

V Pramodh Gopalan

· SOPHOMORE UNDERGRADUATE · COMPUTER SCIENCE AND ENGINEERING ·

IIT Kanpur, Uttar Pradesh

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"Know that you don't know. That is superior."

Education

Indian Institute of Technology, Kanpur

BACHELOR IN COMPUTER SCIENCE AND ENGINEERING

- Cumulative Grade Point: 9.24/10.0 (3 semesters)

Kanpur, Uttar Pradesh

Jul. 2019 - Apr. 2023(Expected)

Ryan International School

SECONDARY SCHOOL

- Class 12 CBSE board percentage of 96.2 %

Sanpada, Navi Mumbai

Apr. 2017 - Apr. 2019

Academic Achievements

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|------|--|--------------------|
| 2019 | Academic Excellence Award , Awarded to the top 10% in the batch for excellent academic record | IIT Kanpur, India |
| 2019 | All India Rank 217 , among 200,000 candidates in JEE Advanced, 2019 | IIT Roorkee, India |
| 2019 | All India Rank 217 , among 1.5 million candidates in JEE Mains, 2019 | NTA, India |
| 2019 | KVPY SX Scholarship Awardee , Scholarship awarded by Indian Institute of Science | IISc, Bangalore |
| 2019 | Appeared in INPho and INAO , Selected to appear in the national level exams for physics and astronomy olympiads | HBCSE, Mumbai |
| 2018 | Appeared in Indian National Math Olympiad (INMO) , Participated in a training camp for appearing in INMO | TIFR, Mumbai |
| 2017 | NTSE Scholarship Awardee , Scholarship awarded by Government of India | NCERT, New Delhi |

Project and Experience

Image Preprocessing as an Adversarial Defense

RESEARCH PROJECT UNDER DR.VIRESHWAR KUMAR

Department of CS, IIT Delhi

Aug 2020 - Dec 2020

- Briefly examined CV based navigation models for Unmanned Aerial Vehicles to determine adversarial weaknesses.
- Read a variety of literature on Adversarial vulnerabilities from Nicholas Carlini's reading list.
- Implemented defenses like Learnable Encryptions and Random Transformations to build defenses against attacks.

Decentralized Mechanism Design using BlockChains

COURSE PROJECT: GAME THEORY & MECHANISM DESIGN, MENTOR - SWAPRAVA NATH [GITHUB REPO]

IIT Kanpur

Aug. 2020 - Nov. 2020

- Used Blockchains as a source of decentralized mechanism to eliminate corrupt central parties.
- Used Game Theory to model games where privacy is a concern while using BlockChains.
- Used Secret Network and Secret Contracts to implement auctions while maintaining privacy.

A Study on GANs

SUMMER LONG PROJECT, MENTOR - NIRMAL SUTHAR [GITHUB REPO]

Programming Club, IIT Kanpur

May. 2020 - Jul. 2020

- Studied convolutional neural networks in depth and implemented architectures like ResNET and VGG using Pytorch.
- Did a basic literature review on GANs and implemented basic GAN and DCGAN on MNIST and CIFAR-10 Datasets.
- Studied Context Encoders and implemented it using Pytorch.
- Studied Audio Generation using WaveGAN and tried implementing it using Pytorch.
- Wrote blogs mentioning related research papers, along with results and architectures.

- Studied various types of exploits and cryptographic tools such as Binary Exploitation, Web exploits, and Steganography.
- Participated in various CTFs.

Talks

A (Short)Primer on Adversarial ML

Programming Club, IIT Kanpur

[SLIDES]

Nov. 2020

- Introduced the basics of Adversarial ML: The Why?, Attacks, and Defenses
- Demonstrated FGSM Attack and PGD-Adversarial Training using Notebooks

Skills

Programming Languages : Python, C, C++, Julia, Shell(Bash)

Machine Learning frameworks and Libraries : Pytorch, Numpy, Scikit-Learn, Pytorch-Lightning, Flux.jl

Utilites : Git, L^AT_EX, Markdown, Jekyll

Relevant Coursework

- | | | | | | |
|--------------------------------|----|-----------------------------|---|-------------------------|---|
| • Real Analysis | A* | • Game Th. & Mechanism Des. | A | • Computer Organization | † |
| • Fundamentals of Computing | A | • Machine Learning | ‡ | • Bayesian Analysis | † |
| • Discrete Mathematics for CS | A | • Probability Theory | † | | |
| • Data Structures & Algorithms | A | • Reliable AI (ETH Zürich) | ‡ | | |

† - Ongoing § - Upcoming ‡ - Audited

Positions of Responsibility

Programming Club, IIT Kanpur

Programming Club IIT Kanpur

SECRETARY

June 2020 - present

- Part of a team of about 20 students responsible for holding various events to the campus community of more than over 8000 students.
- Conduct and give talks and lectures on selected topics to interested students

Counseling Service IIT Kanpur

IIT Kanpur

STUDENT GUIDE

Aug. 2020 - present

- Mentoring six freshmen throughout their first year and exposing them to academic and extracurricular opportunities available in the institute