

Ashkan Ganj

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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

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 2024 – 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