AMIT KUMAR

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EDUCATION

1. University of Southern California, Los Angeles Dec 2019
Masters of Science - Computer Science (**Data Science**) GPA: 3.67

2. Army Institute of Technology, Pune May 2016
Bachelor of Engineering (Computer Science and Engineering)

WORK EXPERIENCE

1. USC Chan Division of Occupational Science and Occupational Therapy (Research Assistant) Current

- Responsible for developing backend servers(Rails, Java Spring) and frontend (ReactJS, Javascript, HTML) web applications and deploying them on AWS as a dockerized service.
- Created the CI/CD pipelines for various applications and Docker-based development environment for application development.
- Cleaning and maintaining massive datasets (Petabytes of data). Created few scripts for automating the process of addition or deletion of data from this data pool.
- Developed an Open Source tool PALS for the brain clinicians to analyze the MRI images of brain stroke patients.

2. MavenHive Technologies Pvt. Ltd., India (Associate Engineer**)** Jan 2017 – Dec 2017

- Worked in the GoFood team of GoJek -Largest online food ordering platform in Indonesia (600k orders/day).
- Developed new features and optimized the existing APIs for a better response time using in-memory database Redis, Hystrix for making fault tolerance APIs,
- Learned to deploy live backend systems using techniques like Canary deployment, Blue-Green deployment using HA Proxy for load balancing during deployments, database migrations, application versioning etc.

3. Commvault Systems, India (Associate Software Engineer**)** Dec 2015– Jan 2017

- Responsible for building and maintaining new features for the Windows and Linux installer of their product, Simpana.
- Built multi-threaded application in Python to compile all the binaries and package them in a single executable.

4. GS Labs, India (Software Developer Intern) Aug 2015 – Dec 2015

- Led and developed “Resource Monitoring of Docker Containers (Restful API)” (Github)
- Used HighCharts to plot live dashboards showing the live CPU/Memory/Network usage by containers.
- SocketIO was used to establish the channels used for sending the live stats from backend to the browser.
- Used Swarm Rest APIs to communicate with the Docker Swarm cluster node.

PROJECTS

1. Pipeline for Analyzing Lesions after Stroke (PALS) (Open Source Contribution) May 2018
Led a cross-functional team of 3 researchers to build PALS, a scalable and user-friendly toolbox designed to facilitate standardized analysis and ensure quality in stroke research employing T1-weighted MRIs. This application is being used by several brain clinicians in the community.

2. Secure Logging-as-a-Service in Cloud (Github) Dec 2015
A system to maintain confidentiality and integrity of logs generated by virtual machines in a cloud via cryptographic methods thereby incapacitating cloud service providers from counterfeiting logs. Used the concept of encryptions and generating signatures to ensure the confidentiality and integrity of the logs generates. Made use of bloom filters for fast lookup.

3. Mobile Banking Authentication System (using Steganography) July 2015
Aimed at enhancing security in communication between client and bank systems employing steganography techniques such as LSB, SLSB and Random Bit selected randomly at runtime to embed data into an image.

4. Tech Conference (Live Demo) Jan 2017

Developed a web application which contains a list of the upcoming technical conferences in a particular region. Users could add new conference details, subscribe to the conference updates. This application also supports once click Slack app integration where you can query about conferences directly from the Slack app. The slack channel gets regular updates and suggestions and live twitter feeds directly from the web application. Note: The web app is hosted at a free Heroku dynamo, so it might load a little slow in the first attempt.

5. Self Driving Car Convolutional Neural Network (Github) June 2018

Created a Convolutional Neural Network using Tensorflow to determine the angle of rotation of the steering wheel of an autonomous self-driving car. The model takes in the live video feed from the front view of the vehicle and can determine the angle by which the steering wheel should be rotated to follow the driving instructions.

6. CIFAR-10 Image Classification using CNN (Github) Apr 2018

Trained Convolutional Neural Network using tensorflow on CIFAR-10 image dataset. The image dataset contained several images of 10 different real-world things. The model was able to predict the name of the category the new belonged to.

7. Hotel Review Classification (Github) Feb 2018

Implemented the Perceptron algorithm to classify hotel review as positive, negative, fake or real.

TECHNICAL SKILLS

- Programming Languages: Python, ReactJS, Java, Ruby On Rails, Javascript, Android
- Tools: Docker, AWS (EC2, S3, RDS, Fargate), Gitlab CI/CD, Flask, Pandas, TensorFlow, Gitlab CI/CD, Hadoop
- Microcontrollers: Raspberry Pi, Beaglebone Black, CC3D Flight Controller

PUBLICATIONS

- Pipeline for Analyzing Lesions after Stroke (PALS). Published at Frontiers in Neuroinformatics.
- Published a research paper on Resource Monitoring Of Docker Containers in the International Journal Of Engineering Development And Research.

OTHERS

- Google Play developer account holder and published more than 10 Android applications with over 200,000 application downloads on Google Play store.
- Designed my own personal blog at https://amitasviper.github.io/