Ashkan Ganj

Worcester, MA | aganj@wpi.edu | | ashkanganj.me | LinkedIn | Github

Education

Worcester Polytechnic Institute(WPI), Ph.D in Computer Science — Jan 2023 – Present

- GPA: 4.0/4.0

University of Mohaghegh Ardabili(UMA), BE in Computer Engineering — Sep 2018 – July 2022

- GPA: 3.8/4.0
- Ranked 2nd among graduating class.
- **Coursework:** Artificial Intelligence, Data Science, Computer Architecture, Computer Network, Operating System, Algorithm

Research Projects

Video Depth Estimation — Aug 2024 - Present

- The goal of this project is to develop a depth completion framework that leverages the temporal continuity in video streams to improve depth estimation in AR scenarios.
- Combined with sparse depth data from LiDAR with monocular cues from mobile video sequences to generate dense, accurate depth maps.

Focal Stack and Relative Priors for Metric Depth Estimation (Project) — Jan-2023 - Aug 2024

- Proposed a novel framework that combines relative depth and Depth from Focus (DFF) cues to address scale ambiguity in depth estimation.
- Identified key limitations of existing depth estimation models in mobile AR, including scale ambiguity and zeroshot performance.
- Utilized focal stack inputs from mobile cameras to achieve high-resolution, and address scale ambiguity.
- used Single Image relative depth priors to improve the generalization and depth map details.
- Integrated a confidence estimation module to refine depth predictions and improve robustness in diverse environments.
- Demonstrated state-of-the-art performance on benchmark datasets, outperforming leading models.
- Published in ***WACV'25***, ***ISMAR'24***, and ***HotMobile'24***.

ExpAR (Project) — Jan-2023 - Present

- A platform aiming to provide scalable and controllable AR experimentation.
- ExpAR is envisioned to operate as a standalone deployment or a federated platform.
- Research papers has been accepted at ***immerCom'24 and 23***.

LR-Net : A Block-based Convolutional Neural Network for Low-Resolution Image Classification — Jan 2022 - March 2022

- Designed a novel CNN architecture optimized for low-resolution image classification, focusing on block-based processing for efficient feature extraction.
- Achieved state-of-the-art (SOTA) accuracy on benchmark datasets including MNIST, Fashion-MNIST, and Oracle-MNIST.
- Surpassed prior models in both accuracy and computational efficiency, providing a practical solution for resource-constrained applications.

Publications

HybridDepth: Robust Metric Depth Fusion by Leveraging Depth from Focus and Single-Image Priors — WACV 2025

Ashkan Ganj, Hang Su, Tian Guo

Proceedings of the IEEE/CVF Winter Conference on Applications of Computer Vision (WACV)

Toward Robust Depth Fusion for Mobile AR With Depth from Focus and Single-Image Priors — ISMAR 2024

Ashkan Ganj, Hang Su, Tian Guo

23rd IEEE International Symposium on Mixed and Augmented Reality (ISMAR)

Towards In-context Environment Sensing for Mobile Augmented Reality — ImmerCom 2024

Yiqin Zhao, ***Ashkan Ganj***, Tian Guo

2nd ACM Workshop on Mobile Immersive Computing, Networking, and Systems

Mobile Depth Estimation: Challenges and Prospects Hotmobile 2024

Ashkan Ganj, Yiqin Zhao, Hang Su, Tian Guo

The 25th International Workshop on Mobile Computing Systems and Applications(HotMobile24)

Toward Scalable and Controllable AR Experimentation *(Best paper runner-up award)* ImmerCom 2023

Ashkan Ganj, Yiqin Zhao, Tian Guo

1st ACM Workshop on Mobile Immersive Computing, Networking, and Systems

LR-Net: A Block-based Convolutional Neural Network for Low-Resolution Image Classification Journal 2023

Ashkan Ganj, Mohsen Ebadpour, Mahdi Darvish Hamid Bahador

Iranian Journal of Science and Technology, Transactions of Electrical Engineering

Professional Experience

Research Assistant, WPI – Worcester, MA, USA Jan 2023 – Present

Software Engineer, Access Endless Communication(AEC) – Tehran, IRAN Sep 2021 – May 2022

- Front-end Web Developer working in a team of 13 using Angular to build scalable and dynamic web applications.
- Developed and optimized front-end components, ensuring responsiveness and performance across multiple devices.
- Conducted code reviews, debugging, and performance optimization.
- Followed SCRUM and Agile methodologies for project management, ensuring timely delivery and effective team collaboration.

Teaching Experience

Teaching Assistant, WPI – Worcester, MA, USA Jan 2023 – May 2024

- CS 2303 - Systems Programming Concepts(C-term, Spring 2023)
- CS 2119 - Application Building with Object-Oriented Concepts(D-term, Spring 2023)
- CS 1101 - Introduction to Program Design(A-term, Fall 2023)
- CS 4233 - Object-Oriented Analysis and Design(B-term, Fall 2023)
- CS 4233 - Object-Oriented Analysis and Design(C-term, Spring 2024)
- CS 2102 - Object-Oriented Design concepts(D-term, Spring 2024)

Teaching Assistant, University of Mohaghegh Ardabil (UMA) – Ardabil, IRAN Sep 2021 - Dec 2022

- Algorithm and Data Structure(Fall 2021)
- Software Engineering(Spring 2021)
- Discrete Mathematics(Fall 2022)

Awards

- Awarded Travel Grant, ACM HotMobile 2024 Workshop. 2024
- Awarded best paper runner-up award at ImmerCom'23. 2023
- Awarded Travel Grant, ACM SIGCOMM 2023 conference. 2023
- Awarded distinguished student, in the department of electrical and computer engineering. 2022
- UMC programming contest winner. 2020

Technical Skills

Languages: Python, C++, C, C#, SQL, JavaScript, TypeScript

Technologies: Pytorch, Tensorflow, Numpy, Pandas, SQL-based Databases, NoSQL Databases, Vue Js, Angular, Django, Flask