John Mihal

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Education

B.S. Computer Science, Minor Quantum Information Science and Technology, Rochester Institute of Technology, 3.65/4.0, Graduating Spring 2024

Languages: Java, Python, MatLab, C, C++, C#, SQL, HTML, CSS, JS, AWS (Amazon Web Service); Lambda, CloudFormation, S3, API Gateway, State Machine

Concepts: Agile, SRCUM, Databases, AI, Embedded Programming, Optics, Quantum, Computer Vision

Professional Experience

Research Assistant, **RIT Quantum Imaging Laboratory** - September 2023 to present

- The Quantum Imaging Laboratory focuses on designing and testing integrated photonics chips.
- Researching simulating light propagation on a star coupler component, using Python and the Meep library to see if Meep is viable for adoption throughout the lab.

Research & Pre-clinical Development IT Coop, **Regeneron** - January 2023 - August 2023

- Worked to create integrations between scientific systems such as BioBank, Clarizen, and other laboratory information management systems (LIMS) using Python and AWS Lambda.
- Designed and implemented a internal SwaggerHub replacement using AWS S3, AWS API Gateway, SwaggerUI and JS which saved over $20,000 in yearly licensing costs.
- Translated business requirements to develop a Dotmatics to CoreLIMS molecule synchronization system and coordinated testing with Senior Developers, Principal Business Analysts and Consultants.
- Deployed continuous integration and continuous deployment (CICD) pipelines by configuring Jenkins CloudBees and installing Jenkins shell scripts in repositories using Perl.

Projects

Servo Drivers - Winter 2024

- Designed a system to feed two PWM servos rotation instruction sets and user input instruction commands which can pause the instruction sets and modify the servos directly.

  Tools: C, HAL, STM32 Nucleo-L476RG Microcontroller, Oscilloscope, Servo

AI Number Classifier - Fall 2023

- Implemented 8 different models (Single vs Double Layer, Linear vs Convolution, ReLU, maxPool variants and combinations) to classify pictures of handwritten numbers from the MNIST dataset.

  Tools: Python, TensorFlow

Clash Stats - Summer 2023

- Created a website where users can make sharable dashboards to view and compare live in game statistics with friends for the mobile game Clash Royale.

  Tools: JS, Node.js, MongoDB, Express, Pug, Clash Royale API, Bootstrap CSS

Meal Hub - Spring 2022

- Designed and implemented a SQL database and Java database management application.
- The application allowed users to manage a virtual pantry, search recipes and receive recommendations.

  Tools: SQL, Relational Databases, Java, Java Fx, Gluon Scene Builder, R, Kaggle, Indexes

Extracurriculars

Multidisciplinary Robotics Club - Fall 2023 to present - Designing and building a robot to autonomously navigate a set course. The robot uses LiDAR, a camera and a Nvidia Jetson computer for navigation.

Sticky Site - Winter 2024
- A public sticky note board where users can draw a sticky and post it to the site for all to see.

  Tools: JS, Python, Flask, MongoDB, Jinja2

Dice Counter - Winter 2024
- Produced a Matlab project which received pictures of dice on a table and counted the number of dice.

  Tools: Matlab

Frequency Reader - Winter 2024
- Wrote code which enabled the microcontroller to receive a wave and count the period of the wave with microsecond accuracy before outputting a histogram of period times.

  Tools: C, HAL, STM32 Nucleo-L476RG Microcontroller, Oscilloscope, Wave Generator

AI Language Model - Fall 2023
- Generated 4 language models trained off of scripts from the show “My Little Pony”.
- Models used were LTSM, RNN, Two Layer Linear Model, Single Layer Linear Model, these were evaluated using perplexity, and cosine similarity between related words.

  Tools: Python, TensorFlow

Weather Web App - Summer 2022
- Learned JS to formulate and develop a JS web app where users can look up the weather of a city.

  Tools: JS, HTML, CSS, API’s