

TIMOTHY METZGER

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EDUCATION

M.S. Computer Science, Georgia Institute of Technology 2022 - 2024
Specialization: Interactive Intelligence GPA: 3.90

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

RESEARCH

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

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

TEACHING

Teaching Assistant - AI Tentative - Spring 2025
Georgia Institute of Technology *Atlanta, GA*

- Provided verbose feedback on student work to facilitate success
- Assisted students in coursework clarifications
- Graded student assignments and exams

PRESENTATIONS

Automated Pill Sorting 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
- Demonstrated 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

PROFESSIONAL EXPERIENCE

Real-Time Software Engineer - F22 May 2024 - Present
Boeing *St. Louis, MO*

- Conducted research and development of future capabilities for the F22 platform, with a focus on sensors

- Implemented real-time data processing algorithms ensuring high reliability
- Collaborated with cross-functional teams to integrate software with avionics hardware
- Performed system validation and verification through extensive testing procedures.
- Developed and executed simulation scenarios to validate software behavior under various flight conditions
- Created comprehensive documentation to verify complex system behavior preventing defects in production

Algorithmic Stock Trader

Jan 2019 - Present

Personal

Eureka, MO

- Developed algorithmic trading strategies utilizing proprietary indicators and machine learning
- Utilized existing machine learning frameworks for rapid development
- Maintained a positive 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

SKILLS

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

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

AI Trading System. Currently working on developing an advanced stock trading agent utilizing a combination of proximal policy optimization, hidden Markov models, regression models, and proprietary indicators.

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

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

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

SCHOLARLY MEMBERSHIP

ACM - Georgia Tech	2022-Present
Phi Theta Kappa - STLCC	2016-2018

ADDITIONAL ACTIVITIES

Track & Field Coach - USATF Level 1	2019-Present
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