

Saksham Sharma

THIRD YEAR UNDERGRADUATE · COMPUTER SCIENCE AND ENGINEERING

Indian Institute of Technology Kanpur

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Education

Indian Institute of Technology Kanpur

Kanpur, India

BACHELOR OF TECHNOLOGY, MAJOR IN COMPUTER SCIENCE AND ENGINEERING

2014 - 2018 (Expected)

- Institute Rank 1 among 830 students. Cumulative Grade Point / **CGPA: 10.0/10.0**

Honors & Awards

2015	Academic Excellence Award , Institute Rank 1	IIT Kanpur
2014	Aditya Birla Group Scholarship Awardee , Among 15 top students from all IITs	Mumbai, India
2014	All India Rank 10 , Joint Entrance Exam Mains, 1.5 million candidates	India
2014	All India Rank 138 , Joint Entrance Exam Advanced, 150,000 candidates	India
2014	Merit Certificate Awardee, Overall 97.6% , Grade 12 national examination	India
2013	KVPY Scholarship Awardee , Indian Institute of Science and Government of India	Bangalore, India
2010	NTSE Scholarship Awardee , Government of India	India

Work Experience

Max Planck Institute for Software Systems

Saarbrücken, Germany

RESEARCH FELLOW, UNDER DR. EVA DARULOVÁ

May. 2016 - Jul. 2016

- Developed and evaluated a Scala tool to rewrite mathematical floating-point expressions and increase their accuracy using a genetic algorithm.
- Obtained successful results, improving expression errors by ~50%, for scientific and embedded applications.
- Part of a larger tool for optimizing numeric expressions, will hopefully appear in publication soon.

New York Office, IIT Kanpur

Kanpur, India

FULL STACK DEVELOPER, UNDER PROF. MANINDRA AGARWAL

May. 2015 - Apr. 2016

- Adjudged as one of the best interns, while being a freshman
- Worked on a scalable application in a polyglot environment with an extensive technology stack.
- Designed and implemented the full search component (using Elasticsearch)
- Implemented code evaluation, attachment support and front-end functionality.
- Technology used: Scala with Akka, Node.js with Express, Angular with TypeScript, Elasticsearch

Projects

moVi: Mobile Video Chat Protocol github.com/netsecIITK/movi

IIT Kanpur

UNDERGRADUATE PROJECT, PROF. SANDEEP SHUKLA

Sept. 2016 - Present

- Developed a client for video communication akin to Mosh (mobile shell).
- Used UDP to set up a connection-less and secure channel, persistent across network IP and location changes.
- Dynamic trade-off between video quality, stuttering rate vs network resources and reliability required.
- Implemented State Synchronization Protocol, UDP Hole Punching, along with dynamic tweaking of video quality, to maintain performance and reliability across scenarios.

Anonymous and private pair matching platform acehack.org/puppy

IIT Kanpur

COURSE PROJECT, PROF. PIYUSH KURUR AND PROF. SATYADEV NANDAKUMAR

Oct. 2016 - Present

- Designed and implemented an algorithmic platform for anonymous pair/couple matching.
- Ensures that users' choices are not made known even to the server admin.
- Used Diffie-Hellman like token exchange over an honest-but-curious server back, asymmetric encryption to ensure confidentiality and fairness even during matching.

HOP: HTTP proxy for arbitrary protocols acehack.org/hop

IIT Kanpur

UNDERGRADUATE PROJECT, PROF. SANDEEP SHUKLA

Aug. 2016

- A proxy to wrap and unwrap arbitrary binary data from/to HTTP packets, to bypass possible proxy restrictions.
- Stayed in *top 5* of *Github's trending* repositories in C++ on first 2 days of release.

ABU Robocon 2015, Badminton playing robots

IIT Kanpur

MEMBER, TEAM ROBOCON IIT KANPUR, PROF. BHASKARDAS GUPTA

Oct. 2014 - