Abbas Ahmed

Undergraduate Software Engineer

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EXPERIENCE

University of Michigan | Ann Arbor, MI | May – August 2020

GitHub Shocks REU *(Python, Pandas, NumPy, Matplotlib)*

- Analyzed impact of Gitter chat rooms on GitHub repositories. Chat rooms provide organized way for GitHub orgs and repo members to communicate.
- Impact examined was effect of productivity on repos by existence of chat rooms. Defined productivity as # of stars, forks, pushes, & pull requests.
- Collected and parsed over 1TB of GitHub event data from GHArchive.org
- Pulled over 100GB of messages data from Gitter API for over 21K rooms.
- Applied AIC minimizing piecewise regression algorithms on time series of GitHub events in order to see if sustained chat room use translated to increased productivity.

PROJECTS

Dario *(Python, Flask, Nodejs, Reactjs, MongoDB, Keras, TensorFlow)*
May – August 2020

- Dario is the friendly calendar assistant that solves the information gap issue by intelligently using your calendar and those you're meeting with to in order to find the optimal meeting time.
- Created our React web app that provides Dario's web presence and the authentication flow in order to use Dario with Google Calendar.
- Trained 4-layer ANN with dropout layers to gain deeper understanding of calendar. Input is 4 dim including month, day, start, and end. Output is 1 dim rank from 1 (preferred) to 4 (unable to attend). Used ADAM optimizer, categorical cross entropy loss, Relu activation, and checkpoint & plotting callbacks.
- Achieved 92% validation accuracy after 1000 epochs.
- Visit https://schedulewithdario.com.

Food Classification CNN *(Python, PyTorch, NumPy, Matplotlib)*
April 2020

- Trained 6-layer CNN (3 conv, 3 dense) to classify food pics into 5 categories. Preprocessed input of 20K JPG images by standardizing pixel values. Initiated weights of CNN to be normally distributed around 0. Input is flattened 32 dim image. Output is 5 dim one-hot encoded vector specify image class. Used ADAM optimizer, cross entropy loss, Relu activation, and checkpoint and plotting callbacks.
- Achieved 58% validation accuracy after 100 epochs.
- Using autoencoder to pretrain weights, achieved 62% validation accuracy.

Rate My Professor SVM *(Python, Scikit-Learn, NumPy, Matplotlib)*
April 2020

- Trained multiclass One-vs-All SVM on rate my professor data in order to identify sentiment of a given professor review
- Used grid and random search with 5-fold cross validation to tune hyperparameters.
- Experimented with linear and quadratic kernel and L1 and L2 penalties.
- Achieved 83% binary classification accuracy (positive & negative).
- Achieved 62% multiclassification accuracy (positive, neutral, & negative).

EDUCATION

Computer Science, *B.S.E.*

Mathematics, *Minor*

University of Michigan, Ann Arbor
3.8/4.0 GPA, **May 2022**

TECHNICAL

- C++/C (fluent)
- Python (fluent)
- Reactjs (proficient)
- Nodejs (proficient)
- Java (proficient)
- Machine Learning
- Data Analysis
- Full Stack Dev

COURSEWORK

- Algorithms & Data Structures
- Intro to ML
- *Advanced Operating Systems
- *Web Systems
- *Foundations of CS
- Intro to Probability & Statistics
- Linear Algebra
- Computer Organization

SOCIAL

GitHub
github.com/abbasaa
LinkedIn
linkedin.com/in/abbas-ahmed-4439b01b1

AWARDS

- Dean's List
- University Honors
- William J. Branstorm Freshman Prize
- University of Michigan Regents Scholarship
- University of Michigan Comp Scholarship