Arman Behnam

AI Engineering Intern at Clarkwestern Dietrich Building Systems LLC

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Education

Illinois Institute of Technology — Chicago, IL, USA
Computer Science Ph.D. student; College of Computing, Department of Computer Science — *January 2023 – Present*
Research subject: Causal Representation Learning for Out of Distribution Data; ***GPA: 3.20*** — *Advisor: Binghui Wang*

Relevant coursework: Computer Organization and Assembly Language Programming, Systems Programming, Science of Programming, Software Systems Architectures, Algorithms, and Operating Systems

Iran University of Science and Technology — Tehran, Iran
M.Sc. in Industrial Engineering; ***GPA: 3.44*** — *September 2018 – March 2022*
Dissertation title: "Railway data mining using deep learning with IoT approach"

University of Tehran — Tehran, Iran
B.Sc. in Industrial Engineering; ***GPA: 3.17*** — *September 2014 – July 2018*
Final project: "Integrating modern tools for long-term production planning"

Publications

Measure-Theoretic Anti-Causal Representation Learning — Video, Code, Poster
39th Conference on Neural Info. Processing Sys., August 2025 (Second year's Ph.D. Research)
- A measure-theoretic framework for anti-causal representation learning through two-level abstraction, supporting both perfect and imperfect interventions with theoretical guarantees for out-of-distribution generalization.

Causal Explanation from Mild Cognitive Impairment Progression Using GNNs — Video, Code
International Conference on Bioinformatics and Biomedicine, December 2024 (Internship Research)
- Explore potential causal explanation of MCI progression by temporal patient data, including chronic diseases, biomarkers, and genetic information, into a graph structure to capture causal effects within variables.

Graph Neural Network Causal Explanation via Neural Causal Models — Video, Code, Poster
18th European Conference on Computer Vision, July 2024 (First year's Ph.D. Research)
- A GNN causal explainer by building causal structure and the corresponding neural causal model for a graph. It outperforms the existing GNN explainers in exactly finding the ground-truth explanations.

Artificial intelligence–enabled Internet of Things Technologies in Modern Energy Grids
A book chapter from IoT Enabled Multi-Energy Systems, Academic Press, January 2023
- New AI-based IoT frameworks concentrating on architecture, and challenges of energy internet.

Data Science Leverage and Big Data Analysis for Internet of Things Energy Systems
A book chapter from "IoT Enabled Multi-Energy Systems", Academic Press, January 2023
- Smart grid intelligence protocols with attention to data-driven decision-making, and real-time data collection.

A Data Analytics Approach for COVID-19 Spread and End Prediction (Case Study in Iran)
Journal of Modeling Earth Systems and Environment, January 2021
- COVID-19 confirmed, and recovered cases trend prediction in short-time, and long-term scenarios by time series methods fine-tuned by Gaussian functions for a case study of Iran

Meta-Health Stack: A New Approach for Breast Cancer Prediction
Healthcare Analytics, November 2022
- An ensemble-based framework for predicting breast cancer with high performance

A Study on IOT Applications and Technologies in Logistics
A book chapter from "Logistics and Supply Chain Management", Healthcare Analytics, December 2020
- Analysis to determine the applications of IOT in logistics such as WSN, RFID, and GIS.

A Comparison Between Different Classification for Predicting Metastasis in Breast Cancer
"IIIEC 2021, March 2021
- Comparison of different fine-tuned ML methods for cancer metastasis cases prediction,

Research Experience

Generalized Causal Representation Learning — Ph.D. Research
Under writing, March 2025 –present

Academic Experience

Grading programming assignments, and the final project — Teaching Assistant
"Data privacy and security" CS528, and "Introduction to Data Structures by Java"CS401

American Journal of Lifestyle Medicine, SAGE Journals — Editorial Board

The Journal of Primary Prevention, Journal of General Internal Medicine — Peer Reviewer

Work Experience

Clarkwestern Dietrich Building Systems LLC — Merrillville, IN, USA
AI Engineering Internship — *May 2025 – August 2025, Full-time*

Mayo Clinic — Rochester, MN, USA
AI Research Scientist Internship (Department of Artificial Intelligence (AI&I)) — *May 2024 – August 2024, Full-time*

Tanzim-Yar (Reg-Tech) Startup Studio — Tehran, Iran
Data Analyst — *April 2021– December 2022, Full-time*

- Developed complete digital identification process product as a third-party product for Fin-Tech regulation

Skills

Languages: Python, C, Java, SQL, R, MATLAB, Assembly, VBA

Frameworks & Libraries: PyTorch, TensorFlow, Keras, Scikit-Learn, FastAPI, OpenCV, Hugging Face Transformers, LangChain, spaCy, NLTK, LLM APIs, LangGraph, n8n

Technologies & **Tools:** Docker, Kubernetes, Git, MLflow, Ray, AWS SageMaker, Azure ML, Weights & Biases, DVC, MySQL, PostgreSQL, Pinecone, LlamaHub, n8n, Azure DevOps, Lucid

ML/AI Expertise: LLMs, Causality, RAG, Fine-Tuning, Transfer Learning, Neural Networks, Computer Vision, NLP, Generative AI, MLOps, Embeddings

Projects

My Leetcode and Solutions | *GitHub* — in Python and Java

Hands on OCR and ReGex Pattern Matching | *GitHub* — Modular Document Processing Engine

Threads and User Programs in OS | *GitHub* — Bochs and QEMU within the Docker environment image

Pytorch Tutorial | *GitHub* — Step-by-step tutorial for training NNs and analysis via PyTorch

Stock Prediction | *GitHub* — US stock prices prediction via LSTM, GRU, ensemble, and attention models

Honors and Awards

ECCV24 Paper Lightning Talk and Poster Presentation — 2024 NSF TRIPODS Workshop
Toyota Technological Institute at Chicago — *December 7th, 2024*

ECCV24 Paper Lightning Talk and Poster Presentation — 9th Midwest Security Workshop
Purdue University — *November 16th, 2024*

ECCV24 Poster Presentation — NSF Site Visit (IDEAL)
Northwestern University — *September 18th, 2024*

Ph.D.'s First Year Talk — NSF Site Visit (IDEAL)
Northwestern University — *October 12th, 2023*

Certificates

Reinforcement Learning, by University of Alberta (80 hours) — November 2021

Natural Language Processing, by DeepLearning.AI (120 hours) — August 2021

Excel Skills for Data Analytics, by Macquarie University (40 hours) — March 2021

Deep Learning, by DeepLearning.AI (120 hours) — November 2020