

SUMMARY

Highly adaptable computer engineering student graduated in June of 2022. Proficient at researching, understanding, and utilizing cutting edge concepts and technologies. Background includes internships in robotics and unit testing, and research in machine learning and data mining.

EDUCATION

University of California, Riverside – Riverside, California

Graduated June 2022

Bachelor of Science in Computer Engineering

Significant Coursework:

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|-------------------------|--|
| Artificial Intelligence | Artificial Intelligence, Machine Learning and Data Mining |
| Low Level Programming | Computer Architecture, Logic Design, Embedded and Real-Time Systems |
| Software Development | Data Structures and Algorithms, Software Construction (Covers agile, version control, unit testing, Linux, shell scripting, object oriented programming) |
| Other | Circuit Analysis, Signals and Systems, Statistics, Linear Algebra |

WORK EXPERIENCE

University Of California Riverside, Riverside, California

Student Assistant (Data Mining and Machine Learning)

June 2019 – June 2021

LAMP-Tree

- Co-developed a method for time series indexing using a tree of low cost machine learning models for motif discovery and index approximation in the face of fast moving data streams
- Contributed to python implementation and evaluation using datasets with up to 120 million data points
- Experimental results demonstrated up to a 40x speedup compared to exact search methods for identifying motif locations in seismograph data
- Co-developed iterative retraining method to maintain correlation prediction quality of individual models

Dynamic LAMP

- Invented, proposed, and prototyped a machine learning pipeline using Python to predict the Matrix Profile in environments subject to Concept Drift
- Evaluation in MATLAB showed Dynamic LAMP produced matrix profile values 91% the quality of those produced by standalone models, while adapting to motifs introduced outside initial training data
- Implemented Pipelines to fast-track testing with varying hyper-parameters, enable the use of pretrained weights, and allow for automatic segmentation of datasets
- Visualized individual model ability to adapt to motifs by progressively graphing changes in linear differences of predictions to the true Matrix Profile as new sections of data were introduced

[Jabil Chad Automation](#), Anaheim, California

Engineering Intern (Robotics Test Engineering)

July 2018 – September 2018

- Wrote, modified, and repaired unit tests for embedded systems using C# .Net
- Increased unit test code coverage by 26% with 400+ added unit tests following company style guidelines
- Passed code review, and committed changes made to the overall system using TortoiseGit
- Proposed method for accident prevention using generative adversarial networks to software colleagues
- Researched, documented, and tested code written for automatic programming (autonomous creation and implementation of embedded systems unit tests for robots)

Intern – Design Engineer (Robotics)

July 2017 – September 2017

- Designed and implemented a USB to USB LAN Network for automated data transfer using PowerShell and VirtualBox in Windows 7 to transfer files between 2 machines, without Ethernet, at USB 3.0 speeds
- Researched and vetted alternative vision technology saving the company \$1600 per robot utilizing the new camera
- Wrote a software library in C++ to translate manufacturing data into a standardized format
- Structured and created a software feature documentation database using Microsoft Access and SQL

SKILLS

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|-----------------------|--|
| Programming Languages | Python 2 & 3, C#, C++, C, MATLAB, Powershell, Verilog, shell scripting, Assembly |
| Software Design Tools | MS Visual Studio, Visual Studio Code, Vim, Xilinx, Atmel Studio, AWS Cloud 9 |
| Platforms | Windows, Ubuntu, Linux command line, Arduino, Amazon EC2 |
| Libraries | Numpy, SciPy, Matplotlib, Pandas, Seaborn, Keras, Tensorflow, Xgboost, Jupyter Notebook, Scikit-Learn, PySCAMP |
| Other Tools | Git, .NET unit testing, gtest, test driven development, object oriented programming, Agile, Scrum, Excel, Virtualbox, VMware, Anaconda, Google Cloud Video Intelligence API, SOLID design principles |

PROJECTS

Visual Memory Analysis Invention (CitrusHack 2019)

April 2019

- Modified Google Cloud’s Video Intelligence API and the Tweepy twitter scraping library in Python to invent a visual memory analysis tool
- Supplemented a lack of human visual memory data by substituting many peoples visual recordings(recollections) of an individual event(Coachella) to mimic the behavior of the technology on many differing visual accounts of a single person
- Processed data from 80+ videos, resulting in a distribution of video tags, the most common of which could be used to ‘jog’ a person’s memory who was trying to remember their experience at the event

Torque Vectoring (Society of Automotive Engineers)

April 2017 – June 2018

- Ran simulations of torque vectoring using MATLAB and Simulink using car statistics from previous years
- Co-developed novel method of yaw correction based on weight distribution
- Assisted in implementation of torque vectoring for an electric formula one style car in MATLAB and C++

Payload Project (American Institute of Aeronautics and Astronautics)

September 2017 – June 2018

- Researched Machine learning applications for rocket payloads
- Assisted in design and implementation of a rocket payload to measure atmospheric pollution gradients upon descent
- Attended lectures on liquid fuel Propulsion from the CEO’s of Inner Orbital