Pegah Ahadian

Kent, Ohio, USA pahadian@kent.edu github.com/pegahahadian Google Scholar

Education

PhD. **Computer Science**, Kent State University, Ohio, USA — 2023 - Present
Supervisor: Prof. Qiang Guan (qguan@kent.edu)
Research Area: Machine Learning, Deep Learning, Health Science
GPA: 4.0/4.0
Courses: Big Data Analytics, Operating System, Advanced Algorithms, Quantum Computing, Information Visualization, Health Informatics, Advanced Computer Graphics

M.Sc. **Computer Science**, Shahid Beheshti University, Tehran, Iran — 2020 - 2022
Thesis: "Developing numerical methods based on machine learning algorithms to solve fractional differential equations application in drug delivery."
GPA: 4.0/4.0
Courses: Data Mining, Computational Data Science, Advanced Artificial Intelligence, Algorithms, Computational Linear Algebra and Matrix

B.Sc. **Electrical Engineering**, Azad University, Qazvin, Iran — 2010 - 2014
Thesis: "Design and development of digital padlock with recovery."
GPA: 3.7/4.0
Courses: Web Programming, Linear Algebra, Non-Linear Algebra, C++, Electronics 1,2, ARM, AVR

Research Interests

Machine Learning, Deep Learning, Trustworthy AI(LLMs/LAMs).

Publications

Pegah Ahadian, Qiang Guan, "AI Trustworthy Challenges in Drug Discovery", International Joint Conference on Artificial Intelligence, IJCAI2024. — 2024

Yuxin Yang, Zixu Wang, Pegah Ahadian, Abby Jerger, Jeremy Zucker, Song Feng, Feixiong Cheng, Qiang Guan, "A Deep Multimodal Representation Learning Framework for Accurate Molecular Properties Prediction",GLSVLSI '24: Proceedings of the Great Lakes Symposium on VLSI 2024. — 2024

Pegah Ahadian, Yunhe Feng, Karl Kosko, Richard Ferdig, Qiang Guan, "MNIST-Fraction: Enhancing Math Education with AI-Driven Fraction Detection and Analysis", ACMSE2024. — 2024

Pegah Ahadian, Karl Kosko, Richard Ferdig, Qiang Guan, "FractionNet: AI-Driven Insights in Transforming Handwritten Fraction Detection for Teacher Education", SITE2024. — 2024

Ali Mehrban, Pegah Ahadian, "An Adaptive Network-Based Approach for Advanced Forecasting of Cryptocurrency Values", International Journal of Computer Science and Information Technology (IJCSIT). — 2024

Ali Mehrban, Pegah Ahadian, "Malware Detection in IoT Systems using Machine Learning Techniques", International Journal of Wireless & Mobile Networks (IJWMN). — 2024

Chris Lernat*, Pegah Ahadian*, Yuxin Yang, Simon Su, Karl Kosko, Ashton Corsello, Qiang Guan, "Gaze Analysis System for Immersive 360 Video for Preservice Teacher Education", ACM multimedia 2023. — 2023

A. Mehrban, P. Ahadian, "Evaluating BERT and ParsBERT for Analyzing Persian Advertisement Data", International Journal on Natural Language Computing. — 2023

P. Ahadian, K. Parand, "Support vector regression for the temperature-stimulated drug release", Chaos, Solitons & Fractals, Volume 165, Part 2. — 2022

Sina Tabakhi, Mohammod Naimul Islam Suvon, Pegah Ahadian, Haiping Lu. "Multimodal Learning for Multi-Omics: A Survey," World Scientific Annual Review of Artificial Intelligence (WSARAI). 2022

Pegah Ahadian, Maryam Bababei, Koroush Parand, "Using singular value decomposition in a convolutional neural network to improve brain tumor segmentation accuracy", 6th International Conference on Computer Science and Information Technology, Sydney, Australia (COMIT). 2022

Pegah Ahadian, Koroush Parand, "Covid-19 Vaccination Analysis based on Unsupervised Machine Learning Algorithm", International Conference on Physics, Mathematics, and Development of Basic Science. 2022

Pegah Ahadian, Koroush Parand, "Machine learning-based clustering analysis for the effects of cardiac arrest on the brain intracellular pH levels," Shahid Beheshti Human Brain Mapping Congress. 2021

Academic Experience

Jan 2023 - Current **Graduate Research Assistant** (Guans Lab) — Kent State University, Ohio, USA

- Working on AI Trustworthiness, focus on LLMs and LAMs
- Handwritten Detection in Math problems.
- Writing a paper to present an individual dataset for mathematical problems (Published Paper).
- Writing a paper evaluating the generated dataset using different Deep Learning techniques (Published Paper).
- Fraction arithmetic problems of learning between students using Text Recognition.
- BERT and SciBERT Performance on 5000K Images.
- Collaborating on a Gaze paper as a corresponding author in ACM Multimedia, 2023.
- Evaluating AI trustworthiness in Drug Discovery.
- Research on LLMs Explainability.

May 2024 - Aug 2024 **Mentor** — McNair Scholars Program, Kent State University, Ohio, USA

- Guidance on Rigorous Research Projects.
- Structured Educational Activities.
- Feedback and Evaluation.

Oct 2021 - Dec 2022 **Graduate Research Assistant** — Shahid Beheshti University, Tehran, Iran

- Research on the impact of Covid-19 on students.
- Mathematical modeling of drug release in the human body.
- Usage percentage of gadgets among students.
- Covid-19 vaccination throughout the world.

