Sunny Wang

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Education

University of Michigan **Sep. 2020 - May 2024**

BS in Computer Science and BA in Music *Ann Arbor, MI*

Relevant Coursework: Machine Learning, Computer Vision, Intro to Artificial Intelligence, Conversational AI, Autonomous Robotics, Algorithms and Data Structures, Intro to Computer Organization, Foundations of Computer Science, Applied Linear Algebra, Multi-variable Calculus, Intro to Data Science

Experience

Automation Intern **May 2023 - August 2023**

Viasat *Carlsbad, CA*

- Designed an AI chatbot, automating the reservation process for virtual sandboxes, cutting out related operational expenses. Currently serves over 300 corporate clients, significantly improving user experience
- Developed a supervised learning script driving continuous refinement of the chatbot model, increasing model accuracy by 42% after training on currently available data
- Revitalized the chatbot NLU pipeline with task-tailored processes, resulting in a 50% faster response time and a 9.5% increase in response accuracy

Software Engineering Intern **May 2022 - August 2022**

Instahub *Philadelphia, PA*

- Optimized the backend dataflow by designing a new data-processing software, written in Axon and built on SkySpark, using machine learning techniques to produce KPI's from data logger info. Increased dataflow efficiency by 20%
- Led a team of 4 developers in weekly team meetings and discussions to further refine the server's data-processing capabilities by adding various data visualizers and the ability to examine different data types
- Analyzed raw graph data from motion sensors leveraging machine learning techniques with Tensorflow to improve sensor response accuracy by 14%

Student Coach **June 2022 - September 2022**

Joy of Coding - UM *Ann Arbor, MI*

- Coached online python course with over 1700 students from all over the world, contributing to an 85% student pass rate
- Tutored students over video calls to help improve understanding in key concepts

Personal Projects

Genre Genius | *PyTorch, NumPy, matplotlib, Librosa* **December 2023**

- Built a CNN-based model for song genre classification from scratch, achieving a final test accuracy of 75% over 10 genres, beating current industry standards for CNN-based models by 10%
- Optimized by experimenting with data augmentation using various forms of audio data representation like Mel-Spectrograms and MFCCs, leading to an accuracy increase of 7% over the same model without augmentation
- Applied diverse training methodologies like cross-validation and metric-based dynamic training to boost performance

TuneBot | *Python, PyTorch, CSS, HTML* **March 2023**

- Engineered a GPT-2 based AI model for song lyric generation, incorporating genre, artist, and subject inputs; further improved by introducing song structures and rhyming schemes for authenticity
- Developed and integrated a Named Entity Recognition system, leveraging NLP techniques to accurately interpret and process user inputs in natural language
- Built a clean and simple front-end website interface, ensuring seamless back-end integration with the model

Chess Agent | *Python, Chess* **October 2022**

- Developed a chess agent using the Minimax and $\alpha\beta$ pruning algorithms to determine the most optimal move on any board state

Technical Skills

Languages: C++, Python, Java, R, Axon, Lua, Rasa, LaTeX
Frameworks/Libraries: Pandas, NumPy, TensorFlow, PyTorch, Scikit-learn, Matplotlib
Developer Tools: SQL, Git, AWS, Ubuntu, PyCharm

Affiliations

UMARV Team Member: Created a moving simulated robot model that traversed a maze from start to end applying various search algorithms. Implemented the software from simulation to physical robot, collaborating with a sub-team of 15 students

Michigan Hackers: Analyzed and optimized open-source Project Minetest to minimize bugs and revamp the player experience with a small team of fellow students using C++, Lua, and Unity