

Prakhar Agarwal

pkhrag@iitk.ac.in | +91-9468652335 | Github:pkhrag

EDUCATION

IIT KANPUR

BTECH IN COMPUTER SCIENCE AND ENGINEERING

Expected May 2019 | Kanpur, India
Cum. GPA: 9.64/10.0

CENTRAL PUBLIC SCHOOL

CLASS 12 | RBSE

Grad. 2015 | Rajasthan, India
Percentage: 89.8%

ACHIEVEMENTS

- **2nd Rank**, Championship Value Prediction (CVP-1), ISCA-2018
- **All India Rank 126** among 1.3M in JEE ADVANCED 2015
- **Academic Excellence Award** for 2015-16 and 2016-17 by IIT Kanpur
- **0.1 Percentile**, JEE MAINS 2015
- **KVPY Fellow** | **All India Rank 232**, by IISc Bangalore, 2014
- **1 Percentile**, Physics Olympiad(NSEP) 2014, HBCSE
- **Qualified**, Chemistry Olympiad(NSEC) 2014, HBCSE

COURSEWORK

Cyber Security of Critical Infrastructure
Computer System Security
Secure Memory Systems
Computer Architecture*
Compiler Design
Machine Learning Techniques
Data Structures & Algorithms
Advanced Algorithms*
Operating Systems*
Computer Networks
Computer Organization

: A Grade for exceptional performance

SKILLS

PROGRAMMING

Proficient

C • C++ • Python • x86 Assembly

Familiar

MIPS • Go • Java • Javascript

UTILITIES

Bash • Git • \LaTeX • GDB • REST • ROS

PLATFORM

Linux(Ubuntu) • Windows • Arduino
Android • Gem5 • ChampSim

WORK EXPERIENCE

SAMSUNG ELECTRONICS HEADQUARTERS | CLOUD LAB

May'18 – Jul'18 | Suwon, South Korea

- Designed a prototype for **Event Monitoring and Corrective Actions** for Virtual Network Functions and Open Network Automation Platform environment.
- Developed a simulator for Data Collection, Analytics and Events module **ONAP** using various APIs like **REST-API**, **Kafka-python**, **Durable-rules**, etc.
- The simulator can be used for **testing** Samsung's solutions for **virtualization**.

BOMBAY STOCK EXCHANGE | IT DEPARTMENT, SECURITY TEAM

May'17 – Jul'17 | Mumbai, India

- Worked on designing and improving **Network Security Architecture**.
- Collaborated with **IBM** team to secure Bombay Stock Exchange Network.
- Discovered **vulnerabilities** and audited BSE network with **SEBI** compliance.

PUBLICATION

DFCM++: AUGMENTING DFCM WITH EARLY UPDATE AND DATA DEPENDENCY-DRIVEN VALUE ESTIMATION

INTERNATIONAL SYMPOSIUM ON COMPUTER ARCHITECTURE (ISCA-2018)
Los Angeles, California, US

PROJECTS

SIDE-CHANNEL ATTACKS USING SPECULATIVE EXECUTION

PROF. BISWABANDAN PANDA

Aug'18 – Present | IIT Kanpur

- Using Speculative Techniques (**cache**, **prefetching**, **out-of-order execution**, **value prediction**, **branch prediction**, etc.) to discover new side-channel attacks.
- Mounted **Flush-Reload**, **Flush-Flush**, and **Prime-Probe** on latest processors.
- Using **Gem5** simulator to explore attacks based on value and branch prediction.

GOTHAM COMPILER | PROF. SUBHAJIT ROY

Jan'18 - Apr'18 | IIT Kanpur

- Implemented compiler for fully functional subset (**arrays**, **data types**, **loops**, **conditionals**, **functions**) of **Go** programming language in **Python** from scratch.
- Incorporated advanced features like **structures**, **pointers**, **multi-dimensional arrays**, **operator overloading**, **string concatenation**, **recursion**, etc.

AUTONOMOUS UNDERWATER VEHICLE | TEAM AUV-IITK

PROF. K.S. VENKATESH & PROF. SACHIN SHINDE

Dec'15 – Apr'2017 | IIT Kanpur

- **Runner-up** at National level Competition **SAVe-NIOT** (2016) in debut attempt.
- Robot **detects** and **follows line**, **hits buoy**, **fires torpedoes**, and **drops objects**.
- Used **ROS** (Controls), **OpenCV** (Image Processing) and **Gazebo** (Simulation).

EXTRACURRICULAR ACTIVITIES

TUTOR

Introduction to Computing (ESC101) | Jul'18 - Present

Conducting **Tutorial Lectures** for a batch of **40** students, once every week.
Designing and Grading **Lab Sessions**, **Quizzes**, **Theory** and **Lab Exams**.

ACA COORDINATOR

Department Student Body | Jan'17 - Present

Organized **CTFs**, **Hackathons**, **Freshers**, **Farewell**, **Happy Hours** and other events.