Mrinaal Dogra

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Educational Qualifications

Year	Qualification	Institute	CPI/%
2015-2019	B.Tech Computer Science & Engineering	IIT Kanpur	9.0/10.0
2015	All India Senior School Certificate Exam(CBSE)	KV No.2 Jammu Cantt.	94%
2013	All India Secondary School Exam(CBSE)	KV No.2 Jammu Cantt.	10.0/10.0

Work Experience

- **Samsung R&D Institute India - Bangalore**   *Bengaluru, India*
  Senior Software Engineer   *(Mar'21 - Present)*
  - Developed on-device machine learning (ML) model that uses phone usage data to detect **boredom** while a user is using their phone
  - Also developed an end-to-end android application to demonstrate the effectiveness of the boredom ML model to the stakeholders
  - Worked on developing a deep neural network (DNN) model that uses phone usage data to predict **gender and demographic age**
  - **Publication**: Dogra, M., Meher, B. P., Mani, P. V., & Min, H. K. (2022, January). **Memory Efficient Federated Recommendation Model**. In *2022 IEEE 16th International Conference on Semantic Computing (ICSC)* (pp. 139-142). IEEE.

  Software Engineer   *(Jun'19 - Feb'21)*
  - Developed android application for visualizing depth maps & **3D Point-cloud** representation from live Time-of-Flight (ToF) camera feed
  - Also developed gesture-based UI features such as Zoom, Pan, and Rotation for the point-cloud visualization module
  - Worked on developing a privacy-preserving DNN model-based solution for the problem of **Next App Recommendation**
  - DNN model was designed under strict memory constraints to minimize network bandwidth costs during **Federated Learning** rounds
  - Also developed and trained the same DNN model in Java using the DL4J library so that it can be used in an android application
  - Developed an android User Trial (UT) application that supported **on-device model training and inference**

  Undergraduate Software Developer Internship   *(May'18 - July'18)*
  - Developed a NN model to predict the current location of a user based on their recently known locations and the time of the day
  - Developed a simulation environment for placing eNodeBs in an area and developed a classification model to predict which eNodeB the user is most likely connected to at any time of the day based on their historical mobility data and recently known locations
  - Proposed and implemented a probabilistic classification model to predict the eNodeB with which a user is connected at a given time
  - **Top-1** & **Top-3 prediction accuracies** for the final model were **85-90%** and **90-95%** respectively on the evaluation dataset

- **Hike Private Limited**   *New Delhi, India*
  Undergraduate Software Developer Internship   *(May'17 - Jul'17)*
  - Implemented **Convolutional Neural Network (CNN)** models using Tensorflow to classify images into three different categories – memes, quotes, and personal images like selfies, family/group photos, landscape photos, etc.
  - Used **Transfer Learning** approach to tune parameters of model architectures like Inception-v3, MobileNets, etc. for the required task
  - Worked with Google ML-Engine APIs for training the CNN models on the Google Server Machines
  - Developed Server-Client support using **Tensorflow Serving** for deploying the final model in production

Technical Skills

Programming Languages	Python, JAVA, C/C++, Shell Script (Bash), LaTeX
Libraries	Tensorflow, Scikit-learn, DeepLearning4Java (DL4J), MPICH C++, OpenCV, Flask, CUDA C/C++
Software & Tools	Android Studio, Git, Perforce Helix Core, GDB
OS & Platforms	Linux, Windows, Raspberry-Pi, Arduino

Awards & Achievements

Year		Place
2021	**Samsung SPOT Award**, for quick delivery of project deliverables	SRIB, India
2020	**Clean Code Culture Award**, for rigorously following SOLID principles of Object-Oriented Design in project	SRIB, India
2020	**Samsung Citizenship Award (SCA)**, for excellent performance and commitment to project	SRIB, India
2019	**Professional Programming Certification**, for qualifying International Samsung-wide programming competition	SRIB, India
2018	**Academic Excellence Award**, for excellent performance in the 2017-18 Academic Year	IIT Kanpur

Positions of Responsibility

Year		Place
2022	**Project Mentor**, worked with and mentored an Intern in a project	SRIB, India
2019	**Project Mentor**, mentored a group of 8 freshers in a project under the Association of Computer Activities (ACA)	IIT Kanpur
2018	**Teaching Assistant**, for *Data Structures and Algorithms* course under Prof. Sumit Ganguly	IIT Kanpur
2017-18	**Event Manager**, successfully organized various Robotics events and competitions in annual tech-fest Techkriti'18	IIT Kanpur
2016-17	**Student Guide**, guided group of 6 freshmen personally in getting acquainted with the new college environment	IIT Kanpur
2016-17	**Robotics Club Secretary**, organized competitions, lectures, workshops, and projects for campus public	IIT Kanpur
2016	**Project Mentor**, mentored a group of 5 freshers in a project under Robotics Club Winter Camp 2016	IIT Kanpur