

Prakhar Agarwal

THIRD YEAR UNDERGRADUATE · COMPUTER SCIENCE AND ENGINEERING, IIT KANPUR

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Education

IITK (Indian Institute of Technology, Kanpur)

BACHELOR OF TECHNOLOGY, COMPUTER SCIENCE AND ENGINEERING

Kanpur, India

2015 - 2019 (Expected)

- Cumulative Grade Point/ CPI : **9.6/10.0**

Kendriya Vidyalaya, Jhalawar

CBSE

Rajasthan, India

2013

- 10th GRADE | CGPA **10.0/10.0**

Central Public School

RBSE

Rajasthan, India

2013

- 12th GRADE | Aggregate **89.8%**

Honors & Awards

- | | | |
|---------|--|------------------|
| 2015 | All India Rank 126 , among 1.2 million students in JEE ADVANCED | India |
| 2015-16 | Academic Excellence Award , IIT Kanpur | Kanpur, India |
| 2015 | 0.1 Percentile , JEE MAINS | India |
| 2014 | KVPY Fellow All India Rank 232 , IISc Bangalore and Government of India | Bangalore, India |
| 2014 | 1 Percentile , Physics Olympiad (NSEP) HBCSE | Rajasthan, India |
| 2014 | Qualified , Chemistry Olympiad (NSEC) HBCSE | Rajasthan, India |

Projects

Malware Classification using Machine Learning

PROJECT, PROF. SANDEEP SHUKLA

IIT Kanpur

August 2017 - Present

- The aim of the project is to classify android malware using one-shot learning.
- We plan to use a bidirectional LSTM to embed the training and test samples to get an encoding of the sample, which is then used to classify it.

Securing Zoobar Server

COURSE PROJECT, PROF. SANDEEP SHUKLA

IIT Kanpur

Jan 2017 - April 2017

- Found various security vulnerabilities in the server code.
- Exploited vulnerabilities using control hijacking techniques like buffer overflow and format string attacks.
- Performed various browser-based attacks like SQL injection, XSS, CSRF on Zoobar web application.
- Fixed security bugs in web server, implemented privilege separation and server side sand-boxing of executable profiles in okws server.

Autonomous Underwater Vehicle github.com/AUV-IITK REPORT

MEMBER, TEAM AUV-IITK, PROF. K.S. VENKATESH & PROF. SACHIN SHINDE

IIT Kanpur

December 2015 - April 2017

- Leader Software Subsystem of team AUV-IITK.
- First Runner-ups at the National level Competition SAVE-NIOT (2016) in debut attempt.
- The aim of the Robot is detecting and following a line, hitting a buoy, firing torpedoes at given targets and dropping objects underwater.
- Implemented the tasks using Robot Operating System (ROS) for Controls, OpenCV for Image Processing and Gazebo for simulation.

Text Generation

COURSE PROJECT, PROF. PURUSHOTTAM KAR

IIT Kanpur

August 2017 - Present

- The aim of our project is to capture the artistic style of an author and then generate text in that same style.
- We use character-level language models using multi-layered RNNs/LSTM and attention models on top of that to account for long-term dependencies.
- As an alternative approach, we also aim to use neural style transfer for text in a fashion similar to artistic style transfer for images by Gatys et al.

Introduction to Game Theory

github.com/pkhrag/ACA-Project-Game-Theory

IIT Kanpur

SEMESTER PROJECT, ACA

January 2016 - April 2016

- Developed an AI for zero-sum games like Tic-Tac-Toe and Connect-4.
- Used min-max algorithm with alpha-beta optimization and heuristic functions.
- Explored Monte Carlo Simulation for computing better heuristic function.
- Implemented feature of connecting two AIs over a network using ZeroMQ library.

Work Experience

Bombay Stock Exchange

Bombay, India

IT DEPARTMENT, SECURITY TEAM

May 2017 - July 2017

- Worked on designing and improving Network security architecture of Bombay Stock Exchange with IBM.
- Found vulnerabilities in the network and audited SEBI compliance of Bombay Stock Exchange.

Relevant Courses

Completed

Computer System Security
Data Structures and Algorithms
Discrete Mathematics
Introduction to Electronics
Computer Laboratory

Computer Organization
Probability and Statistics*
Multivariable Calculus
Logic in Computer Science
Introduction to Economics

Linear Algebra
Partial Differential Equation
Abstract Algebra
Introduction to Programming

Ongoing

Operating Systems
Machine Learning Techniques

Advanced Algorithms
Computer Networks

Computational Complexity Theory
Theory of Computation

* : A* Grade for exceptional performance

Skills

Programming C/C++, Python, X86 Assembly, ROS, Octave, MIPS, Verilog, R
Web JavaScript, HTML, CSS, SQL
Utilities Bash, Git, GDB, \LaTeX , Sublime, Vim, Numpy, OpenCV
Platforms Windows, Linux(Ubuntu), Arduino, Android, FPGA

Positions of Responsibility

Counselling Service (IITK)

IITK

ACADEMIC MENTOR

August 2016 - July 2017

- Helped students to cope up with academics.
- Took institute level doubt sessions for Fundamentals of Computing course.

ACA IITK

IITK

DEPARTMENTAL STUDENT BODY COORDINATOR

January 2017 - Present

- Conducted various events in the department like CTF, games, happy hour, departmental trip etc.

Programming Club, IITK

IITK

PROJECT MENTOR

May 2017 - July 2017

- Mentored 20 students on a project Ethical Hacking.