J (682)-283-4232 💌 hamzareza.pavel@gmail.com 🔚 hamzareza-pavel 🕥 hamzareza-pavel

Summary

Ph.D. candidate in Computer Science with over 2 years of experience in machine learning and deep learning, and more than 3 years in software development. Experienced in designing deep learning models for cognitive assessment, back-end systems, and scalable algorithms. Strong research focus on human-computer interaction, VR systems, and personalized AI solutions.

Education

The University of Texas at Arlington

Ph.D. in Computer Science

Shahjalal University of Science and Technology

B.Sc. in Computer Science and Engineering

Technical Skills

Languages: Python, C/C++, C#, F#, Java, Javascript, SQL, Bash, TypeScript, HTML, CSS. Libraries/Frameworks: Keras, PyTorch, Tensorflow, NumPy, Pandas, Matplotlib, Scikit-learn, ROS, React, QT. **Research Skills**: Data Collection, User interviews, Human-Computer Interaction, Data analysis, Experiment Design, Machine Learning, Deep Learning, Large Language Models.

Experience

The University of Texas at Arlington

Graduate Student Researcher

- Assessed cognitive fatigue from Gait cycle data using OpenPose, CNN, and LSTM, initially achieving 81% accuracy, and later improved the method with a Residual Graph Network to improve accuracy to 85.7%.
- Developed a shallow convolutional neural network (CNN) model for detecting cognitive fatigue from EEG data, achieving 88.17% accuracy, after designing and conducting a novel experiment to collect training data.
- Created novel heuristic-based algorithms to compute degree and closeness centrality in homogeneous multilayer networks, achieving a speedup of more than an order of magnitude compared to naive approaches.
- Worked on the development of a VR-based executive function assessment system using Unity, C#, Python, and PyTorch, integrating virtual environments and Large Language Models (LLMs) to personalize the user experience and enhance task engagement.
- Designed and conducted surveys, user studies, and interviews to validate and measure the usability of developed systems, ensuring their effectiveness and user satisfaction.
- Provided academic support as a Graduate Teaching Assistant for various courses, including Introduction to Programming, Advanced Database Systems, Database Systems, Data Mining, and Robotics, contributing to student learning outcome.

Chaldal

Senior Software Engineer

- Developed and optimized APIs using C#, F#, dotnet framework, and SQL for various features in the e-commerce system backend, enhancing customer satisfaction and streamlining user interactions.
- Engineered a rapid prototyping tool with F# and dotnet framework that accelerated the development of in-house tools by up to 70%, significantly improving the team's efficiency.
- Worked on the backend development of the Chaldal Vegetable Network(CDVN) using F# and dotnet framework, focusing on optimizing bulk supply and B2B operations, which improved the efficiency of fresh produce delivery.

Enosis Solutions Limited

Software Engineer/Senior Software Engineer

- Developed and maintained custom GUI controls using C++ and MFC for Visual Host, a cross-platform GUI framework used by ESI-group, ensuring robust and user-friendly interfaces.
- Managed and optimized the application framework and plugin architecture for ESI VisualEnvironment (a CAE application), improving system stability and extensibility.
- Monitored issues throughout the release cycle, planned development phases, and coordinated bug-fixing sprints with the team lead to ensure timely and efficient software delivery.

August 2019 - May 2025 (Expected) Arlington, Texas, USA

January 2011 - October 2015 Sylhet, Bangladesh

August 2019 - Present

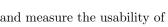
Arlington, Texas

August 2018 – July 2019

October 2015 - July 2018

Dhaka, Bangladesh

Dhaka, Bangladesh



Hamza Reza Pavel