Yash Tripathi

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EDUCATION

University of Southern California — Los Angeles, CA
Master of Science in Computer Science — *January 2019 - December 2020*

Dr. A.P.J. Abdul Kalam Technical University — Lucknow, India
Bachelor of Technology in Computer Science And Engineering(Honours) — *August 2014 - July 2018*

SKILLS

- **Programming Languages:** Java (intermediate), Python (familiar), C (familiar), Scala, JavaScript
- **Databases:** MySQL (intermediate), PostgreSQL (familiar)
- **Tools and Frameworks:** Android Studio, MATLAB, JavaFx, Apache Spark, Microsoft Office, Tableau , Raspberry Pi 2B

EXPERIENCE

GIPEDI Summer Research Intern at IIT Delhi(Indian Institute of Technology) 15 May 2017 - 17 July 2017

- Worked with 2 other students under Prof. Seshan Srirangarajan, to design an energy saving **Autonomous Lighting System** for Classrooms.
- Used a Raspberry pi 2B to control the lighting in the given area. If a presence was detected, the lights were automatically switched on.
- Programmed the microcomputer and collaborated in writing image processing scripts using PYTHON and OpenCV.

PROJECTS

- **Recommendation System:** Implemented Model-Based, User-Based and Item-Based Collaborative Filtering Recommendation Systems using Apache PySpark, to predict the ratings for given user id and business id, for Yelp data set.
- **Community Detection:** Used **Girvan-Newman algorithm** in Spark for detecting communities in a graph for given csv file. The aim was to divide the graph into suitable communities, that reach the global highest modularity.
- **E-Yantra IIT BOMBAY:**Led a 6 member team, which coded an ATMEGA FIREBIRD microcontroller using HEX files, in order to solve a puzzle.
- **Market Basket Model Through SON Algorithm:** This project was about coding SON on top of Spark Framework, to find all the possible combinations of the frequent item sets in Yelp data set.
- **Real Time Monitoring System For The Disabled:** The main idea was to constantly monitor the person in charge of the disabled. Raspberry PI2B performed Face-Detection and Facial-Recognition using HAAR Cascade, verifying the presence of caretaker.
- **Geospatial Data Handling:** Constructed Spirograph on ArgGIS using spatial points that were generated in Java and stored in a KML file. Computed Convex Hull and KNN in Postgres then plotted visualizations on Google Earth.

INVOLVEMENTS AND ACHIEVEMENTS

- **Top 3 in 2019 USC Viterbi Graduate Hackathon:** Collaborated with 2 students, where our group re-engineered Streaming Data Payment Protocol (SDPP) in JavaScript. Originally proposed by Autonomous Networks Research Group at University of Southern California. Built on top of the original proposal, our product includes web application and socket enabled media streaming server.
- **USC Robotics and Coding Academy:** Currently working as a mentor in USC Robotics and Coding Academy, where I teach middle schoolers the basics of programming and robotics.
- **Finals of 2017 Smart India Hackathon(Department of Defence Production, Government of India):** Led a 6 member team, that developed an **Alertness Measurement Tool**. We included blink detection code, Google Vision APIs and user questionnaire. This so was built to avoid road accidents occurring due to driver's low level of alertness. Upon which, an alarm is triggered and a message is sent to the registered number.
- Cryptography Paper on **Index calculus attack on discrete logarithms based on elliptic curves:** This paper discusses index calculus, which has a sub-exponential time complexity and is the most effective way of attacking the discrete logarithm problem. The index calculus method, however, does not work for discrete logarithms based on elliptic curves but there have also been some partially successful approaches to attack discrete logarithms based on elliptic curves, this paper discusses these approaches too.
- **Top 3 percent** of the class, and graduated with First Division Honours in Computer Science and Engineering.