

Shaghayegh (Shirley) Shajarian

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EDUCATION

- North Carolina Agricultural and Technical State University** Jan 2023 – Anticipated Graduation: May 2026
Ph.D. in Computer Science; GPA: 3.92/4.0. Greensboro, NC
- Courses: Deep Learning, Big Data, Machine Learning and Data Mining, and AI-Assisted Malware Analysis.
- Science and Research Branch of Azad University** Sep 2016 – Aug 2019
Master of Computer Software Engineering; GPA: 4/4 Tehran, Iran
- Courses: Data Mining, Big Data Analytics, Advanced Software Engineering, Software Architecture.
 - Ranked 2nd in Cumulative GPA among all the Computer Engineering Students.
- University of Mazandaran** Sep 2011 –Feb 2016
Bachelor of Computer Software Engineering Babolsar, Iran
- Courses: Artificial Intelligence, Data Structures, Database Management, Software Engineering.

EXPERIENCE

- Graduate Research Assistant, North Carolina A&T State University, Greensboro, NC** Jan 2023 – Present
- Conducted a survey of self-running networks by reviewing 112 recent papers, analyzing opportunities and challenges, and identifying key research directions to advance the field (*paper: under submission*).
 - Collaborated with a team to review 127 relevant research papers on ML-based detection techniques and XAI approaches, analyzing current trends and providing key insights to guide future research in explainable malware analysis (*paper*).
 - Contributed to the classification of malicious domains using transfer learning with ResNet50, achieving 98.67% testing accuracy (*paper*).
- Graduate Teaching Assistant, North Carolina A&T State University, Greensboro, NC** Jan 2023 – Present
- Led biweekly recitation sessions for AI/ML and Advanced Security courses, developed course assignments, graded assignments, and provided personalized support to ensure students' comprehension of complex topics.
- Research Assistant, Distributed Systems Laboratory, Azad University, Iran** Dec 2017 – Sep 2019
- Led weekly group discussions and presentations, mentored students on research methodologies, and regularly reviewed their reports to monitor progress and provide targeted feedback.
- Undergraduate Internship, Hasbemi Health Center, Iran** Jun 2014 – Sep 2015
- Automated patient data analysis using R with the data analytics team, utilizing data visualization techniques with Matplotlib to present health trends, reducing reporting time by 40% and improving data accuracy.
- Freelance Full Stack Web Developer, Iran** May 2014 –March 2015

PROJECTS

- Retrieval-Augmented Generation System for Document Query Answering** July 2024
- Implemented a RAG system using LangChain, FAISS, and HuggingFace Transformers to retrieve the most relevant documents for a given query, followed by generating context-aware answers.
- Predictive Analysis of Hospital Ratings Using PySpark** May 2024
- Processed a large dataset using PySpark to handle missing values and applied ML models, including Gradient Boosting using Scikit-learn, achieving an R^2 score of 0.87 in predicting hospital ratings.
- Malware Detection Using Convolutional Neural Networks** Dec 2023
- Applied CNNs with Keras and TensorFlow, leveraging batch normalization and dropout techniques to achieve 93% accuracy in malware detection, and tested robustness using the Fast Gradient Sign Method (FGSM) adversarial attack, resulting in a 25% drop in accuracy.
- Hint Generation System for Programming Coursework Question Assistance** May 2023
- Developed a system using BERT for multi-label classification on the Stack Overflow Code Corpus to provide relevant hints for programming questions and evaluated the model using Scikit-learn, achieving 92% accuracy in identifying relevant topics.

TECHNICAL SKILLS

Languages: Python, C++, R, HTML, CSS, PHP, SQL, MATLAB

Machine Learning Packages: Keras, PyTorch, Tensorflow, PySpark, Matplotlib, Scikit-learn, HuggingFace Transformers

Tools: GIT, MySQL, LangChain, LlamaIndex, Bootstrap, LaTeX