Oct 2021 - Dec 2022 **Teacher Assistant** — Shahid Beheshti University, Tehran, Iran

- Computational Mathematical Software.
- Computational Data Mining.
- Data Mining Techniques.
- Python Programming.

2012 - 2013 **Teacher Assistant** — Qazvin Azad University, Qazvin, Iran

- Calculus 1.
- Calculus 2.

- Linear Algebra Laboratory.
- Web Programming.

Oct 2011 - Dec 2014 **Research Assistant** — Qazvin Azad University, Qazvin, Iran
MRL laboratory, electric motorcycle team (PARAX)

- Website developer (HTML, CSS, jQuery).
- Coordinator.

Professional & Industrial Experience

Nov 2024 **SCinet, Volunteer** — Super Computing Conference, Atlanta, USA

- Run Super Computers.

Apr 2024 **Judge, Volunteer** — Choose Ohio First Conference, Cleveland, USA

- Review 10 Papers Presentation.

Nov 2023 **Regular Student Volunteer** — Super Computing Conference, Denver, USA

- Workshop Chair Assistant.
- Tutorial Chair Assistant.

Apr 2023 **Judge, Volunteer** — Choose Ohio First Conference, Youngstown, USA

- Review 10 Posters Presentation.

Oct 2021 - Dec 2022 **Software Developer** — EN Bank, Tehran, Iran

- Designed and developed Fraud Detection application.
- Team lead of software design at EN Bank in IT department.

Dec 2019 - Oct 2021 **Web Developer** — Bankino, MEB, Tehran, Iran

- Designed and developed Bankino website and CMS panel using Angular. (bankino.digital)

Sep 2015 - Dec 2019 **Web Developer** — AEC, Tehran, Iran

- Designed and developed Bab digital store. (bab.ir)

Conferences Presentations

Paper Presentation, Virtually, “AI Trustworthy Challenges in Drug Discovery”, International Joint Conference on Artificial Intelligence, IJCAI, South Korea, 2024. — 2024

Paper Presentation, “FractionNet: AI-Driven Insights in Transforming Handwritten Fraction Detection for Teacher Education”, SITE Conference, Las Vegas, Nevada, 2024. — 2024

Paper Presentation, “MNIST-Fraction: Enhancing Math Education with AI-Driven Fraction Detection and Analysis”, ACM Southeast Conference, Atlanta, Georgia, 2024. — 2024

Poster Presentation, “Machine learning-based clustering analysis for the effects of cardiac arrest on the brain intracellular pH levels”, Human Brain Mapping Congress, Tehran, Iran, 2021. — 2021

Paper Presentation, “Covid-19 Vaccination Analysis based on Unsupervised Machine Learning Algorithm”, International Conference on Physics, Mathematics, Tehran, Iran, 2022. — 2022

Paper Presentation, “Using singular value decomposition in the convolutional neural network to improve brain tumor segmentation accuracy”, International Conference on Computer Science and Information Technology, Sydney, Australia, 2022. (Virtual Presentation) — 2022

Memberships

ACM Member, since 2023.
IEEE Student Member, since 2021.
WHPC Member, since 2024.

Editorial and Review Activities

Reviewer for Super Computing 2024, Atlanta.	2024
Program Committee Member for ICMR24. (icmr2024.org)	2024
Artifact Evaluator for ICPE2024 Artifact Committee, 2024. Program Committee: ICPE2024 (spec.org)	2024
Reviewer for International Journal of Artificial Intelligence in Education, Springer, since 10/2023. (springer.com)	2023
Reviewer for ACMSE, since 1/2024. (acmse.net)	2024
Artifact Evaluator for ISSRE23 Program Committee, since 07/2023. (issre.github.io)	2023
Reviewer for ICCKE, Aug 2023. (iccke.um.ac.ir/2023)	2023
Reviewer for ICCKE, Aug 2022. (iccke.um.ac.ir/2022)	2022

Honors & Awards

Travel Award for Conference Trip from Super Computing Conference, 2024.
Top Ten rank of SSRN journal for “An Adaptive Network-Based Approach for Advanced Forecasting of Cryptocurrency Values” paper, 2024. (SSRN Top Downloads)
Travel Award for Domestic Conference Trip from Kent State University, 2024.
Awarded the second prize for the poster presentation at Human Brain Mapping Congress, Iran, 2021.
Ranked second in Iran’s national mathematics Olympiad, Iran, 2008.
Full scholarship awardee of Kent State University, 2023.

Languages

English: Fluent (TOEFL IBT Score: 108/120)
Farsi: Native

Technical Skills

Programming: Python, JavaScript, Maple, SQL, HTML, CSS, TypeScript, Matlab
Typesetting: LaTeX, TeX, Microsoft Word
Operating Systems: Windows, Ubuntu

Certificates

Medical Precision and Multi Omics, Shahid Beheshti Medical School, 2021
Python Programming, Udemy, 2019
Web Development, Udemy, 2016
Network+, Cando, 2016
CCNA (Routing & Switching), Cando, 2016
Machine Learning Engineer, Coursera, 2020

References

Dr. Qiang Guan, Associate Professor in the Computer Science Department, Kent State University, Kent, Ohio, USA.
Email: qguan@kent.edu