

# Arman Behnam

Computer Science PhD Student at Illinois Institute of Technology

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## EDUCATION

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### 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: 3.00* 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

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### 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 (My 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

*IIIIEC 2021, March 2021*

- Comparison of different fine-tuned ML methods for cancer metastasis cases prediction,

## RESEARCH EXPERIENCE

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**Anti-Causal Invariant Abstractions for Out of Distribution Generalization** Ph.D. Research  
*Submitted to ICML 2025, January 2024 – February 2025*

## ACADEMIC EXPERIENCE

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**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

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**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

**Mobarakeh Steel Company** Esfahan, Iran  
*AI Engineer November 2020– November 2021, Part-time*

- Developed deep learning-based bearing fault detection software for real-time diagnosis system from raw data.

## SKILLS

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

**Frameworks & Libraries:** PyTorch, TensorFlow, Keras, Scikit-Learn, Hugging Face Transformers, LangChain, spaCy, NLTK, OpenAI API, Anthropic API, LlamaIndex

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

**ML/AI Expertise:** Large Language Models, Causality, Retrieval-Augmented Generation (RAG), Fine-Tuning, Transfer Learning, Neural Networks, Computer Vision, Natural Language Processing, Generative AI, MLOps, Embeddings

## PROJECTS

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**My Leetcode and Solutions** | [GitHub](#) in Python and Java

**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

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**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

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**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