Eric Guidarelli

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EDUCATION

Bachelor of Science — Concentration
Electrical and Computer Engineering — Systems Engineering
Rowan University, Glassboro, NJ — Anticipated date of graduation: May 2016

SKILLS

Operating Systems: Windows: 7, 8, 8.1, 10; Unix: Ubuntu

Languages: Python, Matlab, C++, C, Verilog, HTML, CSS, JavaScript

EXPERIENCES

Contractor for Lockheed Martin on Feasibility Study — July 2015 - Present

- Worked for AS&T on a feasibility study: Cognitive Recognition of Missile Objects funded by the Navy.
- Utilized open source software that uses a, Hierarchical Temporal Model (HTM), developed by Numenta.
- Developed a driver that interfaced with Numenta's API to run discrimination on threat data.
- Explored the use and potential for the HTM to be used for radar discrimination and data association.
- Ran evaluations between the HTM and currently fielded discrimination algorithms on threat data.
- Received secret security clearance while working on the project.

Smart Sensor Network — January 2015 – May 2015

- Developed a working model for IEEE standard P21451 that dictates a secure communication protocol between clients, NCAP Servers, and transducers.
- Made a Java-based android app to perform client-side operations such as sending commands or requesting data to a Raspberry Pi server using the Smack XMPP client library.
- Handled server-side communication with a set of python classes that requested the appropriate transducer data over SPI and deliver that data back to the requesting clients with Sleek XMPP.
- Used SPI, Python, Java and XMPP in a working model of the IEEE P21451 Smart Sensor Network Standard and received the Spring 2015 Best Clinic Award from the Henry Rowan College of Engineering.

Support Desk Representative — November 2013 – May 2015

- Provided solutions to a wide range of technical issues including hardware malfunctions or software errors.
- Promptly handled users' issues using verbal and virtual communication.
- Developed detailed guides used regularly in training new staff members.

ENGINEERING PROJECTS

Multilayer Perceptron Neural Networks for OCR — September 2015 – December 2015

- Participated in a clinic, funded by Lockheed Martin, to gain a basic understanding of machine learning (ML) by studying neural networks and applying MATLAB's Neural Network Toolbox to perform character recognition.
- Acted as project manager for eight weeks and oversaw the project using an agile development methodology.
- Tested on the NIST Special Dataset #19 that had characters a-z, A-Z and 0-9, and developed multiple scripts to determine features of the images including projection histogram, distance profiling, and crossings.
- Utilized principle component analysis (PCA) to remove non-contributing features and decrease computation time.
- **Results: Used 10-fold cross-validation to determine an optimal network with distance profiles, projection histograms, and pixel features had a classification success of 88.12% ± 2.26% on all 62 characters**

Iot for Smart Buildings: Energy Management System — September 2015 – December 2015

- Designed and simulated an energy management system which monitors vital points and a micro-grid and directs where renewable assets should distribute their energy production.
- Used MATLABS's Sim Power Systems Toolbox in Simulink to design a micro-grid that incorporated various loads, a utility power source, a renewable energy source, and an energy storage unit.
- Used a Raspberry Pi as a server to communicate between a client interface and the simulation using UDP to receive commands from a client, communicate with the simulation in MATLAB, and deliver the results.
- **Results: Developed a tool to simulate a micro-grid under a variety of conditions and observe the result.**

High Power Curve Tracer — April 2014 – May 2014

- Designed a semiconductor curve tracer that can analyze the characteristics of diodes and transistors.
- Dealt with analog circuit design using LT Spice and then implemented the design on a prefabricated board.
- Performed the data acquisition by interfacing the analog circuit and a MyDAQ using LabVIEW.
- **Results: Measured correct curves with values up to 15 V and 800 mA.**

SOCIETIES & SERVICES

Professional Organizations

Institute of Electrical and Electronics Engineers (IEEE)
Robotics and Automation Society (RAS)
Engineers Without Borders (EWB-USA)

Maintained Club Website

Created and maintained Rowan's EWB-USA student chapter website. Updated members on meeting times, project details, and how to get involved: *rowan.edu/ewb*