DAVEN CHANG

University of Maryland College Park
B.S. in CS/ML
GPA: 3.95

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SUMMARY

Passionate about software development and machine learning, particularly focused on Generative/Reinforcement ML. Extensive Python proficiency gained through numerous impactful personal projects. Adaptable to various programming languages. A collaborative team player with a strong work ethic and an innate curiosity.

SKILLS

Languages: Python, Java, C, R, HTML, CSS, Javascript, Ocaml, Bash, MIPS Assembly.

Technologies: VSCode, Git, Linux, Unix, Numpy, Pandas, Tensorflow, Keras, OpenCV, PyTorch, Matplotlib, Mediapipe, Flask, Typing.

EDUCATION

8/2023 - 5/2026 **CS/ML @ University of Maryland College Park** **School**
Undergraduate researcher in the FIRE research program in Sustainability Analytics.

EXPERIENCE

7/2023 - 8/2023 **Inspirit AI - AI Scholar** **Program**
Built cifar-10 classifiers with **KNNs** and **CNNs**. Combined **NLP** and **DNN** through **LSTM**s, **RNNs**, and **transformers**, to predict stock prices from news and market history.

6/2023 - 6/2023 **BWSI - COGWORKS** **Program**
Completed course on Autonomous Cognitive Assistants. Learned version control with Git, and advanced knowledge of Python and NLP techniques.

PROJECTS

Finance/ Automation **BandMaker** **https://github.com/daven-c/BandMaker**
Developed a **Python** based stock market application using **discord's API bot** that notifies user when to make technical trades. Integrated an **SQL** database to store a user's tracked tickers. Developed an algorithm combining **candlestick patterns, support/resistance levels, and moving averages** from **API** data to identify bullish and bearish trends. Merged **web scrapers** and **sentiment analysis** for news-based ratings. Currently exploring **transformer/deep learning** alternatives to pattern-matching algorithms.

Computer Vision **Helping Hands** **https://devpost.com/software/helpinghands-myl8ox**
Crafted a **Python** application leveraging the power of **computer vision** to precisely track hand movements **through a regular webcam**. Empowers users to remotely control mouse actions such as moving, clicking, and scrolling by intuitively gesturing with their hands and fingers. Incorporated **smoothing algorithms** to ensure seamless and jitter-free mouse movements. Implemented using Python, mediapipe, cv2, numpy, and pyautogui.

Website **davenc.dev** **https://davenc.dev**
Constructed a website from the **ground up**, acquiring proficiency in **HTML**, **CSS**, and **JavaScript**. Integrated with a Google Domain and **DDNS** to maintain a personal **VPN**. Gained insights into networking essentials, encompassing DNS, IP addresses, and HTTP/TCP protocols. Plans include the integration of Node.js and other frameworks.

Gen AI **DigitGAN** **https://github.com/daven-c/DigitGAN**
Created, trained, and fine-tuned **GANs** in **pytorch** capable of generating images of numbers similar to the **MNIST** dataset. Initially utilized a **Deep Neural Network**, but improved with an upscaling **Convolutional Neural Network** for sharper resolutions.

Classifier **Digit Classifier** **https://davenc.dev**
Created, trained, and fine-tuned a **Convolutional Neural Network** with **Keras** to classify a digit drawn on a **grid-based UI** built with **Pygame**. Incorporated a system of easily saving and loading the best models.

Algorithms **A Star Visualizer** **https://github.com/daven-c/A-Star-Visualizer**
Designed a grid-based **visualizer** with the ability to place obstacles on a dynamic board featuring customizable start and end tiles. Upon execution, the program navigates through obstacles, employing **A Star pathfinding** algorithm to determine the optimal route from the designated start tile to the endpoint.

COURSEWORK

- Intro to Object Oriented Programming I/II, Data Structures and Algorithms, Intro to Computer Systems, Discrete Structures, Organization of Programming Languages, Algorithms, Calculus I/II, Linear Algebra.