

# Devanshu Singla

Sophomore • Indian Institute of Technology, Kanpur

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## SELECTED PROJECTS

### CREATING GAME THEORETIC-MODELS TO ANALYZE BIODIVERSITY CONSERVATION PROBLEMS • IITK

Course Project | Nov. 2020 - Dec. 2020

- Analysed three biodiversity problems through **Normal Form Games** and their **Nash Equilibrium**.
- Devised a new type of game named **Recursive Games with Conditions** and used it to analyse one of the problems.

### PRIVATE COMPUTATION USING CRYPTOGRAPHIC PRIMITIVES • SNT CLUB, IITK

Summer Project | May. 2020 - Jul. 2020

Crypto-IITK/Obliv-rust

- Implemented **Distributed Point Function (DPF)** library using the principles of **Function Secret Sharing (FSS)** in Rust.
- Learned about various Cryptographic Primitives used for Private Computation like **Function Secret Sharing**, **Fully Homomorphic Encryption**, **Yao's Garbled Circuits** and **Shamir's Secret Sharing**.
- Learned about **Multithreading**, **Memory Optimizations**, **Ownership Laws** in Rust language.
- Used libraries like **gtest**, **grpc**, **google/benchmark**

### INFOSEC IITK • ACA, IITK

Summer Project | May. 2020 - Jul. 2020

- Learned about techniques like **SQL injection**, **Binary exploitation**, and **Steganography**.
- Learned about **x64 assembly language** for **Reverse Engineering** and **Binary Exploitation** challenges and used tools like **gdb**, **radare2** and **cutter**.
- Used **Wireshark** to analyse captured network packets, **Audacity** to analyse wave signals and various other tools like **Steghide**, **Stegsolve**, etc for steganography.

## RELEVANT COURSES

- Data Structures and Algorithms
- Fundamentals of Computing
- Introduction to Electronics
- Real Analysis and Calculus
- Linear Algebra and ODE
- Game Theory and Mechanism Design
- Computer Organization<sup>#</sup>
- Modern Cryptology<sup>#</sup>
- Quantum Computing<sup>#</sup>
- Software Development<sup>#</sup>

# ≡ ongoing courses

## EDUCATION

### B. TECH, CSE

IIT Kanpur | Exp. 2023

CPI: **9.27/10.0**

### MODERN VIDYA NIKETAN SEC-17, FARIDABAD

Grade XII, CBSE: **96.4%**

### ST. THOMAS SR. SEC. SCHOOL, FARIDABAD

Grade X, CBSE: **10 CGPA**

## ACHIEVEMENTS

- **Academic Excellence Award**  
For academic year 2019-20
- **AIR 191** | JEE Adv. 2019
- **AIR 182** | JEE Mains 2019
- **AIR 131** | KVPY 2018 (SX)
- Qualified for INMO 2019

## TECHNICAL SKILLS

C++ • C • Rust • Python • Bash  
HTML • CSS • React-Native  
Javascript • ReactJS • NodeJS  
NumPy • Git •  $\text{\LaTeX}$  • Radare2

## OTHER PROJECTS

- Campus Discuss | Snt Club, IITK | Summer Project | 2020
- Chromebot | Self Project | Summers 2020

## RESPONSIBILITIES

### STUDENT GUIDE

Counselling Service IITK | Nov. 2020 - Present

- Helped six freshman to get acquainted with campus life and academics at IIT Kanpur.
- Part of the organizing team for the Orientation programme for the incoming Batch of 2020.