Rahul Chand

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EDUCATION

Birla Institute of Technology, Pilani | 2015-19
Bachelor of Engineering (Honors) in Computer Science and Engineering,
GPA - **9.62/10**, *Class Rank* - 6/180+
Selected Coursework: Machine Learning, Pattern Recognition, Logic in Computer Science, Neural Networks and Fuzzy Logic, Data Mining, Information Retrieval, Graphs and Networks, Computer Architecture, Operating System

TEACHING EXPERIENCE

Teaching Assistant for the below courses. Graded assignments, prepared course projects and supervised lab sessions.

- **Fall 2018:** Data Mining, Principles of Programming Languages, Computer Programming
- **Spring 2018:** Data Structures and Algorithms, Database Systems
- **Fall 2017:** Logic in Computer Science

INDUSTRY AND RESEARCH EXPERIENCE

Microsoft Research India, Bangalore, India | Research Fellow   Aug 2021-July 2023

- Worked with the Microsoft Turing Team on the problem of Transformer compression using sparse factorization. Work submitted to EMNLP.
- Worked under Manik Verma as part of the XC team on Extreme Multi Label Learning (XML).
- My work in the XC team primarily involved studying and improving tail performance of extreme classifiers via regularization (Paper under review). Additionally, I also worked on the problem of compressing extreme classifiers.

Arcesium, Hyderabad, India | Software Engineer & Intern   Aug 2019-May 2021 & July-May 2018

- Worked in the Performance and Accounting team as a full stack developer.
- Responsible for migrating the team's UI from JQuery to ReactJS. Also worked as part of the team responsible for developing microservices for handling large volumes (>100k) of trades daily.
- Experience with building web applications using ReactJS, Java, Kotlin, Python, T-SQL.

Indian Institute of Science (IISC), India | Undergraduate Thesis student   Jan 2019-July 2019

- Worked under Prof. Venkatesh Babu at Video Analytics Lab(VAL) for my undergraduate thesis on optical flow estimation using matrix capsule networks.
- **Paper**: https://arxiv.org/abs/2304.00306

Indian Institute of Remote Sensing, Dehradun, India | Research Intern   May 2017-July 2017

- Worked with the Geo-informatics Department on their road-asset management project.
- Designed and developed a deep learning solution on Keras using Faster-RCNN and FCN for road-asset mapping in the context of Indian roads. The model was trained on VOC2012 dataset and images of Dehradun roads obtained from IIRS.
- **Report:** github.com/RahulSChand/IIRS-Vehicle-Detection

PROJECTS

Open source libraries

- **Fast & tiny datasets for optical flow (**Github**)**
  - Library to generate tiny optical flow datasets on the fly. On the fly dataset can be used to sanity test models before running on larger scale datasets. Written as part of undergraduate thesis at IISC & used in the paper https://arxiv.org/abs/2304.00306
- **Efficient Batched Torch KSVD (**Github**)**
  - Library to efficiently run sparse dictionary completion algorithm KSVD on batched matrices on GPU. Written using pytorch as part of transformer compression work at MSR India.

Open source paper implementations
- **Language model compression with weighted low-rank factorization (**[Github](#)**)**
  - Pytorch implementation of the ICLR 2022 paper "Language model compression with weighted low-rank factorization**"**. Written as part of work at MSR India.
- **Attention network for reading comprehension and question answering** ([Github](#))
  - Tensorflow implementation of the paper "Multi-Granularity Hierarchical Attention Fusion Networks for Reading Comprehension and Question Answering paper".

ACHIEVEMENTS

- One of 30 students selected from Maharashtra to attend training camp for INMO (Indian National Maths Olympiad) 2015.
- Merit-cum-Need scholarship at BITS Pilani for all 8 semesters.

SKILLS

Programming Language: Python, C++, Java, JavaScript, Kotlin

Libraries and Frameworks: PyTorch, Numpy, TensorFlow, Keras, HuggingFace, ReactJS, Accelerate