Shao-An (Sean) Yin

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EDUCATION

University of Minnesota, Twin City, MN Jun. 2025
■ *Doctor of Philosophy* in Electrical and Computer Engineering, focus on *Distributed Optimization and Algorithms*
University of Washington, Seattle, WA Jun. 2019
■ *Master of Science* in Mechanical Engineering, focus on *Applied Optimization, Data Science, and Algorithms*
National Taiwan University, Taipei, Taiwan Jun. 2016
■ *Bachelor of Science* in Mechanical Engineering, focus on *Automatic Control and Robotics*

WORKING EXPERIENCES

UMN Dr. Nicola Elia's Group | Research Assistant Sep. 2021 – Present
- Multi-Agent Robotics Systems and Distributed Optimization Algorithms.

Amazon.com Inc. | Applied Scientist Intern, San Diego May. 2022 – Aug. 2022
- Developed Reinforcement Learning Based Active Learning Algorithms for sequential batch data selection.

Taiwan Semiconductor Manufacturing Company (TSMC) | Engineer, Taiwan Oct. 2020 – Jul. 2021
- Built Image-based Unsupervised Anomaly Detection models to facilitate manufacturing processes based on cross-factory historical fabrication measurement information.

UW Dr. Sheng Wang's Lab| Summer Research Intern, Seattle Jul. 2020 – Sep. 2020
- Developed Reinforcement Learning Agents for smart references selection in a sequential manner to help humans' construction of knowledge (submitted to AAAI 2021).

UW BioRobotics Lab| Research Assistant, Seattle Jan. 2019 – Jun. 2020
- Developed Augmented behavior trees embedded Graphical Models with the execution success/failure probabilities in the context of medical procedure tracking based on clinical healthcare medical records.
- Worked with UW Medicine to provide statistical analysis of clinical healthcare data.
- Built a clinical data pre-processing pipeline in Python and implemented Recurrent Neural Network (RNN) sequence embedding in PyTorch.

Allen Institute for Brain Science | Research Intern, Seattle Jun. 2018 – Aug. 2018
- Designed a controller of the neuron's dynamical model optimized by the genetic algorithm with 91% accuracy to control the excitability of neurons in hippocampus in the context of seizure control.
- Analyzed neurons' morphological data and electrophysiological data based on various machine learning techniques.
- Conducted statistical testing on large data sets resulting from biophysical simulations.

Dragoncloud.ai | Part Time, Remote Apr. 2020 – Aug. 2020
- Developed a Computer Assisted Language Learning (CALL) system to help non-native speakers improve their foreign language pronunciation.
- Built a speech and phonemes sequence to sequence forced alignment with Connectionist Temporal Classification (CTC)-LSTM decoding in Pytorch.

Tiny Machine and Mechanics Laboratory | Research Assistant, Taiwan Sep. 2015 – Aug. 2016
- Developed an Electroencephalography (EEG) controlled Exoskeleton to help the disabled regain their mobility.
- Extracted physical control commands' features from people's brainwaves recordings through wiener filter and developed people's motion pattern recognition with short-time Fourier transform and wavelet analysis.

SELECTED PROJECTS

OpenAI Based control policy deep reinforcement learning | Course Project Sep. 2018 – Dec. 2018
- Developed a virtual agent to learn a continuous control policy from diverse environments in OpenAI GYM environment.
- Implemented Advantage Actor Critic (A2C) algorithm and Trust Region Policy Optimization (TRPO) algorithm.

SKILLS

■ **Algorithms**: Reinforcement Learning, Statistics, Optimization, Markov Decision Processes
■ **PROGRAMMING**: Python • C++ • C • MATLAB • SQL