

Leili Goli

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Research Interests

Machine Learning
Computer Vision

Deep Learning
Computer Graphics

Artificial Intelligence
Robotics

Education

University of Toronto

Ph.D. (Direct Entry) in Computer Science

Toronto, Canada

Sept. 2021 – Expected Nov. 2026

- **Current GPA 4/4**

Sharif University of Technology

B.Sc. in Computer Engineering

Tehran, Iran

Sept. 2017 – Jun. 2021

- **GPA 19.35/20** (equivalent to major GPA of 4/4)

Research Experience

Ph.D. Graduate Research Assistant in University of Toronto

Dynamic Graphics Project (DGP), Department of Computer Science

Supervisor: Professor Alec Jacobson, Professor Andrea Tagliasacchi

Sept. 2021 - Present

Toronto, Canada

- Robustness and Enhancement of Radiance Fields in 3D vision

Student Researcher

Vector Institute, Department of Computer Science

Sept. 2021 - Present

Toronto, Canada

Summer Internship in Technical University of Munich (TUM)

Interdisziplinäres Forschungslabor (IFL), Computer Aided Medical Procedures (CAMP)

Supervisor: Professor Nassir Navab

Jun. 2020 - Mar. 2021

Munich, Germany

- My research is focused on segmentation of longitudinal chest CT scans of COVID-19 patients and prediction of clinical information.

Summer Research Program in University of British Columbia (UBC)

Robotics and Control Laboratory, Department of Electrical and Computer Engineering

Supervisor: Professor Purang Abolmaesumi

Jun. 2019 - Sept. 2019

Vancouver, Canada

- I devised experiments in deep learning applications in medical image analysis, with particular focus on ultrasound probe navigation using cardiac ultrasound images.

Research Assistant in Sharif University of Technology

Image Processing Laboratory (IPL), Department of Computer Engineering

Supervisor: Professor Shohreh Kasaei

Sept. 2019 - Mar. 2021

Tehran, Iran

- I investigated Adversarial Attacks and Defenses against Deep Neural Networks, specifically focusing on robustness against rotation and scale transformations.

Publications

L. Goli, C. Reading, S. Sellán, A. Jacobson, A. Tagliasacchi, “Bayes’ Rays: Uncertainty Quantification for Neural Radiance Fields”, preprint

L. Goli, D. Rebain, S. Sabour, A. Garg, A. Tagliasacchi, “nerf2nerf: Pairwise Registration of Neural Radiance Fields”, Accepted to IEEE International Conference on Robotics and Automation (ICRA) 2023, Computer Vision and Pattern Recognition (CVPR) Workshop XRNeRF 2023

L. Goli, ST. Kim, A. Khakzar, N. Navab, “Longitudinal Quantitative Assessment of COVID-19 Infection Progression from Chest CTs”, Accepted to Medical Image Computing and Computer Assisted Intervention (MICCAI) 2021.

H. Naderi, **L. Goli**, S. Kasaei, “**Generating Unrestricted Adversarial Examples via Three Parameters**”, Accepted to Multimedia Tools and Applications 2021.

H. Naderi, **L. Goli**, S. Kasaei, “**Scale Equivariant CNNs with Scale Steerable Filters**”, Accepted to Machine Vision and Image Processing (MVIP) 2020.

Press Coverage

Cover of the Computer Vision News: nerf2nerf with Lily Goli

Story highlight in fxguide News: Stitching NeRFs: ‘nerf2nerf’:Pairwise Registration of Neural Radiance Fields.

Honors and Awards

Ranked 38th in the Iranian National Universities Entrance Exam for Bachelor of Science Aug. 2017
among more than 150,000 participants.

National Elite Foundation Fellowship 2017

Invited Talks

nerf2nerf, Google Geo group, Google 2023

Bayes’ Rays, SynthX group, Google 2023

Work and Teaching Experience

Teaching Assistant at University of Toronto, Toronto, Canada Fall 2021 - Present

- Foundations of Computer Science course (CSC110)
- Data Science I (JSC270)
- Introduction to Image Understanding (CSC420)
- Introduction to Machine Learning (CSC311)

Teaching Assistant at Sharif University of Technology, Tehran, Iran Fall 2019 - Spring 2021

- Artificial Intelligence - Linear Algebra - Engineering Probability and Statistics

Skills

Programming Languages: Python (Proficient), C (Proficient), Java (Proficient), R, MATLAB, HTML, CSS

Frameworks: PyTorch, Keras, Django, QT

Tools: Blender, CLion, PyCharm, IntelliJ, Proteus, Quartus

Operating Systems: macOS, Linux, Windows

Academic Service

Served as Reviewer at ICRA 2024, IROS 2023, RA-L 2023.

Organizing 3D Vision Reading Group at University of Toronto Oct. 2023-Present

Relevant Coursework

Introduction to Machine Learning (4/4), Physics-based Animation (4/4), Probabilistic Learning (4/4), Neural Radiance Field Reading Course (4/4), Imitation Learning, Image Processing (20/20), Artificial Intelligence (20/20), Modern Information Retrieval (18.2/20), Probability and Statistics for Computer Engineering (20/20), Linear Algebra (19.4/20), Numerical Computations (20/20), Design of Algorithms (20/20), Data Structures and Algorithms (20/20), Fundamentals of Programming: C (20/20), Advanced Programming: Java (20/20), General Math 1 (19/20), General Math 2 (19.5/20), Discrete Mathematics (18/20)