Neda Abdolrahimi

(315) 876-6409 • nabdolra@syr.edu nabdolra@gmail.com
www.linkedin.com/in/neda-abdolrahimi

Education

Syracuse University — **New York**
Ph.D. in Computer Science, GPA: 3.8 — *Ongoing – Expected graduation date: 2028*

Syracuse University — **New York**
M.Sc. in Computer Science — *2024*

Azad University of Tehran — **Iran**
M.Sc. in Industrial Engineering — *2017*
Concentration: Socioeconomic Systems Engineering

Azad University of Tabriz — **Iran**
B.Sc. in Computer Engineering — *2007*
Concentration: Software Engineering

Awards, Honors and Scholarships

2025-2026: Selected as a member for WiSE Future Professionals Program, Syracuse University

2024-2026: Teaching Assistant Award, Syracuse University (EECS Syracuse University)

2023-2024: Research Assistant Award, Syracuse University (Dr. Kristopher Micinski)

2022: Bhupendra P. Shah Scholarship, Syracuse University

2021: **Excellence Scholar** Award, Syracuse University (EECS Syracuse University)

Research Interests

AI, GenAI, Optimization, Algorithm Design

Assistantship Experience

Research

Syracuse University

2024–2026: **Research Assistant**

- Conducting research with Dr. Vir Phoha on *Sign in the Air to Unlock*, a human-centered authentication interface for immersive VR/AR, including the design of a point–voxel cross-attention deep learning model (PV-Net) and evaluation using consumer-grade VR hardware.
- Conducting a comprehensive survey on *Transformer-based architectures across multiple domains* (e.g., NLP, vision, speech, graphs, and embodied interaction) under the supervision of Dr. Vir Phoha, synthesizing architectural trends and open research challenges.

2022–2023: **Research Assistant**

- Conducted research in Programming Languages under Dr. Kristopher Micinski, contributing to

formal reasoning and language-level analysis.
- Performed a structured literature review on programming quantum computers with Dr. Jae Oh, synthesizing abstractions and execution models across emerging quantum languages.
- Collaborated with Dr. Sucheta Soundarajan on network contagion and disease spread modeling, analyzing propagation dynamics and structural properties.

Teaching

2025–2026: Teaching Assistant, *Discrete Mathematics and Data Network: Basic principles*, EECS, Syracuse University

2024–2025: Teaching Assistant, *Programming Languages: Theory and Practice* (CIS 352), EECS, Syracuse University

2023 & 2025: Teaching Assistant, Summer College in EECS, Syracuse University

Publications

Kuppusamy, M., Singh, J., Raman, P., Abdolrahimi, N., Advanced decision analytics with fuzzy logic integrating AI and computational thinking for personnel selection. *Journal of Fuzzy Extension and Applications*. (2024) `https://www.journalfea.com/article_209457.html`

Abdolrahimi, N., Salatin, P. (2018). Influence of Prosperity on Income Distribution in Selected Countries. `https://www.jmsp.ir/article_57993.html?lang=en`

Manuscripts Under Review

Abdolrahimi, N., Phoha, V. *Sign in the Air to Unlock: An Interface for Authentication in Virtual and Augmented Reality Powered by Point–Voxel Cross-Attention Network*.

Abdolrahimi, N., Phoha, V. *Transformers Across Domains: Architectures, Representations, and Emerging Trends*.

Projects

Sign in the air to unlock: Developed a human-centered VR authentication system using 3D gesture-based deep learning with cross-attention, improving verification performance on public benchmarks and robust generalization in immersive VR settings.

Causal Effects of Informal Caregiving on Community Residence in Older Adults: Estimated the causal impact of time-varying informal caregiving intensity on aging in place using longitudinal NHATS data and marginal structural models with stabilized inverse probability weighting, identifying a nonlinear dose–response relationship.

Transformer-Based Recommendation System

Developed a transformer-based recommender system using large language models, optimizing GPU inference through efficient batching and memory management, achieving a **30% reduction in runtime**.

Sentiment Analysis for Financial Data

Built an NLP pipeline using transformer embeddings and sentiment polarity metrics to analyze financial news and social media data for market trend forecasting.

Evolutionary Path in SAT Solver Technology: Analyzed the evolutionary development of SAT

solver technologies within symbolic AI.

AI Game Agent

Developed a reinforcement learning–based game agent with adaptive heuristics, enabling autonomous gameplay and strategy improvement across varying rule sets.

Flight Delay Prediction

Designed a multi-threaded regression model for airline delay prediction, achieving a **30% reduction in compute time** compared to single-threaded baselines.

Relevant Coursework

Algorithms Design and Analysis, Machine Learning, Artificial Intelligence, Structural Programming and Formal Methods, Optimization Control, Dynamic Programming, Data Mining and Social Networks, Operating Systems, Computer Architecture.

Skills

Programming Languages: Python, C++, C#.NET, Haskell, Racket

Machine Learning & AI: Deep learning, transformer-based models, representation learning, time-series analysis, behavioral biometrics, causal inference

Systems & Foundations: Programming languages, formal methods, optimization, algorithm design

Tools & Frameworks: PyTorch, TensorFlow, scikit-learn, NumPy, Pandas, MATLAB, SQL, Git, LaTeX, Overleaf

Professional Experience

2019–2022: Data Analyst & Software Debugger, Karagostar Shakhes, Iran — Debugged ERP pipelines across 10+ modules, improving reliability by 25% and enhancing system stability through targeted performance tuning.

2018–2019: Software Engineer & Tester, IDE Pardazan Novin, Iran — Developed CRM systems in C# and Python, improved query performance by 40%, and implemented automated testing frameworks.

2015–2017: Public Relations Manager, Sina Hamd Aria, Iran — Led analytics-driven outreach and crisis management campaigns to improve stakeholder engagement and response efficiency.

2010–2015: Programmer & Report Designer, Homavand, Iran — Built ERP modules for data integration and reporting, reducing manual data processing time by 50%.