

SAURABH KHANDELWAL

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Education

University of California, Irvine

Masters of Computer Science, GPA: 3.90

September 2021 – December 2022

Irvine, California

Birla Institute of Technology and Science(BITS), Pilani

Bachelors of Engineering in Computer Science, GPA: 3.80

July 2015 – May 2019

Hyderabad, India

Thesis: Application of Deep Learning in Bio-Medical Diagnosis and therapies

Technical Skills

Languages: Python, Java, C++, Kotlin, Javascript, HTML, CSS, SQL, Bash

Frameworks: RESTful API, Ansible, Git, Linux, Agile, Scrum, Docker, DynamoDB, Amazon Web Services, MySQL

Packages and Tools: Tensorflow, PyTorch, OpenCV, Matplotlib, Numpy, Pandas, Scipy, scikit learn

Experience

Behavidence Inc.

Machine Learning Engineer

August 2020 – September 2021

New York City, New York

- Engineered features based on statistical data analysis and intuitive understanding by the domain experts on the novel dataset of mobile usage with noisy labels
- Computed mental health score based on mobile phone usage by building and training machine learning models in python that diagnosed depression with the **recall rate of 75% and precision of 71%**
- Developed a real-time inference pipeline using Amazon Web Services Sagemaker endpoint to calculate mental health score that optimized the update time from **24 hrs to 5 seconds**
- Built data pipeline using AWS services (Glue, Sagemaker, DynamoDB, API Gateway) fetching data from mobile application to train machine learning model

Atlassian Corporation PLC

Full Stack Software Development Engineer

July 2019 – September 2021

Bangalore, India

- Ideated an app recommendation system using association rule mining technique in Atlassian embedded marketplace. Developed the first backend prototype in Kotlin that constitutes **3.5% of app installs**
- Optimized load management and batch emailing pipeline to launch request app feature on the embedded marketplace which led to **1.2M USD** revenue in the following quarter
- Updated MongoDB data model and exposed GraphQL API for the Cloud Fortified App program providing end customers a set of extensively secured **top 10% of cloud apps**
- Created a Kotlin microservice and designed DynamoDB schema to build scalable distributed storage, and query systems that are fault-tolerant and easy to manage to facilitate migration of on-prem apps to the cloud with Rest APIs

Shafiee Lab, Harvard Medical School

Research Intern

July 2018 – December 2018

Cambridge, Massachusetts

- Designed a hybrid model of optical flow and 1-D Convolutional Neural Network that captures virus motion trajectory and distinguish between sample and control with the **accuracy of 97%**
- Analyzed HBV Virus genome sequence using stacked LSTM using the Stanford HBVseq database by Stanford to predict its resistance towards 5 most common drugs
- Calculated Neutrophils Concentration using Otsu's binarization and contour approximation, instrumental in Cancer and infection detection

White Data Systems

Optimization Intern

May 2017 – July 2017

Bangalore, India

- Optimized maintenance schedule for fleet management companies that improve the overall reliability and availability of the system while simultaneously maintaining the budgetary constraint
- Solved the problem of nonlinear, multiple objectives using **multiple objective meta-heuristic Genetic Algorithms**
- Successfully completed the optimization that presented and implemented a novel mathematical function that **models age reduction and improvement factor parameter** for repairable and maintainable component

Talks and Poster Presentation

- **Anterior Chamber Depth and Corneal Thickness for Glaucoma detection using phone camera and Image Segmentation**, Poster Presentation, Engineering the Eye, MIT Media Lab and Srvaajan Innovation Center
- **Machine Learning in Healthcare**, Speaker at PyConf Hyderabad 2019 at IIIT, Hyderabad
- *How to get off Campus Thesis*, Speaker at EMBRYO Career talk at BITS, Hyderabad

Achievements

- Technothon Kaizen '19 Winner, Indian Institute of Technology(IIT), Delhi: Developed Generative Adversarial Network based solution to detect human trafficking
- Zeiss Hackathon Winner, Carl Zeiss, Bangalore: Corneal Topography of an Eye using VR headset and Computer Vision
- Top 1%, Flipkart GRID - Teach a Machine: Nation-wide Machine Learning Contest among the registered 6723 teams

Projects

Kinship Detection | *Siamese Network, Deep Learning, Transfer Learning, VGG Facenet, Pytorch, Adam*

- Detected Kinship with 85.5% accuracy on Families in Wild dataset between a pair of images using Siamese Networks, with features getting transfer learned from VGG16 network with adam optimizer and binary cross entropy loss function.

Espail | *Python, NLTK, NLP*

- Enhanced educational videos with natural language processing and computer vision by providing text summarization, POS tagging & NER for general knowledge and completed the fully functional prototype in form of a website within just 36 hours at Hack Harvard

Corona Vitals | *Python, Generative Models, Feed forward Neural Network, Keras*

- Generated base vital signs data based on the “Novel coronavirus infection during the 2019–2020 epidemic” in Sichuan Province, China. Analyzed vitals signs data using deep learning in keras for suspected COVID patients and presented at BARDA Industry Day Lightning Talks by US Health Department

Aspect Based Sentiment Analysis | *Python, NLP, Aspect Extraction, Sentiment Analysis, Optics Clustering, Attention Model*

- Split sentences into multi-level clusters based on their multiple subjects in sentence using Optics Clustering
- Extracted aspects and associated words relevant in the sentence using attention based modeling of sentence. Determined Sentiment polarity of the entire sentence both and also of concerned aspect term by using LSTM

Recommender Systems | *Python, Collaborative Filtering, Scipy*

- Created recommender systems for movies using the MovieLens dataset by implementing user-user and item-item collaborative filtering algorithms. Utilized Scipy's sparse matrices for space efficiency.