TIMOTHY METZGER

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EDUCATION

M.S. Computer Science, Georgia Institute of Technology — Expected May 2024
Specialization: Interactive Intelligence — GPA: 3.80

B.S. Mechanical Engineering, Saint Louis University — 2019 - 2022
Minor in Engineering Mathematics — GPA: 4.0
Summa Cum Laude

A.S. Engineering Science, Saint Louis Community College — 2014 - 2018
GPA: 3.90

SKILLS

Technical Skills	Python, C, C++, Java, C#, Rust, MATLAB, LABVIEW, Autodesk, MS Office
Libraries	NumPy, SciPy, Pandas, MatPlotLib, spaCy, Qt, Junit
Soft Skills	Problem Solving, Communication, Teamwork, Management
Certifications	Licensed Engineer in Training - MO

RESEARCH

AI Material Discovery Research Assistant — Jan 2023 - May 2023
Georgia Institute of Technology — *Atlanta, GA*

- Conducted research on discovering new materials using AI
- Translated lattice structure information into a computer recognizable structure
- Input electrical potentials for known materials
- Manipulated graph neural network to find potential materials

PRESENTATIONS

Automated Pill Sorting Poster — May 2022
Saint Louis University — *St. Louis, MO*

- Presented a poster and functioning prototype for pill sorting in pharmacies
- Proposed machine would take a patients pills and sort them into a 7-day bin
- Showed potential for benefits to patient health through prescription adherence

DIY Quadcopter Drone — May 2018
Saint Louis Community College — *St. Louis, MO*

- Presented a poster on developing your own drone using a 3D printer
- Discussed techniques for component design in CAD
- Showed the importance of knowing when to manufacture and when to buy parts

PROJECTS

N-Directional A* Search. Implemented an N-directional A* search algorithm in Python for finding the optimal path between N locations in the greater Atlanta region. Algorithm solves a problem similar to the Traveling Salesman problem, but in a way that can leverage many of the common A* search optimizations such as landmarks, shortcuts, and ATL

Physics Simulation Engine. Currently working on developing a Physics Engine for simulating soft-body, rigid-body, and fluid dynamics using Rust and Vulkan

Andrew File System. Implemented a functional replica of the Andrew File System using C++ with Googles protobuf and gRPC.

Q-Learning Stock Trader. Built an AI model for trading stocks using Numpy and Pandas using q-learning with dyna to 'hallucinate' additional training data.

Raven's Progressive Matrix Agent. Created an agent capable of solving the visual based Raven's intelligence problems with results exceeding that of humans.

PROFESSIONAL EXPERIENCE

Stock Trader Jan 2019 - Present
Personal *Eureka, MO*

- Traded stocks and cryptocurrencies, primarily those labeled as "blue chip"
- Developed several trading models using a variety of machine learning techniques
- Maintained a profitable PnL throughout

Assistant Manager Jan 2014 - Jan 2017
Schnucks *Eureka, MO*

- Assisted in employee scheduling
- Collaborated with department leads to optimize workflow
- Maintained tight deadlines for product delivery and sales

EXTRACURRICULAR

Track & Field Coach - USATF Level 1 2019-Present
Professional Triathlete Endeavor 2016-2020