ANUJ NAGPAL

3rd Year Undergraduate
Department of Computer Science and Engineering
Indian Institute of Technology, Kanpur

Email: anujnag@cse.iitk.ac.in , anujnagpal96@gmail.com
Phone: +91-7755047730
Homepage: anujnag.github.io

EDUCATIONAL QUALIFICATIONS:

Year	Degree	Institute	CPI / %
2018 (expected)	Bachelor of Technology, Computer Science and Engineering	Indian Institute of Technology Kanpur	**9.3**/10
2014	AISSCE (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 Industrial and Management 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:

- Machine Learning Techniques
- Computing Laboratory – II (A*)
- Data Structures and Algorithms
- Probability and Statistics
- Computer Systems Security^
- Design and Analysis of Algorithms
- Compiler Design^
- Computer Organization
- Operating Systems
- Principles of Database Systems^
- Applications of Stochastic Processes^
- 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