

RAJBIR MALIK

Github: jaymalk

Zanskar Hostel ◇ Indian Institute of Technology Delhi

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EDUCATION

Indian Institute of Technology Delhi

Sophomore

Department of Computer Science and Engineering

July 2017 - Present

(Expected 2021)

Overall GPA: 9.67/10

EXPERIENCE

Cybersecurity & Cryptography | Tel-Aviv University

Summer Course, Prof. Amit Kleinmann

July 2018 - June 2018

- Separately tested and implemented cryptographic primitives including a Block Cipher in CTR mode using a given secure PRF, HMAC from a Merkle-Damgard construction and a one-way trapdoor function based on Elliptic Curves.
- Studied and analyzed various attacks on digital systems and networks, and implemented defenses against common exploits such as Replay attacks, Buffer overflows, Man-in-the-Middle attacks, etc.
- Received the highest grade while competing with students from across the globe with a score of 97/100 in finals.

Electronic Voting Machine Design

Embedded Systems Project, Prof. Subhashis Banerjee

January 2019 -

- Designing an voting machine to conduct institute level elections.
- Verified the design against various security measures and attacks.
- Optimizing the design to suit implementation with no trade offs.

Image Processing and Sharpening/Blurring on FPGA

Course Project, Prof. Anshul Kumar

October 2018 - November 2018

- Designed, synthesized, and implemented a system to apply basic image processing filters using UART serial protocol based Transmitter/Receiver and a 3x3 sliding window to apply filter coefficients.
- Programmed in VHDL on a BASYS3 FPGA board using Xilinx Vivado, with support for optional PMODs.

Mobile Phone Routing Structure

Course Project, Prof. Amitabha Bagchi

August 2018 - September 2018

- Built a standalone system for efficient routing between mobile phone base stations.
- Used k-ary trees and bloom filters along with multithreaded algorithms to find suitable routes while avoiding deadlocks and race conditions.

Search Engine

Course Project, Prof. Amitabha Bagchi

September 2018 - October 2018

- Implemented an inverted-index using AVL structures for the search problem.
- Optimized by using Hash-Maps allowing large scale indexing.
- Used cookie data to implement personalized-page rank.

SCHOLASTIC ACHIEVEMENTS

IIT Delhi Merit Award : Awarded IITD Merit Scholarship for being in the top 7 percent in the first and second semester.

Program Upgrade 2017 : Selected for Program Upgrade due to GPA Meri (Ranked 5th at the end of first year).

JEE Advanced Rank 154 : Ranked 154 Nationally, (amongst 150,000 candidates) in JEE Advanced 2017, *securing a perfect score in mathematics* (122/122).

KVPY Fellow : Cleared the KVPY exam, twice, in the categories SA (2017) and SX (2016)

TECHNICAL SKILLS

Computer Languages • Python (Jupyter, Scikit, Panda, Numpy), Java (Intermediate, Swing), C++ (Intermediate), R, OCaml & GO

Development • HTML, CSS, JavaScript, Django & BootStrap

Hardware • VHDL

RELEVANT COURSES

Introduction to Computer Science
Introduction to Electrical Engineering
Data Structures and Algorithms
Programming Languages*
Computer Architecture*

Discrete Mathematics
Digital Logic and System Design
Probability Theory and Stochastic Processes
Signals and Systems*
Laboratory (*Physics, Chemistry, Biology, Electronics*)

** currently pursuing.*

EXTRA-CIRRICULAR

Water-Polo Captain, Zanskar Hostel (July, 2018 - April, 2019)

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

Bournvita Quiz Champion for the District: Ranked 1st in Karnal in the Bournvita Quiz Competition in the year 2012

SUMMARY

I am a coding enthusiast. I usually code many real life scenarios to make better sense out of them. I have worked on many small projects, which include image processing, analysis of various sorting algorithms, physical simulations, GUI deployment for CLI's, etc. I have worked extensively in cyber-security. I wish to explore more fields and learn more, so that I can contribute better to this world.