SAMAN MOTAMED

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Https://sam-motamed.github.io

EDUCATION

University of Toronto - Toronto, Canada *11/2021*
Master of Science: Medical Science

- Thesis title : *A Semi-supervised Pipeline for Detection of Anomalies in Medical Images*
- CGPA: 4.0 / 4.0

University of Toronto - Toronto, Canada *11/2019*
Honors Bachelor of Science: Computer Science

- Specialization in Machine Learning and Computer Vision
- Graduated with High Distinction (CGPA: 3.55 / 4.0)

RESEARCH AND WORK EXPERIENCE

Visiting Researcher | KAUST - Thuwal, KSA *09/2022 - Current*
I have joined the VCC group at KAUST, working with Wolfgang Heidrich on 3D reconstruction and view synthesis.

Visiting Researcher | Carnegie Mellon University - Pittsburgh, PA *08/2021 - 09/2022*
Worked with Fernando De La Torre on harnessing the power of large pre-trained vision and language models for personalized tasks, mainly using generative models for novel image synthesis and inpainting.

Summer Research Intern | Vector Institute - Toronto, ON *06/2021 - 09/2021*
Worked on self supervised methods for approximate nearest neighbor search and image copy detection.

Machine Learning Researcher | SickKids Hospital - Toronto, ON *04/2020 - 06/2021*

- Developed a semi-supervised generative pipeline for data augmentation using synthetically generated data and anomaly detection in images.
- Worked on developing tools to aid explain inner workings of generative models for anomaly detection.

Machine Learning Researcher | Lunenfeld-Tanenbaum Research Institute - Toronto, ON *05/2018 - 04/2020*

- Worked on transfer learning approaches for medical image segmentation.
- Developed anonymization tool for medical DICOM images.
- Developed GUI tool for loading pre-trained networks in real time to visualize segmentation prediction with option for user intervention.

Research Student | SickKids Hospital - Toronto, ON *12/2015 - 06/2016*

- Worked with a team of Neuroscientists to develop an object recognition and movement analyzer to study video footage of mice, eliminating the need for human review on hours of video surveillance.

PUBLICATIONS AND PRESENTATIONS

Journal

- **Motamed, S**., Rogalla, P., & Khalvati, F. Data Augmentation Using Generative Adversarial Networks (GANs) for GAN-based Detection of Pneumonia and COVID-19 in Chest X-ray Images, Informatics in Medicine Unlocked, Volume 27, 2021, 100779, ISSN 2352-9148.
- **Motamed, S**., Rogalla, P., & Khalvati, F. RANDGAN: randomized generative adversarial network for detection of COVID-19 in chest X-ray. Nature Scientific Reports, 11**,** 8602 (2021).

Conference & Workshop

- C. Wu., **S. Motamed**., S. Srivastava., F. De la Torre. Prompt Generation: Unified Distributional Control of Pre-trained Generative Vision Models (Accepted at NeurIPS 2022)
- **S. Motamed** and F. Khalvati, "Multi-class Generative Adversarial Networks: Improving One-class Classification of Pneumonia Using Limited Labeled Data," *2021 43rd Annual International Conference of the IEEE Engineering in Medicine & Biology Society (EMBC)*, 2021, pp. 3817-3822, doi: 10.1109/EMBC46164.2021.9629980.
- **S. Motamed** and F. Khalvati, "Inception-GAN for Semi-supervised Detection of Pneumonia in Chest X-rays," *2021 43rd Annual International Conference of the IEEE Engineering in Medicine & Biology Society (EMBC)*, 2021, pp. 3774-3778, doi: 10.1109/EMBC46164.2021.9630473.
- **Motamed, S**., Rogalla, P., & Khalvati, F. (2020). NeurIPS *2020 Conference*, Medical Imaging Meets NeurIPS workshop. Generative Adversarial Network for Detection of COVID-19 in Chest X-ray.

For now on Arxiv

- **Motamed, S.**, & Khalvati, F. (2021). Vanishing Twin GAN: How training a weak Generative Adversarial Network can improve semi-supervised image classification. *arXiv preprint arXiv:2103.02496*.
- **Motamed, S**., Gujrathi, I., Deniffel, D., Oentoro, A., Haider, M. A., & Khalvati, F. (2019). A Transfer Learning Approach for Automated Segmentation of Prostate Whole Gland and Transition Zone in Diffusion Weighted MRI. *arXiv preprint arXiv:1909.09541*.

HONORS AND AWARDS

- Nominated for Best Thesis Award, University of Toronto (TBD 2022).
- Institute of Medical Science U of T Open Fellowship Award ($5,000) - 2021.
- Canada Graduate Scholarships – NSERC ($17,500) - 2020.
- Mergelas Family Scholarship in Medical Imaging ($5,000 - $3,000) - 2019 & 2020.
- Dean's List Scholar (Summer 2015, Winter 2019, Summer 2019).
- Innis College Exceptional Achievement Award 2015-2016.

TEACHING

University of Toronto

- **CSC384** (Winter 2019 - Summer 2020): *Introduction to Artificial Intelligence*. Created assignments on constraint satisfaction and heuristic search and held office hours.
- **CSC420** (Fall 2019) : I*ntroduction to Image Understanding.* Created assignments on Neural Networks portion of the course. Held office hours and help sessions.
- **ESC180** (Fall 2019) : *An introductory course to programming concepts in Python* at the department of Engineering Science. Led weekly labs and help sessions.

SERVICES

- Reviewer for Nature, ECCV, IEEE Access, MICCAI
- University of Toronto Equality, Diversity and Inclusion committee member (2020-2021)
- University of Toronto Computer Science mentorship program mentor (2019-2021)