Kaustubh Prakash

Academic Details

Year	Degree/Board	Institute	GPA/Marks (%)
---	B.Tech in Mathematics & Computing	Indian Institute of Technology, Delhi	8.861
2016	CBSE	Sanskriti School	96.4%
2014	CBSE	Sanskriti School	10/10

Scholastic Achievements

- **JEE Advanced Rank:** Secured 405 rank in the prestigious JEE Advanced Examination
- **IITD Semester Merit Award:** Conferred a scholarship for being in the **top 7%** in a semester
- **Department Change:** Achieved a department change based on high academic performance
- **NSEP:** Placed among **top 1%** in NSEP conducted by Indian Association of Physics Teachers
- **KVPY:** Secured **AIR 138** and conferred with prestigious KVPY fellowship organised by IISc, Bengaluru in 2015-16
- **NTSE:** Selected as an NTSE 2014 scholar, conducted by NCERT for being amongst the top 1000 at the National level
- **Junior Science Talent Search Examination:** Secured State Rank 24 and selected as a JSTSE scholar (2013)

Courses Done

Data Structures And Algorithms, Analysis & Design Of Algorithms, Machine Learning, Probability & Stochastic Processes, Statistical Methods, Data Mining, Financial Mathematics, Econometric Methods, Linear Algebra & Diffe. Equa., Calculus, Discrete Mathematical Struc., Computer Arch., Digital Electronics, Optimization Methods & Appl., Computing Laboratory

Internships

- **Voxomos, Noida** (May, 2018 - July, 2018) : *Speech Enhancement using a DNN & Singing-Voice separation from monoaural recordings using Deep Recurrent Neural Nets*
  - Completed a study to implement a **DNN using Tensorflow** to remove noise from an audio file which led to a **20% increase** in the accuracy of the song-search software of Voxomos
  - Enhanced the **Deep Recurrent Neural Net** for the singing-voice separation code to obtain better results

Projects

- **Assistance App for the Visually Impaired**| Prof. Balakrishnan | January - April, 2018 | *Camera2Vision App*
  - Evaluated & examined various face detection algorithms and embedded systems to check its feasibility. Thus, enabling development of a non-intrusive technique for the visually impaired using Head Pose Estimation
  - Designed and implemented an Android App using Google Vision API to display various features with a Text-To-Speech API to help the blind in identifying others in front of them
- **Noise Reduction using Image Processing** | Prof. Mukul Sarkar | Nov, 2017 - Jan, 2017
  - Designed a filter by creating a custom Histogram of Oriented Gradients in MATLab
  - Programmed the Euclidean Adaptive Manifolds method for real-time filtering

Course Projects

- **8-Puzzle Problem with weighted edges**   **(Prof. Mausam)**
  - Solved the 8-Puzzle problem using Dijkstra's algorithm on a Sparse Graph using a Priority Queue
- **Designed LeNet (CNN) for MNIST handwritten digit classification**   **(Prof. Rijurekha Sen)**
  - Implemented LeNet to identify digits from MNIST dataset with our own image processing library with different functions like convolution, sigmoid, max and average pooling, relu etc.
  - Matrix multiplication is sped up using MKL & openBLAS libraries and also using p-threads to speed up convolution.
- **Indian Road traffic Simulator**   **(Prof. Rijurekha Sen)**
  - Designed a **C++** program for an Indian road traffic simulator with realistic lane changing behaviour according to a particular config file and animated the same using **OpenGL**.
- **Trash Segregation Game**   **(Prof. Rijurekha Sen)**
  - Designed a multi-level game on **Unity engine** to educate players of the importance of waste segregation.
- **Atari Breakout Reward Predictor**   **(Prof. Parag Singla)**
  - Implemented a **CNN** in **PyTorch** to predict if a reward is achieved in the Atari game given frames, with a high **F-score**.

Technical Skills

- **Programming Languages**: Java, Python, MatLab, C++, R, Bash, XML, SQL
- **Tools & Softwares**: Android Studio, Autodesk Inventor, Vim, Latex, MS Office

Positions of Responsibility

- **Executive, National Service Scheme** (April, 2017 - April, 2018): Awarded **outstanding** contribution as NSS IITD Executive
  - Managed many events like a mentorship program, teaching projects, collection drives, blood/book donation camps
  - Co-organised Kaizen-a social extravaganza-with participation of 20+ NGOs, 10+ social startups, 10+ social student bodies
- **Activity Head, Rendezvous | International Events** (April, 2017 - April, 2018)
  - Managed **Confluence '18**, a 4-day long international showcase with performing artists talented in music and dance.