

Professional Experiences

Machine Learning Engineer and Researcher — Stevens Institute of Technology Hoboken, NJ, Aug 2019 - present

- Design of a labeling assistant [dashboard](#) for database creation and assessment for ML-related projects with MATLAB, resulting in a 10x efficiency increase and manual labor reduction.
- Design and development of a deep learning model for melt pool image processing using customized TensorFlow models, resulting in a significant data processing time reduction from 120s to <1s.
- Implementation of Machine Learning methods for feature extraction, from various data sources such as point clouds and images using [Hybrid Convolutional Auto Encoder-Decoders](#), resulting in an autonomous anomaly identification and prevention system.
- Implementation of a Reinforcement Learning-based controller, to automate anomaly detection and error mitigation using advanced deep learning techniques in TensorFlow, resulting in real-time fault detection and parameter tuning. (Patent in progress)
- Carrying out a multi-language (Python, MATLAB, C#) command exchange to automate data and command exchange streamline to sync various APIs.
- Gained proficient hands-on experience with various sensors and data acquisition modules such as cameras and laser surface profilometers.

Software and Hardware Developer — Sharif University of Technology Tehran, Iran, Aug 2018 - Jan 2019

- Designed and implemented an auto-irrigation system in Arduino, resulting in an \$8,000 funding raise and a start-up foundation.
- Providing technical support to employees regarding software design, model fabrication, testing, and documentation.
- Developed an auto-grading application to automate homework grading in various domains in MATLAB UI, resulting in a start-up foundation.

Virtual Reality Programmer and Research Intern — Dr. Robot Tehran, Iran, Jan 2018 - Aug 2018

- Supervised and implemented the Virtual Reality (VR) equipment and synchronization of the auxiliary sensors and devices.
- Designed and developed 10 interactive VR-based software programs in Unity engine, to train and examine pronunciation skills for children aged 7-10.
- Proctored 10 in-field software tests with VR equipment and developed applications with 58 subjects, leading to a successful proof of concept.
- Established assorted libraries for automation and task creation, including Text-To-Speech (TTS) conversion, animation creation, scenario compilation, and Console-VR program Synchronization in C#/Java/Python.

Education

Graduate Certificate in Machine Learning Stevens Institute of Technology, NJ, USA	Aug 2021 – Dec 2022
Doctor of Philosophy (Ph.D.) in ME working on Artificial Intelligence & Robotics, Stevens, NJ, USA	Aug 2019 – May 2024
Master of Engineering (M.Eng.) in ME Focusing on Robotics & Control, Stevens, NJ, USA	Aug 2019 – May 2021

Technical Skills

- Proficient in Python, with advanced work experience
- Proficient in TensorFlow, with advanced work experience
- Proficient in MATLAB and Simulink, with advanced work experience
- Intermediate experience in C++/C#
- Familiar with Unity and Steam Virtual Reality
- Fundamentals of SQL

Certifications

Fundamentals of Reinforcement Learning, HSE (Health, Safety, and Environment), Custom Models, Layers, and Loss Functions with TensorFlow	University of Alberta Isfahan Oil Refinery Company DeepLearning.AI
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Selected Publications

Real-Time Monitoring and Gaussian Process-Based Estimation of The Melt Pool Profile in DED.	ASME-MSEC 2023
In-Situ Quality Assessment and Control in AM Processes Using LSP and Deep Learning Techniques.	JIMS 2023
In-Situ Process Monitoring and In-Plane Anomaly Identification for A.M. Using P. Cloud and ML.	ASME- IDETC&CI 2021
Sensory Data Fusion Using Machine Learning Methods for In-Situ Defect Registration in AM: A Review.	IEMTRONICS 2022
Image-Based Dataset of Artifact Surfaces Fabricated by Additive Manufacturing with Applications in ML.	Data in Brief 2022