Kartik Dutt

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EDUCATION

DELHI TECHNOLOGICAL UNIVERSITY
B.Tech. in Electronics and Communication Engineering
May 2021 | Delhi, India
CGPA : 8.92 / 10.0

DELHI PUBLIC SCHOOL, R.K. PURAM
CBSE, Senior Secondary (XII)
May 2017 | Delhi, India
Percentage : 94.4%

CBSE, Senior Secondary (X)
May 2017 | Delhi, India
CGPA : 9.4 / 10.0

COURSEWORK

UNDERGRADUATE
Database Management Systems
Object Oriented Programming
Digital Signal Processing
Cyber Forensics
Natural Language Processing
Programming Fundamentals

MOOCS
Competitive Programmer's Core Skills
Machine Learning
Computer Vision A-Z
Deep-Learning A-Z
Algorithm Toolbox
Data-Structures
Web Development in 2020

ACADEMIC ACHIEVEMENTS

JEE | 2018, 2017
• Achieved a rank under top 1% in JEE Mains.

SUMMER TRAINING

NATIONAL ACADEMY OF BROADCASTING AND MULTIMEDIA | Summer Intern
June 2019 – July 2019 | Delhi, India
• Analyzed various signal processing techniques such as AM, FM and PM.
• Used techniques such as QPSK to reduce bandwidth by 50%.

SKILLS

SOFTWARE LANGUAGES
Proficient :
• C++ • Bash • Python
• HTML • CSS • MongoDB • SQL • Git
Familiar Programming Languages :
• Java • Javascript • Matlab • Rails

FRAMEWORKS
• PyTorch (Preferred) • Keras
• mlpack • TensorFlow • SciKit Learn

INTERNSHIPS

GOOGLE SUMMER OF CODE | mlpack, Developer
May 2020 - September 2020 | New Delhi, India
Implemented bench marking tools and **object detection** algorithms including YOLO-v3 and tiny versions for twice as fast training time.
• Restructured models repository by devising data loaders and object oriented for models with unit testing with over 70% code coverage.
• Devised optimized metrics for object detection algorithms such as intersection over union and layers like mini-batch normalization which provides over 5 times the speed up on 1000 data points over traditional implementation in C++.

CODING BLOCKS | Machine Learning Intern
May 2019 - October 2019 | New Delhi, India
• Processed and analyzed data to create state of the art models in python using PyTorch framework with 80% validation accuracy.
• Increased accuracy of traditional deep learning models by 12 % in breast cancer detection in CT scans using augmentation and further by 3% by tuning hyper parameters.
• Gained insight and increased accuracy by 5% by clustering commonly misclassified data using K means algorithm.

OPEN SOURCE CONTRIBUTIONS

MLPACK | Member
December 2019 – Present
Created over 50 PRs for **adding features**, **debugging**, **testing**, **refactoring** and **documenting** the code base as well as **integrating azure pipelines**.
• Bug Fix : Debugged pooling layers to prevent run time error for rectangular strides, fixed serialization of few ANN layers and conceptualized copy constructor to prevent invalid read in LARS.
• Feature Addition : Added state of the art activation and loss functions as well as layers including adaptive max and adaptive mean pooling.

PROJECTS

OPEN SOURCE COMPILER LIBRARY | BottlScript
• Established a growing open source compiler library written in C++. Organized Scrum meetings with contributors and members to increase efficiency.
• Proposed class for lexical analysis with reduced time complexity.

CLIENT-SERVER CHAT USING SOCKET | CppChat
• Developed an asynchronous TCP server-client model for chatting using socket programming using C++ on 1 thread.

VISUAL AID | Spatio Temporal Networks
• Designed spatio temporal networks to caption videos using PyTorch framework in python with inference at 30 fps. Aims to aid the visually disabled by converting captions to sound.

AWARDS

INFOSYS DIGITAL HACKATHON | 2019, 2018
• Won 3rd place in 2019 and 2nd place in 2018 out of more than 20 colleges including Indian Institute of Technology.
• In 2019, developed an algorithm to predict traffic congestion factor and attained 88% validation accuracy set using LSTMs and real time tweet clustering.
• In 2018, Built an autonomous banking security system using object localization and event classification algorithms.

FLIPKART GRID TECH | 2019
• Round 1 (Quiz) : Ranked 1st in DTU and 67 in India out 6000 participants.
• In round 2 and 3 obtained a rank in top 15 teams in object localization challenge with 90% accuracy on given data-set.