Calahan T. Mollan

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2953-300B Pine Knoll Drive, Auburn Hills, MI 48326

SYSTEMS ENGINEER

Systems Engineer with experience in predictive modeling and machine learning adept in communication, problem solving, and applying learned topics. Reliable team player with the adaptability to thrive in any group. Diligent to the last and committed to perpetual improvement.

Education

Oakland University

Doctor of Philosophy, **System Engineering** - GPA: 3.9 **2020-Current**

Bachelor of Science, **Industrial and Systems Engineering** - GPA: 3.76, Magna Cum Laude **2016-2019**
Minor in **Applied Statistics**

Publications

Sequentially Utility Maximizing Path Planning Using a Distributed Pool Architecture **2021**
Proposed a pool-based distributed computing architecture to more efficiently simulate trafficability parameters for utility-based decision making for path planning of an off-road vehicle.

Utility Function Derived Off-road Vehicle Path Planning **2020**
Used a nested utility-based optimization loop to determine cost variables for a path planning algorithm as verified by a physics-based simulation written in Python

Fault Diagnosis and Prediction in Automotive Systems with Real-Time Data Using Machine Learning **2022**
Applied a LSTM recurrent neural network to modern automotive sensor data for the detection of errors prior to detrimental effects

Work Experience

Graduate Assistant **Sept 2020 - Current**
Oakland University - Rochester, MI
- Assisted in the teaching of Systems Engineering courses
- Communicated with students to achieve understanding of material and requirements

Industrial Systems & Solutions Intern **May 2018 - August 2018**
Plastic Omnium - Troy, MI
- Performed diagnostics on incoming machines to ensure compatibility with the proprietary database software
- Verified accuracy in production database through statistical means
- Corresponded with various engineering departments to ensure smooth installation of machines
- **Project: Machine Communication Simulator —** Created an event based, multi-threaded, fully documented simulator with fully customizable parameters interfaced via a GUI made in the tkInter library in **Python 3.6-3.7** to enable communication between the **Open Platform Communicator** (KEPware v6) and the **PLC** of any given machine. The software was packaged in as an .exe and version controlled via a Team Foundation Server repository for use in incoming machine testing.

Tutor **Sept 2015 - Dec 2020**
St. Clair County Community College - Port Huron, MI
- Instructed on academic topics, such as math and science, through exemplary communication skills
- Coordinated requests for tutoring services to best connect appropriate tutors and students

Skills

Programming Languages & Libraries
- Python, PyTorch, Pandas, Scikit-learn, Qiskit, ProjectChrono, NumPy, TensorFlow, R, SAS, SPSS, MATLAB, LaTeX, C++, BASIC, SQL, Visual Basic, C#

Software
- Minitab, Tableau, Arena, JACK, Plant Simulate, CATIA V5, AutoCAD, Windows Office, Google Drive

Operating Systems
- Windows 7, 8 & 10, Mac OS X