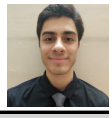
BHAVUK BHANDULA



ACADEMIC DETAILS

Year	Degree / Board	Institute	GPA / Marks(%)
---	B.Tech in Mathematics & Computing	Indian Institute of Technology, Delhi	9.46
2019	CBSE	Amity International School, Noida	96.2
2017	CBSE	Amity International School, Noida	10

SCHOLASTIC ACHIEVEMENTS

- **IITD Semester Merit Award**: Awarded merit scholarship for scoring **CGPA in top 7%** amongst 1000+ students (2020)
- **Joint Entrance Examination(JEE) Advanced:** Secured **All India Rank 222** among more than 2 lakh students (2019)
- **Joint Entrance Examination(JEE) Mains:** Secured **All India Rank 274** among more than 1.2 million students (2019)
- **KVPY**: Awarded the prestigious **Kishore Vaigyanik Protsahan Yojana fellowship** after obtaining **All India Rank 95** (2018)
- **UPSTSE Scholarship Program:** Awarded the state scholarship program for excellent performance in merit exam (2017)
- **Global Talent Search Examination**: Received Scholarship for securing **Rank 1** in GTSE amongst 5000 students (2017)

INTERNSHIPS

- **UNSW, Sydney** : *Mathematical Reduction Between Logic Encoding Languages* (May, 2021 - Jul, 2021)
  - Designed and Implemented a **mathematical reduction** translating a logic encoding language GDL to DLPA with **OCaml**
  - Proved the reduction correct by considering all possible keywords and ensuring correctness of all existing state invariants
  - Added functionality to **simulate Games** in DLPA to obtain a **winning strategy** from different game states using **AI models**
  - Assisted the **development of DLPAG**, a higher level version of DLPA by **alpha testing** for bugs and suggesting improvements

PROJECTS

- **Forward Problem on EEG Source Analysis** | *Prof. Lalan Kumar* (Jun, 2020 - Aug, 2020)
  - Applied the BEM model on a real head structure **using MATLAB**, calculating the required sparse matrix for source analysis
  - Programmed a function for **interpolating** potential values at any arbitrary point using data obtained from electrodes
  - Proposed the use of **kD-trees (3-D version)** to efficiently find closest electrodes, and implemented **weighted-curve fitting**
- **Handwritten Digit Recognition** | *Prof. Seshan Srirangarajan* (Apr, 2021 - May, 2021)
  - Designed and implemented a handwritten digit recognizer using only the **basic python libraries of Numpy and Pandas**
  - Employed **multinomial logistic regression** for the task and improved the program by implementing a **3-layer Neural Network**
  - Obtained results comparable to standard ML libraries, with **testing accuracy** greater than **93%** and **training over 99%**
- **Analysis of Mutant Genomic Library** | *Prof. Ashish Mishra* (May, 2020 - Jul, 2020)
  - Analysed the Genomic Library of fitness values for Z.Mobilis, consisting of over **1000 genes** varying across **700 environments**
  - Identified roles of different genes in controlling the organism's survivability, and determined functions for unknown genes
  - Developed a **toolbox in python** to facilitate easier analysis of similar experimental datasets by biologists in the future
- **Polynomial Regression** | *Prof. Seshan Srirangarajan* (Feb, 2021 - Mar, 2021)
  - Programmed a **multi-linear regression model** for fitting any arbitrary polynomial function with unknown degree from scratch
  - Improved the model with **regularisation**; made it capable of choosing smallest degree which fits the dataset to prevent overfitting
  - Model can deal with error induced data and return error function; obtained results comparable to standard ML libraries
- **Dynamic Memory Allocator** | *Prof. Rahul Garg* (Oct, 2020 - Nov, 2020)
  - Developed a program **in java** to allocate appropriate memory blocks as per the requests initiated by other applications
  - Employed **AVL Tree** data structure for storing free and allocated memory blocks and **best-fit algorithm** for optimal retrieval
  - Augmented the program by adding **defragmentation**, a process that consolidates adjacent free memory into larger blocks
- **Seam Carving** | *Princeton University Algorithms Course* (Jun, 2020 - Jul, 2020)
  - Modified **Dijkstra's algorithm** and used **index-based priority queue** to efficiently find minimum energy path(seam identification)
  - Elimination of identified seam useful in reducing an image's length or breadth, while preserving the most interesting features

TECHNICAL SKILLS

- **Programming Languages**: C++, Java, Python, OCaml, Sml, Verilog, GDL
- **Softwares and Utilies**: MATLAB, Git, AutoDesk Inventor, LaTeX, Blender

EXTRA CURRICULAR ACTIVITIES

- **Negotiation Table**: secured 3rd rank in the real life **coorporate world and financial simulation** summit hosted by IIT Delhi
- **Cultural Clubs**: Participated in Inter Hostel Group Dance | Base guitarist at Symphonia'20 Inter Hostel Music Competition
- **Enactus**: Part of social entrepreneurship club to improve plastic waste collection systems and identifying marketable alternatives
- **Sports**: Zanskar Hostel **Tennis Captain** | Part of Basketball team that represented hostel in General Championship'20
- **Project Friendicos**: Volunteered at an Animal Shelter to save stray and abandoned domestic animals and nurture them

Disclaimer: All the information on this page is entered by student.

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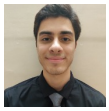

IIT COURSE

Degree	Institute	CGPA
B.Tech in Mathematics & Computing	Indian Institute of Technology, Delhi	9.46

COURSES DONE

Engg. Visualization & Comm., Linear Algebra & Diffe. Equa., Intro. To Electrical Engg., Calculus, Intro. To Computer Science, Probability & Stochastic Pro., Data Structures And Algorithms, Discrete Mathematical Struc., Computing Laboratory, Optimization Methods & Appl., Machine Intelligence& Learning, Digital Electronics, Real And Complex Analysis

QUALIFYING EXAM

- **Joint Entrance Examination (JEE) Advanced Rank:** 222 AIR

EXTRA CURRICULAR ACTIVITIES

- Participated, Symphonia'20 (March, 2020)
- Performer, Inter Hostel Group Dance Competition 2020 (January, 2020 - March, 2020)
- OCS Volunteer, Office of Career Services (August, 2019 - March, 2020)
- Volunteer, Board for Student Publications (July, 2021)

POSITIONS OF RESPONSIBILITY

- Activity Head, Literati'20 (August, 2020 - July, 2021)