Ashkan Ganj

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Summary

My research interests lie at the intersection of computer vision, 3D vision, and the design of end-to-end computer vision systems. Currently, I am working on the fundamental task of 3D vision: depth estimation, with a focus on improving the accuracy and robustness of existing models. Additionally, I am passionate about designing scalable systems that integrate these advanced models seamlessly into real-world scenarios, such as autonomous driving and mobile AR environments, to enhance their applicability and performance.

Education

Worcester Polytechnic Institute(WPI), MS in Computer Science — Jan 2023 – Present

- GPA: 4.0/4.0
- **Coursework:** Advanced Artificial Intelligence, Software Design, Algorithm, Foundation of Computer Science

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

Projects

Accurate Metric Depth Estimation — Project

- The goal of this project is to propose a new and robust model for depth estimation that only leverages mobile camera features.
- Identified current limitations and challenges of depth estimation models in the mobile AR scenario.
- Proposed a new model architecture that addresses these limitations and challenges.
- Research papers have been accepted at HotMobile'24, and ISMAR'24.

ExpAR — Project

- 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.

Image Classification via Convolutional Neural Networks — Paper

- Developed a novel image classification architecture leveraging Convolutional Neural Networks (CNNs), focusing on optimizing layer configurations and activation functions for improved feature extraction.
- Achieved state-of-the-art (SOTA) performance on three benchmark datasets: MNIST Digit Recognition, Fashion-MNIST, and Oracle-MNIST, surpassing previous models in accuracy and computational efficiency.

Publications

HybridDepth: Robust Metric Depth Fusion by Leveraging Depth from Focus and Single-Image Priors — WACV 2024

Ashkan Ganj, Hang Su, Tian Guo

WACV 2024 (in submission)

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

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 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

Graduate Research Assistant, WPI – Worcester, MA, USA May 2024 – Present

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

- Front-end Web developer.

Teaching Experience

Graduate 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