

# Solmaz Seyed Monir

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🏛️ University of Washington

## Education

### University of Washington

PH.D. STUDENT, COMPUTER SCIENCE & SYSTEMS

Advisor: Dr. Dongfang Zhao (2023 – Present)

Previous advisor: Dr. Juhua Hu (2022 to 2023)

**Selected Coursework:** Algorithms; Big Data Analytics; Software Engineering for Cloud Computing; Internet of Things; Bioinformatics; Advanced Machine Learning; Distributed Systems Research; Spatial Data & GIS.

WA, USA

2021 to Present

### Illinois Institute of Technology

M.S. IN INFORMATION TECHNOLOGY INFRASTRUCTURE

GPA: 4.0/4.0

Chicago, IL, USA

2017 to 2019

### Azad University

M.S. IN COMPUTER INFORMATION SYSTEMS (DATA SCIENCE)

Thesis: Modeling for Customer Value Optimization in Contact Centers

### University of Science and Culture

B.E. IN COMPUTER SOFTWARE ENGINEERING

## Research Experience HPDIC Lab, University of Washington

Research Assistant, AI and Database Systems

Seattle, WA, USA

2023 to Present

- Conduct research on secure AI systems, high-dimensional retrieval, vector databases, and trustworthy information analysis.
- Designed VectorSearch (MIRA), a scalable retrieval system for large-scale digital content.
- Developed NexusIndex, a multimodal framework for misinformation and harmful-content detection.
- Contributed to Audited-FL, a secure federated learning framework with blockchain-based auditing.

## Center for Data Science, University of Washington

Graduate Research Assistant, Computer Vision and Machine Learning

Tacoma, WA, USA

2022 to 2023

- Applied CNN-based models for predictive analysis in natural convection systems.
- Developed unsupervised methods for early detection of chaotic transitions.
- Ran large-scale HDBSCAN experiments for hierarchical density-based clustering.
- Used AWS to accelerate cloud-based computational workloads.

## Academic Service

- **Program Committee Member:** WWW 2026 (Security & Privacy), SIGIR 2026.
- **Conference Reviewer:** ACM Web Conference 2025 (Search and Retrieval-Augmented AI), IEEE eScience 2025, IPDPS 2025, ICDCS 2025, CIKM 2024, NeurIPS 2026.
- **Journal Reviewer:** Journal of Big Data (2024 to 2026), JDSIS Journal (2025 to 2026).

## Industry Experience

### Handshake AI

AI Research Fellow

Selected for an AI fellowship to evaluate and improve large language model performance through testing, analysis, and domain-specific robustness assessment.

Remote, USA

Nov 2025 to Present

### InstaHub

Full Stack Developer

Built and enhanced analytics-focused web interfaces for energy management workflows; developed REST APIs, maintained MySQL-backed services, and deployed components on AWS.

Philadelphia, PA, USA

Oct 2021 to Apr 2022

### Sierra Consulting

Full Stack Developer

Built a login and CRUD web application using Java, Angular, and MySQL.

Chicago, IL, USA

Apr 2020 to Aug 2020

## Teaching Experience

### North Seattle College, Department of Math & Science

Lecturer

CSC 110: Python Programming; CSC 142: Java Programming.

Seattle, WA, USA

Sep 2023 to Present

### Central Washington University, Department of Computer Science

Lecturer

CS 380: Software Engineering; CS 470: Operating Systems.

Des Moines, WA, USA

Sep 2022 to 2023

### University of Washington Tacoma

Teaching Assistant

Network Security, Fall 2025; Digital Forensics, Spring 2026.

Tacoma, WA, USA

2025 to 2026

### Yellow Wood Academy

Teacher

Taught computer science and 3D design to high school students.

Mercer Island, WA, USA

Sep 2022 to Jun 2023

### Lavner Education

Instructor

Taught Python programming and game design.

Seattle, WA, USA

Apr 2022 to Aug 2022

## Publications & Conference Papers

- **Solmaz Seyed Monir**, D. Zhao, Y. Bai. *NexusIndex: A Self-Optimizing Multimodal Framework for Fake News Detection with Dynamic Indexing and Retrieval*. IEEE MIPR 2025.
- **S. Seyed Monir**, D. Zhao. *Efficient Feature Extraction for Image Analysis through Adaptive Caching in Vector Databases*. ICICT 2024.
- **S. Seyed Monir**, J. Hu, B. Tribelhorn, H. E. Dillon. *Enhanced Chaotic Transition Prediction Using Hierarchical Clustering for the Lorenz System*. ASME IMECE 2023.
- **Solmaz Seyed Monir**, D. Zhao. *NexusIndex: Integrating Advanced Vector Indexing and Multi-Model Embeddings*. arXiv:2410.18294.
- **Solmaz Seyed Monir**, I. Lau, S. Yang, D. Zhao. *VectorSearch: Enhancing Document Retrieval with Semantic Embeddings and Optimized Search*. arXiv:2409.17383.
- **S. Seyed Monir**, D. Zhao. *VecLSTM: Trajectory Data Processing and Management for Activity Recognition*. arXiv:2409.19258.

## Projects & Professional Development

- UC Berkeley-related Agentic AI MOOC / AI Agents training (2026).
- Data center build project using Cisco Nexus switches and firewall technology (2019).
- Java/MySQL claims-management database and UI project (2019).

## Presentations

UW Research Showcase (Lightning Talks and Posters): Efficient Feature Extraction (2024), Trajectory Data Processing (2024), Chaotic Transition Prediction (2023).

**Certifications:** EMC Academic Associate (2019), IPv6 Certification Explorer (2018), Networking Certificate (Udemy, 2019), AWS Solutions Architect Certification.

**Awards & Achievements:** Microsoft Azure Cloud Grant (2025, \$10,000 Azure credits, UW eScience Institute collaboration), Conference and Training Fund Awards (MIPR 2025, ICICT 2024, ASME IMECE 2023), Alpha Kappa Alpha EAF Graduate Merit Scholarship (2021).

## Skills

**Programming:** Python • Java • C++ • JavaScript • TypeScript • SQL • Bash/Shell • HTML5 • CSS3

**Frameworks & Web:** React • Angular • Node.js • Spring Boot • Flask • Django • Bootstrap • Tailwind CSS • JDBC • JavaFX • J2EE

**ML/AI & Data:** PyTorch • TensorFlow • Keras • scikit-learn • NumPy • SciPy • Pandas • HDBSCAN • OpenCV • NLP • Machine Learning • Deep Learning • Data Analysis • Computer Vision

**Cloud & Systems:** AWS (EC2, VPC, S3, RDS, Lambda, SageMaker, CloudFormation) • Google Cloud • Azure • Kubernetes • Spark • Linux • High-Performance Computing

**Databases & Search:** MySQL • PostgreSQL • Microsoft SQL Server • MongoDB • Cassandra • Redis • Elasticsearch • NoSQL