

# Arash Peighambari

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## EDUCATION

### California State University San Marcos (CSUSM), San Diego County, USA

2025

M.Sc., Department of Computer Science, GPA: 3.9/4.0

Thesis: AI-Assisted Supervisory Control Development of Wind Farm Connection to the Grid

### Sharif University of Technology (SUT), Tehran, IRAN

2019

B.Sc., Department of Computer Engineering, GPA: 62%

Capstone Project: Patient Health Care Management System Development Using React Library

## RESEARCH EXPERIENCE

### Graduate Research Assistant

7/2023 – Present

*Embedded Systems Lab*

*CSUSM CS Department, San Marcos, CA*

- Researched in Embedded AI to develop optimal Real-time AI models leading to 3 publications
- Optimized Deep Learning models by CUDA GPU programming that achieved up to 6x faster inference time
- Implemented Transformer, Convolutional and Recurrent Neural Network models and developed pipelines for data generating and processing that could achieve 1.48 milliseconds of inference time on NVIDIA IoT device
- Achieved accelerated performance with 4x smaller model size by quantization + pruning with NVIDIA TensorRT
- Profiled system and evaluated real-world data from Texas Panhandle that achieved up to 95% F1-score metric
- Funding Support by National Science Foundation (NSF) through Grant #2334256

## PUBLICATIONS

- Towards Practical Oscillation Detection in Wind Farms: Comparative Study of AI Models, Novel Metrics, and Edge Implementations, Energy and AI, 2025 (under review)
- Improved Subsynchronous Frequency Oscillations Detection in WindFarms Using AI-based Fourier Transformation and Advanced Metrics, IEEE Green Technologies, 1-5, 2025
- Evaluating the effectiveness and safety of pulsed dye laser alone, the combination of pulsed dye laser and botulinum toxin type A, Lasers in Medical Science 40 (1), 1-11, 2025
- Designing and Implementing Telemedicine Program for Heart Failure Patients in Rajaie, IHA 25 (1), 74-81, 2024
- Windfarm Forced Oscillation Detection using Hyperdimensional Computing, IEEE BigData, 3965-3972, 2023

## PRESENTATIONS

- Embedded AI for Wind Farm: A Real-time Oscillation Detection (Poster), UCLA CSU Symposium, Aug 2024
- Artificial Intelligence for Fast Oscillation Detection (Poster), CSUSM Summer Scholars, Aug 2024
- Real-time Optimal Anomaly Detection: Use of Embedded AI in Detecting Forced Oscillations in Wind Farm Plants, (Oral), CSUSM Grad Slam, April 2024

## ACADEMIC SERVICE

### Teacher Assistant – CSUSM

Summer& Fall 2024

Database Systems (CS 443), Business Analytics (BUS 322), Business Statistics (BUS 204)

### Graduate Mentor – CSUSM

Summer 2024

Mentored 9 undergraduate STEM students in physics and engineering during summer scholars' program

## RELEVANT PROFESSIONAL EXPERIENCE

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### Machine Learning Engineer Intern

Summer 2024

*Tensor Therapeutics*

*UCSD Rady School of Management, La Jolla, CA*

- Applied Generative AI to predict 3D structure of RNA molecules, including BERT-based transformers and Large Language Models (e.g. trRosettaRNA) and Latent Diffusion models (e.g. DiffRNA) for Drug Discovery
- Deployed ML pipelines on AWS, optimizing cloud environment for scalable computing using EC2 and S3 bucket
- Delivered and tested the LLM product on AWS in open source for 10 successful molecular predictions

### Software Engineer Intern

2018 – 2019

*Biomedical and Health Information Department*

*Rajaie Heart Center, Tehran, Iran*

- Delivered web app built on React library (front-end) as a product for patient data management
- Worked with Django (back-end) framework and relational database to overhaul department's web architecture
- Gained research experience with genomics data science applications using open-source Galaxy platform

## TECHNICAL SKILLS

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**Programming:** Python, C, C++, Java, MATLAB, SQL, HTML, CSS

**AI/ML:** PyTorch, Tensorflow, JAX, Keras, Scikit-learn, Pandas, NumPy

**Acceleration Frameworks:** TensorRT, ONNX, CUDA (Member of NVIDIA Developer Community/NVIDIA Nsight)

**Tools:** Git, Docker, AWS (EC2, S3, Lambda, Bedrock, DynamoDB, SageMaker), Terraform, Hugging Face

## LEADERSHIP AND AWARDS

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### Safe and Responsible AI Awardee – CSU AI Summer Camp 2025 – CAL Poly SLO

Summer 2025

Awarded the Ethical AI prize and interviewed with the New York Times

Selected as 1 of 50 scholars from over 900 applicants across the entire 23 CSU campuses

### President of Association for Computing Machinery (ACM) Student Chapter – CSUSM

2023 – 2024

Hosted events on campus inviting speakers from computer technology industry for students to network

### Summer Scholar Program – CSUSM

Summer 2024

Awarded Scholarship for research on NSF Granted project of Windfarm

## VOLUNTARY EXPERIENCE

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### Iranaissance Project – CA

Summer 2025

Joined the technical team as an AI solutions engineer to ensure agentic AI observability and compliance

### Super STEM Saturday – CSUSM

March 2025

Volunteered in a one-day festival that engages kids and their families in the diverse fields of science

### NVIDIA Developer Community

Spring 2025

Joined as a Developer Community member to continue research on NVIDIA Jetson platform

### International Student Center – San Diego State University

October 2024

Performed Traditional Persian music playing solo Tar

### 20th International Fair – CSUSM

April 2023

Performed Traditional Persian music playing solo Tar

## ACTIVITIES

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Playing four different musical instruments: The Tar, Setar, Guitar and Tanbur

Swimming – Certified Lifeguard