

Dhruv Rathi

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Education

- **Delhi Technological University** | Computer Engineering Aug 2015 - June 2019 | GPA: 6.9/10
Courses - Artificial Intelligence, Pattern Recognition, Computer Vision, Database Management System, Big Data Analytics, Swarm and Evolutionary Computing, Distributed Systems
- **Abhinav Public School** | 12th Standard Aug 2014 - June 2015 | Percentage: 95.6%
- **Abhinav Public School** | 10th Standard Aug 2012 - June 2013 | CGPA: 9.8/10

Experience

ZOMATO, INDIA

Gurgaon, India

SOFTWARE DEVELOPMENT ENGINEER | ANDROID DEVELOPER | DATA SCIENTIST

June 2019 - Present

- Currently building Contactless Dining
- Developed solely the framework to create dynamic User-Personalized and Generic Hotspots -
 - Creating Clusters of spatial co-ordinates using Machine Learning based on features such as Gold Unlock history, Cuisine affinity, Location Affinity, Temporal features, etc.
 - Developed data analysis framework for better user-behavior patterns and predicting user location for the purpose of dynamic personalized deals creation.
- Built Advanced Dynamic fenced Geofencing feature (with optimized battery consumption) written over generic one provided by Google.
- Architected and built Terabyte - Project to connect user to metered Wi-Fi installed in restaurants by Zomato. Handled the Zomato Android consumer App and built separate Inventory App for installation.
- Leading Zomato Collect - Offline and Online Restaurant data collection tool across the world.
 - Rewrote Data syncing algorithm to reduce the large data order sync time by 40%
 - Responsible for release management and new features in Collect.
- Part of Android team working for 100 Million users, maintaining an average of 99.7% crash free users, 99.9% crash free sessions

UNIVERSITY OF BRITISH COLUMBIA, VANCOUVER

Vancouver, Canada

RESEARCH INTERN | BATTERY OPTIMIZATION AND MALWARE SECURITY - RL | ANDROID

June 2018 - Sept 2018

- Research on development of customized Android Kernel introducing Battery Optimization permissions using Reinforcement Learning techniques.
- Developing a Reinforcement Learning model working on the AOSP Goldfish kernel, aiming for a robust battery distribution system.
- Statically and Dynamically Analyzed, performed Reverse Engineering Instrumentation with Soot - a JAVA optimization framework and sampled Top 5000 applications from Google Play.
- Collected deep insights into usage of Background and Foreground Services, accounting the background restrictions in latest Android releases.
- Analyzed working of Google Playstore's Bouncer for Malicious Payload hunting on submission as a model of ML and Soot.
- Worked in the ReSeSS lab under *Dr. Julia Rubin*

MOBI DO WONDER

New Delhi, India

SOFTWARE DEVELOPER (FREELANCE)

Jan. 2018 - May 2018

- Developed two production Android applications. Researched estimated user base in next year is 1 million.
- Developed and modified the database to handle events of large traffic.
- Constructed guidelines and implemented Network Security against attacks by Malicious Payloads and MITM attacks.

CASH TRACK

Singapore, & New Delhi

SOFTWARE DEVELOPER INTERN

May 2017 - June 2017

- Developed production Android application, with NLP integration in real time.
- Developed modules for collection and analysis of Facebook and Instagram data to find an equitable set of Target Audience.

Projects and Research

PATENT PENDING INVENTION - FACIAL PARALYSIS MONITOR

New Delhi, India

INVENTION | QUANTIFYING, MONITORING & TREATING FACIAL PARALYSIS - BELL'S PALSY, RAMSAY HUNT SYNDROME

Jan. 2018 - PRESENT

- Developed an Automated method for quantifying the Degree and Tracking real time improvement against prescription.
- Trained a Deep Learning model to mark 68 Facial Landmarks of Interest, optimized the model to be compatible for running on Mobile Device(on-device ML).
- Using Edged Segmentation to estimate the Drooping on an affected face.
- Media coverage by Business Standard, Indian Express & others for Patent Pending Invention.

2D TO 3D FACIAL RECONSTRUCTION FROM SINGLE IMAGE

New Delhi, India

DEEP LEARNING | 3D RECONSTRUCTION | MESH GENERATOR | ANDROID | MESH VISUALIZER

Feb. 2020 - Present

- Implemented Position Map Regression Network for 3D conversion, Texture Mapping and Shape Extension.
- 2D UV map representation further regressed by a CNN.
- Built custom 3D Obj format visualizer engine for Android written over OpenGL 2.0
- Winner at Microsoft India Innovation Series.

SIGN LANGUAGE (ASL AND ISL) COMMUNICATOR USING ARTIFICIAL INTELLIGENCE

New Delhi, India

TRANSFER LEARNING | SIGN LANGUAGE | ANDROID ENGINE

Jan. 2018 - March 2018

- Applied Transfer Learning on Inception V3 model & MobileNet model using Sebastian-Marcel ASL Dataset.
- Model weights Optimized to run on low computation powered Android Devices.
- The results shows an accuracy of 94.3%. Paper accepted in IJRITCC.

DROIDMARK - TOOL FOR ANDROID MALWARE DETECTION

New Delhi, India

TAINT ANALYSIS | DEEP LEARNING | MALWARE | STATIC ANALYSIS

July. 2017 - Oct. 2017

- Taint Analysis techniques for Constructing life-cycle and activity flows.
- Detecting susceptible Sources & Sinks for data leakage using FlowDroid and SuSI, training a Bayesian Network with AARF formatting and WeKA.
- Results indicate accuracy of 96.29%. Paper accepted in IJRITCC. Work done under Dr. Rajni Jindal, HoD, Dept. of Computer Engineering, DTU.

UNDERWATER FISH SPECIES CLASSIFICATION USING DEEP LEARNING | ICAPR 2017

New Delhi, India

DEEP LEARNING LEARNING | CNN | RESEARCH PAPER

April 2017 - Oct. 2017

- Convolutional Neural Networks built for classification of Underwater Fish Species. Fish4Knowledge dataset used.
- Cleaning of dataset of natural water bodies for refined fish detection.
- Implementing watershed algorithm for feature extraction and creating masked images to be fed in parallel to the CNN to increase accuracy.
- Results indicate 98% accuracy. (Paper accepted in ICAPR-IEEE 2017)

Skills and Activities

- Kotlin
- JAVA
- Python
- Tensorflow
- MVVM
- MVI
- Architecture Components
- AOSP
- OpenCV

Honors & Awards

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| 2020 | Winner , Microsoft India Innovation series - Incubate Ind | India |
| 2020 | Winner , MishMash Hackathon - Microsoft Unity Skillenza | India |
| 2019 | Winner , HackaNoodle - Hackathon by Zomato | India |
| 2018 | Scholarship , SRSF Shastri Indo-Canadian scholarship(MHRD) - 8 recipients Nation wide | Canada |
| 2018 | Winner , Hack The North 2018 - The University of Waterloo, Ontario | Canada |
| 2017 | Winner , Vihaan '17 Hackathon - Hosted by IEEE DTU | India |
| 2017 | Winner , Digital Ocean - Campus Shark Hackathon - Nation Wide 1st Runner up | India |
| 2017 | Winner , India Smart Grid Week Hackathon 2017 - Nation Wide Runner Up | India |