



RAJBIR MALIK



ACADEMIC DETAILS

Year	Degree / Board	Institute	GPA / Marks(%)
---	B.Tech in Computer Science & Engineering	Indian Institute of Technology, Delhi	9.655
2017	CBSE Senior School Certificate Examination	Pratap Public School, Sector-6, Karnal	91.6%
2015	CBSE Senior Secondary Examination	Pratap Public School, Main, Karnal	10

SCHOLASTIC ACHIEVEMENTS

- **IITD Merit Award:** Honoured for being among the top 7% academic performers of the Institute in the **I, II and IV semester**.
- **Software Design Practices:** Secured the **highest score of 97.33%** in 'COP290: Design Practices' course
- **Israeli Council for Higher Education :** Awarded scholarship by ICHE for attending TAU summer school on merit basis.
- **Global Engineer Leadership (GEL) Scholarship :** Awarded GEL scholarship for summer internship program 2019 at NTHU.
- **Program Change IITD:** Selected for change of program by being **institute rank 5** at the end of first year. (CGPA 9.94/10)
- **Joint Engineering Exam Advanced :** Secured an **All India Rank of 154(GE)**, with a **perfect score of (122/122) in mathematics**
- **KVPY Fellow:** Selected for KVPY fellowship award in the categories **SX (2017)** and **SA (2016)** awarded by DST India.
- **Regional Mathematics Olympiad:** Cleared RMO-2016, acquiring national rank 7, and qualified for INMO-2017.

PROJECTS

- **Pipelined ARM Instruction Processor** [February 2019 - April 2019]
 - Developed and simulated a 32 bit, pipelined processor for ARMv7 instructions in VHDL and demonstrated it on BASYS-3.
 - Supports all ARMv7 instructions along with branch predictions, SW/HW interrupts and various working modes/rights.
 - Interfaced with a PMod Keypad and PMod Display for various I/O programs on user-defined input.
- **Krivine and SECD Machines** [March 2019 - April 2019]
 - Implemented a compiler with Krivine and SECD machine in OCaml. Both machines support an interpreter and a compiler.
 - A Lex Scanner converted program to tokens which were converted to an Abstract Syntax Tree using Recursive Parser.
 - The AST was type checked and a low level code was generated, which was executed by the machines.
 - Machines also supported features like scoping, recursion, loops etc. Lambdas & tail-recursion also incorporated.
- **Image Processing Library : Course Project** [January, 2019 - February, 2019]
 - Designed a library, with image processing functionalities (convolution, correlation etc.) and parallel processing capabilities.
 - Implemented an innate LeNet architecture to support digit recognition, within the library's interpreter interface.
- **Electronic Voting Protocol : Mini Project** [February 2019 - Present]
 - Designed a universally verifiable, software independent, bare-handed protocol with complete voter-verified accountability.
 - E2E verifiable voting protocol with feasible EVM specific implementations. Protocol in the process of being published.
- **Cybersecurity & Cryptography | Tel-Aviv University : Summer School (A+ : 97/100)** [June 2018 - July 2018]
 - Introduced to the concepts of cyber security. Separately tested and implemented various cryptographic primitives.
 - Studied and analysed various attacks on digital systems and networks such as replay attacks, buffer overflows, MITM, etc.
 - Learnt to use various tools (nmap, metasploit) and infrastructures (Kali), useful in security domain and penetration testing.
- **Personalised Search Engine : Course Project** [September, 2018 - October, 2018]
 - Implemented an inverted-index using AVL trees for the search problem. Used Hash-Maps to allow for large scale indexing.
 - Used LRU based cache to improve performance and history to personalise the inverted index for better results.

- **Game Development Course Project** A 2D-game designed in HTML5 using the Impact.js. Ranked 1 among all submissions.
- **Traffic Simulator Course Project :** A traffic simulator, both terminal and GUI based. Used OpenGL for GUI rendering.
- **Grid Traversal (Independent) :** A java-applet which simulates various traversal algorithms on user defined grid.
- **ALGOL stack simulator Course Project :** Simulated the (static/lexical) scoping discipline in Algol-like languages.

TECHNICAL SKILLS

- **Languages** - Python, C++17, Java, OCaml, JavaScript, Golang, VHDL, ARMv7
- **Frameworks** - OpenGL, MongoDB, SQLite, NodeJS, Git, OpenBlas, MKL, Django

EXTRA CURRICULAR ACTIVITIES

- **Activity Head (Table Tennis), Sportech 2017 :** Managed and handled teams the Table-Tennis sport in Sportech 2017



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IIT COURSE

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QUALIFYING EXAM

- Joint Entrance Examination (JEE) Advanced Rank: 154 (GE)

COURSES DONE

Mini Project, Data Structures And Algorithms, Discrete Mathematical Structur, Digital Logic & System Design, Computer Architecture, Programming Languages, Design Practices, Signals And Systems, Probability & Stochastic Pro.