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"If you can't explain it simply, you don't understand it well enough" - Albert Einstein

### **EDUCATION**

University of Southern California M.S. in Computer Science

Los Angeles, CA

August 2017 - May 2019 (anticipated)

Coursework: CSCI 570 - Analysis of Algorithms, CSCI 544 - Applied Natural Language Processing, CSCI 561 - Artificial Intelligence

### **WORK EXPERIENCE**

## Information Sciences Institute | Research Intern

May 2018 - August 2018

- Worked under the guidance of Prof. Premkumar Natarajan on the Contextual Neural Abstract Generation.
- Introduced novel architectural changes to an existing model for title to abstract generation.
- Designed changes focussed around injecting additional context into the model for better guiding the generation process.

### Information Sciences Institute | Student Worker

September 2017 - Present

- Familiarized myself with the internal workings of a Feed Forward Network and learned about LSTMs and Seq2Seq modeling.
- Prepared a custom dataset consisting of 50,000 titles and abstracts for the task of Neural Abstract Generation.
- Trained custom word embeddings using text extracted and cleaned from the PDFs for 50,000 scientific papers.

## Hike Messenger | Software Developer

June 2015 - July 2017

- Reduced the number of Redis cache calls from 72,000 to just 4000 per second by updating a user's activity time in batches.
- Achieved 2.4 million concurrent connections on a single HAProxy instance with 16 cores in a load testing effort. This helped reduce the size of the HAProxy's production cluster by a factor of 3.
- Reported and rectified the user's last seen time issue on the application, which was affecting the entire user base of 70 million users.
- Consolidated all the last seen data in a single Redis cache thus removing multiple sources of truth and hence resolved the issue.

## Hike Messenger | Software Developer Intern

January 2015 - June 2015

- Accelerated the time to ship a server component by a factor of 2 by setting up developer testing environments on Docker.
- Programmed a messaging proxy solution from scratch that would prevent dropping of user connections on server restarts.

## **PROJECTS**

#### LSTM based Sequential Short Text Classifier

Python | PyTorch

- Implemented an LSTM based sentence level classifier for annotating sentences of a given abstract with either of the three labels: Introduction, Body or Conclusion.
- Trained the classifier on the PubMed dataset consisting of 20,000 abstracts and achieved a test-set accuracy of 90%.

## Baby Lizards Solver - A fun variant of the classic N-Queens puzzle

Python

- Coded 4 different algorithms for solving the N-Queens puzzle.
- Implemented a fast Depth First Search algorithm to solve this variant of the N-Queens problem with obstacles.
- Achieved a remarkable result of placing 97,000 lizards on a 1000-by-1000 board in under 2 seconds with this approach.

## Hotel Reviews Classifier

Python

- Developed a Vanilla perceptron and an Average perceptron model for classifying hotel reviews as True/Fake and Positive/Negative.
- Achieved a test-set F1 score of 0.93 on the provided dataset with the Averaged perceptron.

#### Coderchef Kitchen

Python | C++

• Founder and maintainer at Coderchef Kitchen which is an actively growing repository of amazing programming problems with well commented solutions and beautiful diagrammatic explanations in the form of blog posts.

## Hidden Markov Models based Part of Speech Tagger

Python

- Programmed a part-of-speech tagger using Trigram and Bigram HMMs, the Viterbi algorithm and Laplace smoothing.
- Obtained a test-set F1 score of 0.92 on the provided data set with Trigram implementation.
- Published a two part series for the same on the freeCodeCamp publication on Medium.

# **SKILLS**

Programming Languages: Python, Java (Moderate), C++ (Moderate).

Tools and Frameworks: Jupyter Notebooks, NumPy, PyTorch, TensorboardX, Git.

Databases: Redis, MongoDb, MySQL.

## **ACHIEVEMENTS**

- Technical Writer for the largest tech publications on Medium, freeCodeCamp.
- Content Creator @leetcode.com which is one of the world's largest online forum for learning programming.
- Received over 130,000 views spread over 17 posts till date.