 2022*
Undergraduate Research Award, University of Toronto	*Dec 2022*
Math. & Computer Sci. Gamma Honour, University of Toronto	*Jul 2021*
Philosophy Excellence 300 Award, University of Toronto	*Jun 2021*
Undergraduate Entrance Award, University of Toronto	*Sep 2016*