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EDUCATION

Master of Arts in Economics , University of South Florida, Tampa, FL	12/2018
Bachelor of Science in Computer Engineering , University of South Florida, Tampa, FL	08/2017
Bachelor of Arts in Economics , University of South Florida, Tampa, FL	08/2017
Associates of Arts in Engineering , Hillsborough Community College	05/2011

Work Experience

Data Analyst – Acuity Technologies, Tampa, FL **10/2020 – Present**

- Responsible for managing the month-to-month expenses and data validation of several clients in order to achieve optimal cost efficiency. This includes some SQL queries, automation of various tasks within data analytics and other departments at Acuity. I have personally used a lot of power query, power automate, and VBA for excel to automate many of our usual tasks, as well as creating python programs to read and process PDF invoices, and a fully automated HTML scraper of a client's daily company data usage and send to dev team's database for client monitoring.

EXPERIENCE

Independent Information Technology Service Provider, Tampa, FL **08/2010 - Present**

- Provide information technology software/hardware maintenance and troubleshooting support to end users.

Personal Car Identification Image Recognition Project, Tampa, FL **01/2019 - Present**

- Created a car database (initially a CSV file now a text file for easier integration into python) of several make and models ranging from 1902 to present day.
- Created a google image parsing python program to google image search for each vehicle and download up to 50 images to a newly created folder with the car's name and renaming each image to the <car name>_x.jpg with x denoting the current image number 1-50.
- Created another python program to take this collection of images and do an 80/20 split for training and testing. Created 2 additional python programs, one to clean up the error logs for images that couldn't be downloaded due to 403 - Forbidden errors for manual download, and another program to take those downloaded images and rename them with the desired naming scheme to be integrated into the main collection.
- Future goal is to make it a standalone program and possibly make it into an app for mobile devices.

Computer Engineering/Graduate Economics Student, University of South Florida, Tampa, FL **10/2015 - 12/2018**

SunView Software OpenNLP – Senior Project **01/2017 - 05/2017**

- Created a natural language processing program to assess user sentiment within an IT trouble ticket system.
 - SunView is adding more accurate Natural Language Processing technology to enable its system to read, interpret, comprehend and act on input from sources such as chat, email and ticket forms. Understanding the context of the text presents many challenges. One of these challenges is interpreting words that can have multiple meanings. The machine must decide which of several definitions and contexts the given word (and ultimately the entire sentence or paragraph) is referring to and correctly interpret what the user is asking.
 - We needed to create this program in Scala, as well as improve upon the default design to improve its accuracy over the version from SunView. Our results ranged to between 60-80% accuracy, as well as including 3 different versions of the program. One for customers, another for developers to further improve accuracy and extend the WordNet database, both of which are in GUI form. Then a third version specifically made for within the company to process ticket forms and emails. Created a Natural Language Processing program using Scala with the IDE Eclipse to generate user sentiment for IT ticketing. We used OpenNLP, SentiWordNet, and used the Lesk algorithm to improve our accuracy in comparison to the Microsoft API text analytics demo that was available at

the time. In order to make our GUI, we used Scala Swing, and to convert our jar file of the program to a standalone executable we used SBT to package everything necessary to run and display the program into a single .jar file that was converted into an .exe file using Launch4j.

Artificial Intelligence:

- Created and trained a neural network via the Weka machine learning suite, achieving a testing accuracy of 93.4%.
 - Our project simply desired us to find ways to increase the accuracy of the neural network that we were using in WEKA, our best network was with 3 hidden layers of 50, 40, 30 with a training accuracy of 95.1% and a testing accuracy of 93.4% which was the 2nd highest in our class being just 2% less than the highest accurate network.
 - Using WEKA, build a neural network. Specifically, a “Multilayer Perceptron”. Use the “Letter Recognition” data set in the UCI repository. Find a way to divide the 20,000 records into two groups. One group, data set 1, should include a random selection of 90% of the records and it is to be used to train the network. The second group, data set 2, should include the other 10% of the records
- Created expert systems as part of a consumer retail project using the CLIPS artificial intelligence suite.
 - Our project in Expert Systems was focused on determining the type of car a person should get based on their responses to questions the program needs to make a proper decision, i.e. married, have kids, do they carpool, do they have a high income, desire comfortable rides, length of daily commute, etc.
 - -Side note- is this project was chosen as the best in the class and subsequently required us to create a 10-minute presentation demonstrating our project to the rest of our peers.
- Created a Prolog program focused on determining the type of car the user was thinking by asking the user a series of questions.

Embedded Systems/Hardware:

Implemented sophisticated mathematical and robotics-based operations on a variety of embedded systems, including:

- Basys3 Field-Programmable Gate Array (FPGA) via a Universal Asynchronous Receiver-Transmitter (UART).
 - We implemented matrix multiplication (up to 1000x1000) on a Basys3 FPGA board to compare its speed against a general-purpose processor of which would display the product matrix as well as time taken on a computer screen using UART and putty.
- Application-Specific Integrated Circuit 0.5m CMOS via the Virtuoso embedded system virtualization platform.
 - My group created a 4 x 4 array multiplier using ASIC 0.5m CMOS technology using Virtuoso. This required building each of the individual components within a limited space constraint of 0.8mm². The finished design contained 4 half-adders, 16 AND gates, and 8 full adders.
- An autonomous robotic system that assesses and negotiates obstacles via the Arduino prototyping framework.
 - Final project in Control of Mobile Robots where we worked with a robotic vehicle to maneuver through random mazes using sensors, encoders, and algorithms like Breadth First Search to determine the best route to a goal.
- A simulated microcontroller module that processed user input via TExaS and CodeWarrior.

Software:

- Simulated agents that negotiated obstacles using the Pthreads execution model in the C programming language.

Economics:

- Collecting and analyzing quantitative/qualitative data using econometrics and other economic applications.
- Strong Excel and analytical skills
- Experience using Stata and applying statistical knowledge to extrapolate economic trends
- Experience in Policy Analysis theories (Economic Policy Analysis)
- Experience in regulation and Antitrust applications and issues (Issues in Regulation and Antitrust)
- Experience with implementing calculus in macro- and micro-economic theories (Micro/Macro-Economics)
- Experience with human behavior when interacting with economics (Behavioral Economics)
- Experience with combining Law with Economic theories (Law and Economics)
- Performed a Literary Review by reviewing six journal papers regarding Product Quality (Industrial Organization)
- Develop Models and conduct Economic Analyses to explore the best outcomes
- Performed economic analysis of a patent dispute between two technology companies (International Trade & Policy)

- My group researched and presented a patent dispute regarding Nintendo, a large Japan-based company, and Motiva, a small US-based company, working on a similar technology resulting in Motiva submitting a complaint to the International Trade Commission.

TECHNICAL SKILLS

Programming: C, C++, Python, Java, Prolog, Expert Systems, Arduino, Verilog, VHDL, Scala, VBA, HTML, Ms SQL, R

Development Frameworks: NetBeans, Eclipse, Visual Studio, Cadence Virtuoso, Xilinx Vivado & ISE, SBT, TExaS, Logisim

Computing Platforms: Microsoft Windows, Linux, VMWare

Statistical Analysis: Multiple Linear Regression, Stata

Desktop Applications: Microsoft Office Suite, Power Query, PowerBi

HONORS AND AWARDS

Order of the Engineer, University of South Florida

05/2017

Phi Theta Kappa (Honor Society), Hillsborough Community College

05/2010