Ryan Rana

Software Developer / Student

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SKILLS

I am a student at Watchung Regional High School interested in Computer Science and Machine Learning. I am skilled in Python, Front-end Development, HTML, Web Dev, Research, Scientific Writing, JS, PHP, Jupyter, Pandas, Raspberry Pi, NumPy, Back End Development, and Machine Learning Models (Unsupervised and Supervised).

EXPERIENCE

Populus, Austin - *Software Engineer*

Jul 2022 - Sep 2022

- Working on the development of the UI and Mongo DB backend of Populus Trading App as part of a CI/CD pipeline.

Datanexxt, NYC - *Software Intern*

May 2022 - PRESENT

- Software Intern working on deploying IT infrastructure with the latest technologies for cost, efficiencies, and agility.

Course Turtle, Warren NJ - *Founder/Developer*

Aug 2021 - PRESENT

- Founder and Programmer of an Internet Startup that allows teachers and students to share their school schedules online within their school community to make it easier for students to network with one another. Developed in HTML and PHP. Hosted with AWS.

Medium - *Writer on Various Programming and AI Topics*

Jul 2021 - PRESENT

- Writing Articles once a week on various topics within Computer Science including AI, Python, Web Development, and Current Events. They also may include actual project builds, as well. Previous Articles include "Intro to Neural Networks" and "Intro to Computer Vision". All articles include original visuals as well.

Self-employed - *Fullstack Freelance Developer*

Aug 2019 - PRESENT

- Completed many projects for clients online with the use of various platforms and general contact. Projects included personal websites, company websites, as well as Stock Prediction and Sports Prediction with Machine Learning. I also edited articles for business professionals as well as private programming lessons for people ages ranging from 9-35.

Bricks 4 Kidz - *Part-time Teacher*

Jun 2019 - Aug 2019

- Lead Instructor and Assistant Insutructor - Taught EV3 Programming, Scratch (Block Programming), and Python to 4th-5th graders during B4K summer camp programs.

EDUCATION

Watchung Hills Regional High School, Warren NJ - *Diploma*

Sep 2020 - Jun 2024

Activities and societies: TEDxWHRHS (Speaker), Computer Science Club(Vice President), FPSPI (Vice President), FBLA, Economics, Model UN, Student Newspaper(Student Interview and Technologies Writer)

Udacity - *NanoDegree*

Jan 2021 - PRESENT

Completed Online Courses: Data Structures & Algorithms in Python, Deep Learning, Intro to Artificial Intelligence, Intro to HTML and CSS, Intro to TensorFlow for Deep Learning, Intro to Data Analysis

Volunteering

Stem In Place, NYC - *Vice President*

Apr 2021 - PRESENT

- 2021: Teaching Volunteer and Course Creator: Created a 5 day Web Development Curriculum for Middle Schools, which involves them learning HTML, CSS, and JS. It also includes time for them to complete a personal project of their own. I also taught the curriculum in online classes with up to 60 students.
- 2022: Vice President: Recruited and Organized 40+ instructors, Organized all Content, Worked to Schedule and Recruit Members, Changed Website and Logo Layout, Brought teams from 20 instructors to 45, and brought signups from 600 to 1500.

HillsHacks, Warren NJ - *Organizer*

Nov 2021 - PRESENT

- 2022: Ran workshop with >70 students, Promoted event to >70 students, Organized Coordinators of the Event, Worked Logistics for Club, President of Project Development, modded 2 workshops.

WYBA, Warren NJ - *Assistant Coach*

Dec 2022 - Feb 2023

- Coached Local Rec Basketball Team of 7th & 8th graders

AWARDS

1st place at WHRHS Science Fair

Feb 2023

- For my Project, “Helios”

Qualified for IEEE NJ Young Engineer Award for NJRSF

Mar 2022

- For my Project, “Around-The-Pipe Audio Based Water Tracker for Home Residents”

Qualified for NJIT CPCP Award for NJRSF

Mar 2022

- For my Project, “Around-The-Pipe Audio Based Water Tracker for Home Residents”

Top 30 David Riccardo National Econ Challenge in New Jersey

Mar 2022

- Scored in the Top 30 representing the Economics Club at WHRHS

3rd Place winner in Congressional App Challenge 2021 NJ-07

Dec 2021

- An app that can scan various household items and classify them with Machine Learning, to then produce a pricing estimate for each of those items. The purpose of this app is to make it easy for insurance estimators to create a pricing estimation. Won 3rd Place in the 2021 NJ-07 Congressional App Challenge. I had the opportunity to present the project to representative Tom Malinowski.

