Ayush Zenith

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PROFILE

Hi! I'm a senior at Andover High School, Andover, MA. Apart from being a student in my free time I am a tinkerer, programmer, and a hobbyist. I enjoy I playing a lot of video games, eating, spending time with friends and family, and reading up/working on the latest technologies.

ayushzenith | Personal Website | @ayushzenith

WORK AND LEADERSHIP EXPERIENCE

Programmer 06/2017 – present
Energize Andover/Town Of Andover, Andover, MA, United States

- Studied and developed an understanding of the gas, electric, and HVAC infrastructure of the town of Andover and Andover High School
- Developed a BACnet monitoring web application powered by a Python back end with Data Manipulation in PANDAS
- Working on a ML program which makes predictions on electricity usage based on historic data

Software QA Intern 07/2020 – 08/2020
Nextuple Inc., United States

- Helped develop automation test tools and wrote automated test cases for testing software products

Intern/Tutor/Co-Author 06/2018 – 02/2020
Beaven and Associates, Andover, MA, United States

- Tutor math and english
- Editor/Author for Math and English books

Vice Captain 05/2020 – present
Taekwondo competing demonstration team, Andover, MA, United States

- Won several demonstration competitions and also performed at many other events and attractions

Co-founder and Vice President 12/2019 – present
Physics Club at Andover High School, Andover, MA, United States

- Co-founded club with two other intent classmates
- Help fundraise, plan, set, and achieve goals

Student 07/2019 – 08/2019
Racecar - Beaverworks MIT - 2019, Cambridge, MA, United States

WORK AND LEADERSHIP EXPERIENCE

- Worked on a small scaled self driving racecar based on a four week course at MIT
- Programmed an algorithmic based system relying on LIDAR, image processing, and many other technologies

Student 10/2018 – 12/2019
Youth Cities, Boston, MA, United States

- Part of entrepreneurship programs with project based learning

SKILLS

Programming Languages

Python 2 & 3
Java
C

Tools and Libraries

JetBrain Tools
Pandas, NumPy, SciPy, MatPlotLib, and Pillow
TensorFlow, Keras, OpenCV, and OpenAI

Technologies

Data Science
Machine Learning/Computer Vision
Hardware/Microcontroller programming and circuit building
ROS
Control Systems

PROJECTS

Electricity Prediction Analysis

This is a long term and on going project. This project is supposed to be able to make predictions on electricity usage of a building using historic data. It is going to be based on a ARIMA neural net that I am designing and training and will keep training itself as time passes...

PreTweet

https://devpost.com/software/pretweet/

People think rashly and make bad decisions when their emotions take the best of them, and they are in the "heat of the moment." To solve this issue, PreTweet shows the user how negative or positive their Tweet is and if the user still decides to post the tweet, PreTweet will automatically do so in three days giving them time to think about it. Some of the major frameworks used were Flask and Svelte. Along with Flask many other libraries such as Flask-Dance, Flask-Login, and Flask-SqlAlchemy were used in order to support and add some of our extra features like

PROJECTS

the login with Twitter, keeping track of users, and easy database entry which flask couldn't do alone.

Alarm++

https://devpost.com/software/alarm-kc5lfj/

Like any other alarm, Alarm++ allows users to set alarms at any date and time. However, what sets Alarm++ apart from the competition is its defining feature: jumping jack detection. Alarm++ uses a trained, deep-learning neural network and OpenCV to detect people and the neural network estimates the pose of the person and calculates a skeletal system of joints to represent the positions and orientations of the person's limbs.

VisualStory

https://devpost.com/software/visualstory/

This application is a web application which takes an input of an image and starts to scour for recognizable simple objects(ex-table, people, bowl, etc) and makes predictions on the occupation of people based on their clothing and other pretaught factors. It is a RL based system programmed with OpenAI and ImageAI libraries.

Racecar - Beaverworks MIT - 2019

http://bwsi-racecar.com/

Took part in a course at MIT and developed the software for a self driving racecar 1/10th scale which made use of a control system and was powered by ROS, computer vision, and LIDAR's.

Dryve

https://devpost.com/software/dryve/

This application is a system for carpooling smartly. It is a web application that was written all in less than 8 hours at MIT Blueprint 2018. It is designed to be completely easy to use and quick to set up using Google API's and is hosted off google cloud with the firebase database.

AutoVHUD

https://devpost.com/software/auto-vhud-qh3bvx/

This application is the GUI for a heads-up display. It is an Android app that was written all in less than 24 hours at MAHacks 2018. It is designed to be completely handsfree and we have our own Natural Language Processing Logic implemented.

BACnet Electric Gauge for AHS

https://github.com/ayushzenith/BACnet-AHS-electric-gauge/

The application is a live gauge for monitoring electricity usage around Andover High School which can be implemented in any building using a BACnet system to manage the building.

VOLUNTEERING

Volunteer present
Academy Manor, Andover, MA, United States

Academy Manor is a nursing home for the senior citizens where I volunteer at the recreational department.

VOLUNTEERING

Programmer and Student 06/2017 – present
Energize Andover, Andover, MA, United States

All my work for Energize Andover has been free and unpaid(some projects sponsored by the town of Andover have been paid). All my programs have been made Open Source for the public and are well documented and supported for others to use and implement...

AWARDS/ACHIEVEMENTS

National finalists - Placed top 5 in nation, United States - 2018 2018
Ecybermission - US Army, NSTA

Placed Top 5 in the nation in Ecybermission, a national science competition. We created a refrigerator adjunct powered by a raspberry pi that senses temperature and alerts users through an app when their refrigerator has reached unsafe temperatures. This allows users to know if their food is safe to consume or if it must be discarded. Blackout believes this will save millions of dollars in food waste as well as saving lives lost from consuming spoiled food.

PicoCTF - Placed in top 5% of high schoolers across the US - 2019 2019
PicoCTF/Carnegie Mellon

Placed under top 100 teams or 5% of all high schoolers in the US in PicoCTF, a CTF cyber security competition.

PACTF - Placed in top 10% of high schoolers across the US - 2019 2019
PACTF/Phillips Academy Andover

Placed under top 50 teams or 10% of all high schoolers in the US in PACTF, a CTF cyber security competition.

New York Governor's cup Taekwondo, Rhode Island State Taekwondo, etc.

Placed in multiple ranks ranging from 1st-3rd at multiple martial arts events in events ranging from breaking, sparring, and in team demonstrations at levels ranging from state to regionals.

EDUCATION

High School Student 07/2017 – present
Andover High School, Andover, MA, United States

LANGUAGES

English	Native
Kannada	Native
Hindi	Limited
Spanish	Elementary
Tulu	Elementary
Malayalam	Elementary