

ANUJ NAGPAL

3rd Year Undergraduate

Department of Computer Science and Engineering

Indian Institute of Technology, Kanpur

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EDUCATIONAL QUALIFICATIONS:

Year	Degree	Institute	CPI / %
2018 (expected)	Bachelor of Technology, Computer Science and Engineering	Indian Institute of Technology Kanpur	9.3/10
2014	AISSE (Class XII - CBSE)	B. M. M. Sen. Sec. School ,Mandi Killianwali	96.2%
2012	AISSE (Class X - CBSE)	B. M. M. Sen. Sec. School, Mandi Killianwali	10/10

ACADEMIC ACHIEVEMENTS:

- Received **Academic Excellence Award** from IIT Kanpur for the Academic Session 2014-15.
- Secured an **All India Rank of 190** in JEE Advanced 2014 given by about 150,000 students.
- Secured an **All India Rank of 220** and **State Rank of 4 in Punjab** in JEE Main 2014 given by about 1,500,000 students.
- Conferred with **Kishore Vaigyanik Protsahan Yojana (KVPY)** Scholarship in 2012 by IISc Bangalore.
- Qualified National Standard Examination in Chemistry (**NSEC**) and National Standard Examination in Astronomy (**NSEA**) in 2013.

PROJECTS:

- Joint Seat Allocation Algorithm for IITs, NITs, several IIITs and other GFTIs 2016** Dec'15 - Apr'16
(Mentor: Dr. Surender Baswana, Department of Computer Science and Engineering, IIT Kanpur)
 - Implemented a Joint Seat Allocation algorithm complying with the rules of JoSAA 2016 and tested it on 0.2-0.5 million candidates.
 - Improved time taken by algorithm by 70% times as compared to previous year algorithm for some boundary test cases.
- Deep Reinforcement Learning for Playing Pong Atari Game** Sep'16 – Nov'16
(Mentor: Dr. Piyush Rai, Department of Computer Science and Engineering, IIT Kanpur)
 - Applied deep reinforcement learning algorithms to learn playing strategy for Pong Atari game.
 - Implemented Q-Learning and Policy Gradient methods in TensorFlow to train the AI.
- Finding Vulnerabilities and Improving Security of ZooBar Server** Jan'17 - Current
(Mentor: Dr. Sandeep Shukla, Department of Computer Science and Engineering, IIT Kanpur)
 - Finding and exploiting overflow, format string, denial of service vulnerabilities and crafting various browser based attacks.
 - Fixing bugs in code of web server and implementing principle of least privileges by separating various processes.
- NachOS Extension** Aug'16 - Nov'16
(Mentor: Dr. Mainak Chaudhuri, Department of Computer Science and Engineering, IIT Kanpur)
 - Extended the standard system call library, implemented process scheduling algorithms and page replacement algorithms for NachOS.
- Java to x86 Assembly Compiler** Jan'17 - Current
(Mentor: Dr. Amey Karkare, Department of Computer Science and Engineering, IIT Kanpur)
 - Designing an End-to-End Compiler for Java in the x86 architecture using Python Lex and Yacc (PLY).
 - Implementing register allocation algorithm, register flushing, symbol table and abstract syntax tree for various Java language features.
- Online Academic Registration Portal** Sep'16 - Current
(Mentors: Dr. Piyush Kurur, Dr. Satyadev Nandakumar and Dr. Medha Atre, Department of Computer Science and Engineering, IIT Kanpur)
 - Revamping the current online academic registration portal and making a new platform using Ruby on Rails framework.
 - Providing Rich Query Support on the old academic data and Benchmark Testing for various databases to find the most suitable one.
- Data Analytics and UI integrations on Prutor** Dec'16 - Current
(Mentor: Dr. Amey Karkare, Department of Computer Science and Engineering, IIT Kanpur)
 - Added Integrations and enhanced Admin UI of an online interface (Prutor) used to teach programming to first year students.
 - Integrated data analyzing features on solution submissions by students which can help in reducing their common mistakes.
- Applications of Graph Algorithms in Markov Chains** Feb'17 - Current
(Mentor: Dr. Avijit Khanra, Department of Computer Science and Engineering, IIT Kanpur)
 - Analyzing by-products of graph algorithms which can be used to extract information out of Markov Chains to solve real-life problems.
- Combinatorial Game Theory** Sep'15 - Nov'15
(Mentor: Dr. Rajat Mittal, Department of Computer Science and Engineering, IIT Kanpur)
 - Studied theory behind combinatorial games and various heuristics and winning techniques applicable in them.
 - Analyzed winning strategies for some classical combinatorial games like Nim, Hex, Domineering and Tic- Tac-Toe.

POSITIONS OF RESPONSIBILITY

- Coordinator, ACA, Student Body of CSE Department, IIT Kanpur** Aug '16 - Current
 - Organized departmental activities ranging from hackathons and workshops to floating semester projects for 150 first year students.
 - Facilitated smooth conduction of ACA summer school with around 300 registered students and 5 courses.
 - Organized departmental happy hours and junior-senior sessions for promoting student-faculty and intra-department interaction.
- Secretary, Programming Club, IIT Kanpur** Apr '15 - Apr'16
- Secretary, Animation Club, IIT Kanpur** Apr '15 - Apr'16
- Mentor, Semester Project for 10 First Year Students** Jan '17 - Current

RELEVANT COURSES:

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|--------------------------------|--|---|
| Machine Learning Techniques | Computer Systems Security [^] | Operating Systems |
| Computing Laboratory – II (A*) | Design and Analysis of Algorithms | Principles of Database Systems [^] |
| Data Structures and Algorithms | Compiler Design | Applications of Stochastic Processes [^] |
| Probability and Statistics | Computer Organization | Introduction to Economics (A*) |
- A* for exceptional performance ^ - Ongoing

TECHNICAL SKILLS:

- Programming Languages:** C, C++, Python, Java, Bash, HTML, CSS, JavaScript, PHP, SQL, Verilog, Assembly
- Softwares & Utilities:** GNU Octave, Git, LaTeX, Vim, Gnuplot, MATLAB, Ruby on Rails, Node.js, Autodesk 3ds Max