First Level Winner of Google Code-in

Jan 2020

- Completed several open-source projects including the intro web page for OpenMRS.

3rd Place at Repl. it Music Program 2019

Mar 2019

- Built an application that allows users to compose music. It won 3rd in a REPL challenge in 2019. The project was called Virtual Note.

Projects

- **Helios** -Visually Impaired individuals face a multitude of challenges in their everyday life. One of the many challenges they face are sensing and securing objects around them, whether it be at their house or in an outside environment. We wonder: would it be possible for a wearable haptic to assist them in sensing, recognizing, and securing different objects in their surroundings? Creating such a device can assist the visually impaired in accomplishing their daily activities and boost their living standards. The objective of our project is to create a closed circuit, haptic device situated on the user's wrist in which the user can speak into, and through AI (specifically, natural language processing and computer vision) the device should direct the user towards their desired object. The wearable haptic should be able to assist the user in detecting objects mixed in with other objects within a close distance. When the user speaks into our built-in microphone attached to a raspberry pi, the device recognizes the input and searches within our database of previously stored objects. Then the Raspberry Pi displays those signals to our haptic buzzers situated on the user's wrist to localize and direct their hand to the object. These buzzers serve the simple command of either going left, right, or forward in relation to the desired object. By using many systems working with each other, our project named Helios – God of sight in Greek mythology – will boost the living experience of visually impaired individuals.
- **ARGlasses** - A consumer app by Jay Fu, Brian Gan, Arjun Singh, and Ryan Rana that uses augmented reality to allow users to try on different pairs of glasses on their faces without ever having to leave their house. Made in a single weekend and submitted to a variety of hackathons.
- **Cone** - A PHP application that allows users to share all their social media, contact information, and external links by QRCode. It has a login/signup page for users to create an account, an automatic QRcode generator, and a sharable link.
- **ELO algorithm-based NFL predictor** - An ELO Ranking system uses the ELO ranking system to rank NFL teams using historical data and then predict the output of games.
- **Elimination Based Wordle Solver** Algorithm - A python application that solves actual wordles. Firstly uses words with the maximum amount of common letters and then uses a response on the guessed word to eliminate specific words that don't satisfy existing conditions and then uses the new list to find which words have the most common letters, this process is repeated over and over again.
- **Around-The-Pipe Audio-Based Water Tracker for Home Residents** - This research presents a revolutionary approach that utilizes audio to measure the amount of water going through a household pipe at any given time with supervised machine learning models.
- **CourseTurtle** - A startup aimed at making an easier way to analyze student and teachers' school course schedules. It allows users to create their accounts and share the data in an extremely accessible way.
- **QuickEstimate** - An app that can scan various household items and classify them with Machine Learning, to then produce a pricing estimate for each of

those items. The purpose of this app is to make it easy for insurance estimators to create a pricing estimation. Won 3rd Place in the 2021 NJ-O7 Congressional App Challenge. I had the opportunity to present the project to representative Tom Malinowski.

- **WHRHS New Tab Extension** - A chrome extension that overrides the new tab for WHRHS students' Chromebooks. It is pre-installed on all 2000+ Chromebooks.
- **Global Emmison Calculato**r - A HTML site I worked on with Amar Shah and Chris Doss to calculate the carbon emissions in and near any US Cities.
- **Digital Visio**n - Digital Vision is a wearable technology built to assist the blind in their routine. Using a Raspberry Pi coded with Python it takes live videos from a small camera and uses an object detection module from the YOLO package to report objects in front of the user through a pair of iPhone earbuds. For those who don't prefer to use the earbuds or are deaf there is also a small vibration motor to let the user know if someone is there. The project is currently being used by my grandmother in India.
- **The Power of Artificial Intelligenc**e - My first TedX talk on the applications and future of Artificial Intelligence.
- Virtual Note - A HTML Website that allows users to compose music in the easiest way possible. Won 3rd place at Repl.IT Competiton in 2019.
- **Business Meeting Summarizer** - Business Meeting Summarizer to take record meetings as audio, convert them to text using NLP, and extractive summary to condense the meeting contents.
- **Inseam Camera Foot Traffic Counte**r - An ML project that scrapes live cam video addresses from insecam.org(Online Free Public Directory of Security Cames) and counts and detects people in each frame using the YOLO database.
- **WHCS Website** - The official website for the Watchung Hills Regional High school Computer Science Club.