MATTHEW FORGET | SOFTWARE DEVELOPER

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PROFESSIONAL SUMMARY

As a passionate computer science graduate, I am eager to contribute to the development of AI technologies that positively impact society. With a strong foundation in software development and a deep interest in machine learning, I aim to continuously expand my knowledge in artificial intelligence while leveraging my skills to build innovative solutions that enhance everyday life

EDUCATION

YORK UNIVERSITY - 2024 - BA in the Specialized Honours Computer Science Program

LANGUAGES

- Java
- Python
- HTML/CSS
- C / C++ / C#
- Javascript
- SQL

RELEVANT COURSES TAKEN

- Machine Learning / Pattern Recognition
- Capstone Project (LLM based research)
- Intro To AI and Logic Programming
- Advanced Data Structures
- Software Design
- Distributed Systems
- Artificial Intelligence
- Design and Analysis of Algorithms
- Advanced Object Oriented Programming

PROFESSIONAL EXPERIENCE

Tutoring • 2023 - Present • I tutor university students of all years in math and computer science classes

RELEVANT PROJECTS

LLM BASED MUTATION TESTING RESEARCH | VISIT GITHUB

- **Conducted research and development** on LLM-based mutation testing, comparing results with Pitest across various Apache Maven projects
- **Evaluated and analyzed** mutation scores and runnability of mutants generated by GPT-3.5-turbo for quality assessment
- **Developed Python scripts** to automate the comparison of LLM-generated mutants with traditional mutation testing outputs
- Currently I am writing a research paper on this to be presented at ICSE 2025 - ACM Student Research Competition

CHESS APP WITH GUI AND PLAYABLE AI | VISIT GITHUB

- **Developed** a fully functional chess application in Java, using Flutter for cross platform support, and an interactive graphical user interface (GUI)
- **Designed and implemented** core chess mechanics, including move validation, board setup, and user interaction, ensuring a seamless gameplay experience
- **Currently integrating AI capabilities** using reinforcement learning and supervised learning, allowing users to play against an intelligent opponent

PREDICTING HEART FAILURE IN PATIENTS | VISIT GITHUB

- **Implemented** a set of code to parse data on medical patients (age, weight, etc.) into training and test sections
- **Developed Python scripts** with Jupyter Notebook to apply various machine learning models, including logistic regression, KNN, and ensemble learning, for predicting heart failure risk. Conducted data visualization and evaluated model performance using AUC ROC to assess accuracy

AUDIO PLUGINS | VISIT GITHUB

- **Designed and implemented** audio plugins using the JUCE framework in C++
- **Arpeggiator Plugin:** Created a MIDI-based arpeggiator with customizable tempo and patterns
- **Reverb Plugin:** Developed a reverb plugin that simulates various acoustic spaces, providing users with control over room size and decay time
- **Delay Plugin:** Built a delay effect plugin with adjustable parameters for time, feedback, and mix, allowing for diverse delay and echo effects
- **Added audio** to a Unity game using C# by integrating sound effects and background music, triggered by in-game events and player actions