Mitchell Johnstone

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SUMMARY

Junior Computer Science and Computer Engineering student seeking a 2023 summer internship. Diverse education provides background in Computer Hardware, Embedded Systems, Machine Learning, Artificial Intelligence, and group collaboration. Outside of class committed to tutoring, being a lab assistant, working an internship, partaking in programming competitions, and researching.

EDUCATION

B.S. Computer Science/Computer Engineering | Minor Math | MSOE | GPA: 4.00 | expected May 2024

INTERNSHIP EXPERIENCE

Software Development Intern | Direct Supply | Milwaukee, Wisconsin | June – August 2022
Overview: Part of a scrum team of 9 providing internal company processes and order management.
- Implemented data validation and structuring to load and process large CSV data files.
- Developed objects to transfer data to and from SQL servers.
- Handled tickets regarding internal tool bugs, working to satisfy employee standards.
- Rewrote and improved deprecated software from Visual Basic 6 to C#.

Software Engineering Intern | Cognex | Milwaukee, Wisconsin | October 2020 – October 2021
Overview: Multi-faceted team of 7 operating with camera vision and the GUI for them.
- Conducted speed testing for benchmark testing to compare old versioning.
- Physically set up hardware on different cameras for data acquisition.
- Developed new application GUI components for a new camera system.
- Created Typescript solutions to web-based applications for camera interactions.
- Wrote bash scripts to determine data frequencies from log files on a Linux system.

Programmer | iNET Web | Waukesha, Wisconsin | June – August 2019
Overview: Worked on a team of 4 to provide website's back-end framework and fix bugs in front-end.
- Managed SQL database tables for adding new data and to alter incorrect entries.
- Set up communication from back-end to front-end utilizing C# injects.
- Wrote a JavaScript tax program for a customer website.
- Improve development flow by introducing GitHub pipelines to organize website releases.

PROJECT EXPERIENCE

Embedded III: Development Board (Individual)
- Wrote VHDL to configure a DE-10 Lite FPGA's memory map and overall computer system design.
- Developed personal APIs in C for different peripheral connecting to the board, including a seven-segment display, joystick control, servo motors, Accelerometer, LCD screens, switches, and LEDS.
- Communicated to peripherals through Avalon memory mapping, I2C, and serial peripheral interface.

Introduction to AI: Evolving the Game of Life (Team of 2)
- Wrote a Typescript program to graphically display the Conway's Game of Life and handle user interactions.
- Introduced evolution for the starting conditions of the automaton.
- Hosted the evolution application on a custom server system using the Lighthouse framework.

Machine Learning: Affinity Propagation Research (Team of 2)
- Research and implementation of the affinity propagation clustering algorithm.
- Programmed in a Jupyter Notebook to manage development between team members.
- Used music data to determine common characteristics between genres.
- Presented a description of the algorithm and findings from music to an entire class.

Software Tools and Practices: GTFS Bus GUI (Team of 3)
- Created a JavaFX application to display Bus data and provide easy editing opportunities to users.
- Read in dense files that followed the General Transit Feed Specification.
- Communicated development through scrum epics and user stories.

Lambda Calculus Architecture Research (Individual)
- Learned lambda calculus to compare against Turing machines in computability and state.
- Explore new hardware solutions required to compute lambda calculus functions efficiently.

TECHNICAL SKILLS

Areas:
- Operating Systems
- Intel FPGAs
- Machine Learning
- Embedded Systems

Tools:
- NumPy
- Git
- Pandas
- SciPy
- Intel Quartus
- KNN
- Batch Jobs
- Affinity Propogagtion

Languages:
- C
- C++
- C#
- Java
- Python
- MIPS
- VHDL
- MySQL
- ARM
- Typescript
- Dyalog APL
- VB6

LEADERSHIP | CO-CURRICULAR INVOLVEMENT

Member | Competitive Programming (SSE) | September 2020 – Current | 5 hours/week
VP of Operations | High School Robotics | Sept 2017 – May 2020 | 20 hours/week

WORK HISTORY

Tutor | Milwaukee School of Engineering | December 2020 – Current
Golf Caddy | Brown Deer Golf Course | June – August 2018, 2019
Camp Counselor | Milwaukee WI Lutheran Church | June – August 2017

INTERESTS

Esoteric Programming Languages | Competitive Programming | Reading | Origami