Omid Reza Heidari

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EDUCATION

Concordia University, *Montreal, QC* 2023 | 2025
Master of Science in Computer Science GPA: 3.5/4.00

Islamic Azad University, *Zanjan, IR* 2017 | 2022
Bachelor of Engineering in Computer Engineering GPA: 3.47/4.00

WORK EXPERIENCE

Vita Detection *Montreal, QC*
Machine Learning Intern Apr 2025 – Aug 2025

- Developed and implemented domain adaptation techniques for object detection in security X-ray images, applying the ALDI (Align and Distill) method to enhance model robustness.
- Designed and optimized deep learning models using PyTorch, PyTorch Lightning, and Compute Canada resources for large-scale experiments.
- Analyzed and benchmarked multiple approaches for cross-domain object detection, improving model generalization under domain shifts.

The University of British Columbia *Vancouver, BC*
Machine Learning Intern Nov 2024 – Feb 2025

- Implementing the state-of-the-art models in PyTorch and PyTorch Lightning, such as OmniMotion, Real NLP, Betrayed by Attention, and NeRF on Google Cloud Platform and Compute Canada.
- Reviewed and discussed approximately 5-7 research papers per week, analyzing various approaches to improve the performance and accuracy of previous methodologies.
- Enhanced model accuracy for detecting occluded objects by around 7 %.

Zanjan University of Medical Science *Zanjan, IR*
Data Reserach Analyst Jul 2022 | Jan 2023

- Conducted research on Machine Learning and Electroencephalogram signals
- Utilized Welch, Convolution, and Fourier transform, to compute connectivity, power, and amplitude
- Applied low-data techniques, such as data augmentation and transfer learning, to prevent underfitting and improve model performance on limited datasets.

ACADEMIC EXPERIENCE

Concordia University *Montreal, QC*
Teaching Assistant Jan 2024 | Present

- COMP 6321 - Machine Learning
- COMP 6771 - Image Processing
- COMP 353 - Databases
- COEN 243 - Programming Methodology I
- COMP 248 - Object-Oriented Programming I
- COEN 352 - Data Structures and Algorithms
- COMP 352 - Data Structures and Algorithms

Sharif University of Technology *Tehran, IR*
Teaching Assistant Sep 2022 | Feb 2023

- CE 717 - Machine Learning

Zanjan University *Zanjan, IR*
Teaching Assistant Sep 2021 | Jun 2022

- Principles Of Database Design
- Digital Logic Design
- Advanced Programming

SKILLS

- **Programming Languages** : Python, MATLAB, C++
- **Frameworks**: PyTorch, PyTorch Lightning, Scikit-learn, OpenCV
- **Databases**: MySQL, PostgreSQL, Redis, MongoDB
- **Services**: AWS, GCP, RabbitMQ
- **Languages**: English (fluent), French (conversational)

PUBLICATIONS

2025

- **Omid Reza Heidari**, Yang Wang, Xinxin Zuo. Applying Domain Adaptation Technique(s) from RGB to X-ray Images. *Work in progress*
- **Omid Reza Heidari**, Yang Wang, Xinxin Zuo. Using Align and Distill in Object Detection of Security X-ray Images. *In preparation for WACV2026*
- **Omid Reza Heidari**, Farahnaz Yousefi, Mohsen Dadashi. Efficacy of left prefrontal-temporoparietal tDCS on symptom reduction and cognitive improvement in schizophrenia: A randomized, sham, controlled, parallel-group study.

2024

- **Omid Reza Heidari***, Nihan Anam*, Azmine Toushik Wasi*, Taki Hasan Rafi. A Review of Human-Centric Evaluation of Cultural Bias in Indic Languages within LLMs: Rethinking Research Directions. *Submitted*
- **Omid Reza Heidari***, Li Gu*, Jiahao Nick Li*, Yang Wang. Retrieval Augmented Generation for Natural Language Query in Egocentric Videos.

  🥇 Selected as the Best Poster at *Mila - Quebec AI Institute* April 2024

2023

- **Omid Reza Heidari**, Ahmadreza Zakerian Zadeh, Mohsen Dadashi. Assessment of Structural Connectivity and Brain Volumes after tDCS in Stroke: A Machine-learning Method