Rio Blumenthal

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Objective

A summer internship in Computer Science in either Austin, TX or Worcester, MA.

Education

Worcester Polytechnic Institute *August 2023 - Present*

Working towards Bachelor's in Computer Science, Master's in Computer Science BS/MS program, Minor in Mathematics
4.0 GPA, Dean's List Award Recipient every term of 2023-2024, degrees expected May 2027

Relevant Coursework: Introduction to Program Design, Discrete Mathematics, Object Oriented Design, Systems Programming, Algorithms, Operating Systems, Advanced Linear Algebra, Probability Theory, Database Systems, Advanced Database Systems, Software Engineering, Introduction to Electrical and Computer Engineering, Graduate Algorithm Design and Analysis, Graduate Artificial Intelligence, Graduate Machine Learning

Personal Projects (Linked on GitHub)

- **Logisim Microprocessor**: Designed, simulated, and programmed a pipelined microprocessor. Used Logisim to create from transistor level, and used custom Python script to convert readable Assembly to circuit-level code.
- **First Robotics Competition (FRC) Scouting Framework**: Invented a game analysis program which achieved 90% competition result prediction accuracy using Google Sheets and Apps Script, analyzing hundreds of teams' data.
- **Arduino Connect 4**: Built and coded fully functional Connect 4 game using an Arduino and a 7x7 LED matrix.
- **Printed Circuit Board (PCB) Design**: Engineered PCB to display LED hearts using KiCad. Ordered the pieces and assembled it using WPI's solder ovens. Kept it easily reproducible with total costs under $10. Programmed display using Arduino Uno.
- **Message Graphing**: Wrote programs to analyze large CSV message datasets (300,000+ messages) using Pandas and Numpy, delivering insights such as messages over time, word clouds, sentiment analysis, and topic trends with efficient performance.
- **New York Times (NYT) Strands Solver**: Created solver for the NYT Strands puzzle. Uses web scraping, optimized algorithms, and a Trie structure to efficiently sort through millions of board states with a runtime under 1 minute.
- **Auto-Email Tool**: Coded program in Google Apps Script to automatically create and send AI-generated emails.
- **MTG Discord Bot**: Produced TypeScript-powered Discord bot to efficiently parse user input and search 30,000 Magic: The Gathering cards. Uses the ScryFall API for images and Discord API for integration.
- **Wordle Infinite**: Recreated NYT Wordle game in Java with custom UI, adding "Hint" and "New Word" features.

CS Activities/Experience

AI Tutoring Bot *June 2024 - August 2024*

- Collaborated with a team of grad students to create an AI chatbot for tutoring students in AP U.S. History.
- Used CLASS framework to provide feedback in a constructive manner, which was evaluated as 97% effective
- Created a RAG for knowledge base on top of pretrained Llama2, which together outperformed ChatGPT on the test
- Gained experience in AI, research, algorithms, and large-scale collaborative projects

FIRST Robotics Competition (FRC) *August 2020 - May 2023*

- As programming co-captain, led a team of 10 students to program the robot through the autonomous period without driver control. Also led the design of all of the controller and response systems.
- Designed the scouting system for the team to compile data through Google forms about other bots for alliance selection. Started in Google Sheets and then moved to a local hosted platform.
- Helped lead the team to the top 30 in Texas (of 190 teams) every year
- Received Autonomous Award for best programming at State Championships (of 60 teams) in 2023
- Received Excellence in Engineering Award for most efficient design (of 34 teams) at Regionals in 2023

Other Experience

Handyman Assistant *June 2020 - August 2020*

- Worked under plumber/electrician to install large appliances and conduct over a dozen repairs

Technical Skills

Languages: Python, Java, C/C++, JavaScript, HTML/CSS, Powershell, Racket, MATLAB, Assembly, Apps Script, SQL
Tools: Git, GitHub, Logisim, LaTeX, MATLAB, SolidWorks, KiCad, Oracle