SWAPNIL TANEJA

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Education

UC San Diego – MS in Computer Science, **(GPA – 3.7)** (Sep '16 – Jun '18)

- Tata Scholar – Awarded Scholarship for higher education among 50000 applicants in 2016.

Indian Institute of Technology, Roorkee - B. Tech, Electrical Engineering, **(CGPA – 8.8/10)** (Jul '10 – May '14)

- Secured JEE (Joint Entrance Examination) Rank – 1601 among 460,000 candidates in 2010

Work Experience

Snowflake, Software Engineer - **Services team, App Services team** (25 Jun'18 - present)

- Worked on improving stability of the system by identifying bottlenecks and points of failure. **Java**
- Improved scheduling latency of the system by 10 fold and dequeue rate limit (throughput) from 1.8k to 6k tasks per min. **Java**
- Designed and architected a distributed system to clean metadata . **Java**
- Implemented feature for supporting Stored Procedures with caller rights on Compute Services. **Java**
- Designed and implemented major functionalities of the distributed serverless framework (TEX). **Java**
  Impact: Improved the BG performance and enabled autoscaling functionalities for greater stability.
- Revamped the entire service support rotation to enable team specific routing . **yaml , pagerduty**
  Impact: Reduced the number of pages and improved productivity by enabling the routing.
- Moved Compute Service Tasks to Foreground Cluster, saving $50K per month for the company and improving query performance. Worked on stability initiatives to provide tools for dealing with production issues.
- Made the Compute Services framework resilient on FDB Snapshot Restore scenarios.
- Created an API for easy integration of compute services into the Resource Monitor framework.
- Integrated GSBilling credits into the Resource Monitor for better customer experience.
- Designed and built a mechanism for cost control in trial accounts using Resource Monitors
  Impact: Saved 10K $ per month. **Java**
- Created a distributed notification message framework to monitor parameter updates. **Java, Python**
- Worked on Resource Monitor recurrence model and optimized performance of services. **Java**
- Optimized the Lambda function and reduced the execution time from 1 minute to 20 seconds to handle 100K messages per hour. **Python**

Twitter, Software Engineer Intern – Recommendation (26 Jun '17 - 15 Sep '17)

- Worked on detecting the Topics of interest for the users to recommend tweets. **Scala, Scalding, Pants, Hadoop**
  Impact: Achieved top-K precision of 85% for recommending Hashtags to users.

Oracle, Member of Technical Staff (26 Jun '14 – 12 Aug '16)

- Built a tool called **Log Miner** to predict the cause of logged errors using Machine Learning algorithms. Got featured in Oracle Social Network for leveraging IEEE research – **Java, KNN** and **decision trees**.
  Impact: Achieved an **accuracy of 90%,** significantly reducing the time for parsing logs and debugging.
- Wrote Life Cycle Management Read APIs using Introspection and Topology manager APIs - **Java**
  Impact: Used by Patching, Upgrade and E2E automation teams.

Hewlett Packard Education Services, Brand Ambassador, Intern (Jun '13 - Jul '13 & May '12 - Jun '12)

- Developed a website prototype for airline reservation. The task was to implement and test a scheduler for flights from different aerodromes preventing clashes - **Asp.Net, C#, SQL Server**
- Built a computer-controlled robot with an ability to never fall off the table - **Atmega 16 AVR, IR Sensors**.

Technical Skills

Languages/Framework - Java, C++, Python, Scala, Scalding, MySQL, Android, XML, HTML, CSS, Junit, C#
Platform/Software/Tools – Linux, MacOS, Pants, Hadoop, Matlab,Antlr4, SQL Server, Android Studio, ANT, Gradle, OpenCV, Git

Projects and Research

XQuery Processor (March '17)

- Created and optimized XQuery Processor for executing Xpath 2.0 expressions. – **Antlr 4, Java, XML** [Link]

Android Applications (Dec '16)

- Created the following Android apps and optimized the speed of background tasks making the interface more User friendly and Interactive.
  - Weather App: to display the weather forecast for the preferred location using Udacity Weather API [Link]
  - Hydration Reminder: to promote timely drinking of water by notifying users every 30 min while charging. [Link]
  - Music Visualizer: to display the higher, middle and lower range of frequencies of a song. [Link]

Sign and Link Prediction on Signed Social Networks – Graph Mining (June '17)

- Detailed analysis of feature extraction such as Jaccard's Similarity, Social Imbalance, User's reputation, Community Detection and Restricted Boltzmann Machines on Slashdot Dataset. [Report] **ML - Python**
  Impact: Achieved 91 % F1 score for link prediction and 85.9 % for sign prediction accuracy.

Portability Analysis, Text to image Synthesis using GANs (March '17)

- Used a GAN model to generate artificial flower images from Flower Dataset & number images from MNIST & hand-crafted Dataset – **Python, Tensorflow.** Tested our hypothesis that GAN is generalizable and portable to other datasets. [Report]

Improving Recall using features of CNN (March '17)

- Improved Recall of image similarity search using internal representations of CNNs-**Python, Matlab.** [Survey]
  Impact: Improved the average recall from 0.56 to 0.79 using CNN features.

Generating Music using RNNs, Transfer Learning using VGG16 – CNN (Feb '17)

- Generated melodious music on an RNN model trained on text in ABC notation-**Python** [Report]
- Trained just the last softmax layer on Caltech 256 and utilized the existing VGG16 model parameters. [Report]

Branch Predictor – Computer Architecture (June '17)

- Created a Tournament Predictor with competing perceptron and local predictors. **C**
  Impact: Achieved 96% prediction accuracy.

Capacitive fabric touch-controlled Sphero SPRK+ – Healthcare Robotics (June '17)

- Built a system to assist the growth of infants with hardware restrictions. Kids with hardware restrictions may face flat head syndrome if they do not receive plenty of tummy time. This system acts as a playmat for them and captures their attention preventing this. [Demo] [Demo] [Report] [Code] **Java, Android, Arduino**

Designing & Building Humanoid Robot (Bachelor's Thesis) (Aug '13- Mar '14)

- Built a humanoid robot having – Locomotion on Wheels, Hand Shake and Face Tracking –DC Motors (wheels) and Servo Motors (face). **Haar Cascade Classifiers (Open CV), Arduino Uno – Atmega 16 AVR**. [Report] [Videos]
- Impact: Achieved a 95% facial distinction while ensuring security of the lab.

One-Eyed Robot, Tech Fest Shristi (Jul '13 - Aug '13)

- Implemented facial recognition for passersby on a Webcam mounted on two servo motors tracking the face of human. Used **OpenCV** and **Arduino Uno** for controlled motion of webcam in the 3 degrees of freedom.