Simon Markus

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I have designed, built, and scaled several full stack web apps and used machine learning practices that were done with MATLAB/TensorFlow.

Education

BACHELOR OF SCIENCE | FALL 2021 | SOUTHERN ILLINOIS UNIVERSITY AT CARBONDALE

- Major: Computer Science
- GPA: 3.65 (for computer science classes GPA: 3.82)
- Association for Computing Machinery (ACM) participant.

MACHINE LEARNING BY ANDREW NG AT STANFORD UNIVERSITY | COURSERA

- Completed a 11-week course that provides theory and applications of machine learning, datamining, and statistical pattern recognition.
- Designed neural network to read handwritten numbers using MATLAB.
- Classified emails as spam or not spam by implementing a support vector machine in MATLAB.
- Understood photo OCR process.

Experience

DATA SCIENCE/MACHINE LEARNING INTERN | THINGS SOLVER | SEPTEMBER 2020 – DECEMBER 2020

- Used machine learning to categorize customers into groups based on their purchasing habits, such as total money spent or days from last purchase.
- Python, TensorFlow, Jupyter Notebook used.
- Created tool for a given customer to get a category assigned to them, based on their purchasing habits.
- Developed a Flask app to predict customers category based on their purchase habits.

SOFTWARE ENGINEERING INTERN | LAFARGE-HOLCIM | JANUARY 2021 – MAY 2021

- Analyzed truck path data from a cloud Postgres database.
- Created external GPS tracking application to detect potential irregular cases of delivering locations.
- Created a web app to visualize a given truck path on a map buy selecting the vehicle id from the Postgres database via SQL, or the shipment id within a date interval.
- Provided improvements for the GPS tracking system of the trucks so that they can be monitored easier.
- Postgres, Flask, HTML, CSS, Bootstrap, SQL all used.

CONTROLS PROGRAMMER INTERN | UIUC | JUNE 2021 – AUGUST 2021

- Troubleshoot alarms throughout the campus of University of Illinois at Urbana-Champaign
- Continuously monitored graphics of venting systems and air handling units and modify code to adjust metrics such as temperature set point if needed

Projects

DIGITAL AGRICULTURE MACHINE LEARNING PREDICTOR

- Predicted soil temperature and moisture one week in advance based on current environmental and climatic conditions such as wind speed or precipitation.
- The temperatures along with soil moisture were used by crop scientist and producers in decision support (fast data) regarding planting, fertilizer application and irrigation.
- Fit an artificial neural network model on input features-output agricultural data using TensorFlow.
- Python, TensorFlow, Jupyter Notebook used.

TWEETTRAGEDY DISASTER INFORMER

- Tool that leverages Twitter as a social sensor to collect, analyze, and visualized disaster related tweets.
- Created a binary classifier model to filter out tweets that were streamed in that did not have any relevance to a given disaster.
- Streamed in tweets in real time which the classifier marked as relevant or not relevant.
- Fast data.
- Flask, Python, HTML, CSS, Jinja, Bootstrap, TensorFlow for machine learning all used.

DEVELOPED WEBSITE FOR IMPROVING ENGLISH PRONUNCIATION WWW.SALUKISPEECH.COM

- Developed in collaboration with the Department of English at SIU for international students.
- As learners work to describe pictures, they can track their pronunciation accuracy in the provided transcript. When learners notice errors in the transcript, they can provide the intended word to get a phonetic analysis of the differences and hop over to relevant lessons for more practice on troublesome sounds of English.
- Built using the Python Flask framework with HTML/CSS/JavaScript for the front-end and Postgres for the database.
- Used DigitalOcean to get domain name.

APP TO INFORM CONCERNED CITIZENS OF COVID19 WWW.COVIDCAUTION.HEROKUAPP.COM

- Provides updates on the coronavirus spread for a given geographic area (state, county).
- This project was featured on multiple SIUC computer science social media profiles, as it was deemed very useful by the users and received high recognition by CS department which posted it on Facebook and Twitter.
- App consists of the Python Flask framework with HTML/CSS/JavaScript as the frontend. Heroku was used to upload this site. Also utilized the API from cdc.gov to fetch relevant statistics.
- Project received an honorable mention on the SIUC computer science Facebook and Twitter accounts.

APP TO CONNECT WITH FAMILY MEMBERS WWW.FAMCOLLAB.COM (IN PROGRESS)

- Currently working on a Flask social media app named FamCollab that allows users to connect with their family members and share news.
- Developed login and signup pages with HTML/CSS using a Postgres database to store the credentials.
- Profile page allows user to edit biography and add/edit their personal profile picture. JavaScript used.

Skills

- Flask, Jinja, Python, Java, C/C++, ML with TensorFlow, ML with MATLAB/Octave, MongoDB, cdc.gov API, Twitter API, HTML/CSS/JavaScript, Postgres, SQL, ML concepts.