

FERESHTEH FORGHANI

✉ fereshtforghani@gmail.com 🏠 fereshtehforghani.github.io

EDUCATION

York University

M.Sc. in Computer Science (Thesis-based)

- GPA: 4.0/4.0, Advisor: **Prof. Marcus Brubaker**

Toronto, ON

09/2022 - 01/2025

Sharif University of Technology

B.S. in Computer Engineering

- GPA: 18.53/20

09/2017 - 09/2022

PUBLICATIONS

Learn Your Scales: Towards Scale-Consistent Generative Novel View Synthesis

Fereshteh Forghani, Jason Yu, T Aumentado-Armstrong, Konstantinos Derpanis, Marcus Brubaker.

In preparation

(3DV 2025)

Can Generative Models Improve Self-Supervised Representation Learning?

Sana Ayromlou, Fereshteh Forghani, Vahid Reza Khazaie*, Arash Afkanpour.*

AAAI 2025

PolyOculus: Simultaneous Multi-view Image-based Novel View Synthesis

Jason Yu, Fereshteh Forghani, T Aumentado-Armstrong, Konstantinos Derpanis, Marcus Brubaker.

ECCV 2024

Long-Term Photometric Consistent Novel View Synthesis with Diffusion Models

Jason Yu, Fereshteh Forghani, Konstantinos Derpanis, Marcus Brubaker. (webpage)

ICCV 2023

RESEARCH EXPERIENCE

York University

Research Assistant, Supervisor: **Marcus Brubaker**

Toronto, CA

09/2022-Present

- Project: Scale Ambiguity in Generative Novel View Synthesis (GNVS)
- Introduced Scale Ambiguity as a challenge in single view GNVS with various experiments
- Proposed an end-to-end **scale learning** framework in GNVS settings
- Introduced two new metric based on **optical flow** and **epipolar distance** to measure scale variation among generated samples

Vector Institute

Machine Learning Intern, Supervisors: **Arash Afkanpour**

Toronto, CA

01/2024 - 05/2024

- Project: Generative Self-Supervised Learning
- Added semantically consistent generative image augmentations with Instance-Conditioned GAN and Stable Diffusion UnClip to various self-supervised methods
- Enhanced the generalization and robustness of self-supervised representations in all cases

Ecole Polytechnique Federale de Lausanne (EPFL)

Research Intern, Supervisor: **Alexandre Alahi**

Lausanne, Switzerland

07/2021 – 02/2022

- Visual Intelligence for Transportation(VITA) Lab
- Project: Realistic Adversarial Attack on Human Trajectory Predictors
- Used Masked autoregressive flow to find natural adversarial examples to test the reliability of human trajectory predictors
- Adversarially trained LSTM based predictors and reduced the **collision rate** up to **35%** in the case of an adversarial attack on test data

Sharif University of Technology

Research Assistant, **Mohammad Hossein Rohban**

10/2020 – 02/2022

- Project: Self-Supervised Approaches for Cell Segmentation
- Used unsupervised learning frameworks (simCLR, MoCo, SimSiam) to train U-net encoder with unannotated cell images and improved mean average precision (mAP) after fine-tuning with annotated ones **up to 8%**

Sinaweb

Machine Learning Intern

07/2020 – 09/2022

- Project: Intrinsic Plagiarism detection
- Proposed a regression model to fuse lexical, structural, and syntax features and predict writing style.
Implemented an outlier detection model to find possible plagiarised segments.

HONORS AND AWARDS

Flight PS752 Commemorative Scholarship , Global Affairs Canada	2024
Vector Scholarship in AI , Vector Institute	2022
VISTA Program Master's Scholarship , York University	2022-2024
York Graduate Scholarship , York University	2022
Top 10% Academic Ranking , Sharif University of Technology	2020
Ranked 135th in Iranian Nationwide University Entrance Exam (Among +300,000),	2017

TEACHING EXPERIENCE

AI4Good and DaRMoD Program Diffusion Models, Transformers, Machine Learning basics	2025
York University Computer Vision, Machine Learning and Pattern Recognition, Programming for Digital Media	2022-2024
Sharif University of Technology Deep Learning (graduate course), Machine Learning (graduate course), Artificial Intelligence	2018-2021

SKILLS

Programming: Python, Java, C/C++, R, SQL, Bash
Machine Learning Tools: PyTorch, PyTorch Lightning, OpenCV, scikit-learn, NumPy, pandas, matplotlib
Deep Learning: Multi-GPU Training, Distributed Training, Model Optimization
Tools: SLURM, Conda, Github's CI/CD
Languages: Persian (native), English (advanced, TOEFL score:109)

RELEVANT COURSEWORK

York University

- *Neural Network and Deep Learning(A+), Computer Vision (A+), Machine Learning Theory (A+), Data Mining (A+)*

Sharif University of Technology

- *Machine Learning (graduate), Artificial Intelligence, Signals and Systems, Advanced Information Retrieval, Linear Algebra, Probability and Statistics, Design of Algorithms, Data Structures*

Online Courses

- *CS231n: Convolutional Neural Networks for Visual Recognition by Stanford, Deep Learning Specialization by deeplearning.ai, CS294: Deep Unsupervised Learning by UCBerkeley.*

Summer Schools

- *International Computer Vision Summer School (ICVSS 2025)[certificate]*
- *Deep Learning and Reinforcement Learning Summer School (DLRLSS 2023) [certificate]*

ACADEMIC SERVICES

Reviewer of CVPR 2024 Reviewing 2 full papers for Generative Models for Computer Vision workshop	03/2024
Member of Technical Team in the Data Days Sharif University of Technology	02/2019
Member of Executive Team in the ACM International Collegiate Programming Contest Sharif University of Technology	12/2018