

# 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, Algorithms and Data Structures, Intro to Computer Organization, Foundations of Computer Science, Intro to Artificial Intelligence, Conversational AI, Applied Linear Algebra, Multi-variable Calculus, Intro to Data Science

## Experience

### Automation Intern

May 2023 - August 2023

*Viasat*

*Carlsbad, CA*

- Designed an AI chatbot for corporate clients, automating the reservation process for virtual sandboxes, cutting out related operational expenses. Currently serves over 10,000 customers, 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. Collaborated through EC2 and SQL
- Analyzed raw graph data from motion sensors leveraging machine learning techniques with Tensorflow to improve sensor response accuracy

### 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
- Met with students over video calls to help improve understanding in key concepts as well as work through bugs in written code

## Personal Projects

### Genre Genius | *PyTorch, NumPy, matplotlib, Librosa*

December 2023

- Built a CNN-based model for song genre classification from scratch, achieving 76% test accuracy over 10 genres.
- Optimized by experimenting with data augmentation using various forms of audio data representation like Mel-Spectrograms and MFCCs.
- 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 optimal moves on any board.

## Technical Skills

**Languages:** C++, Python, Java, R, Axon, Lua, Rasa,  $\text{\LaTeX}$

**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.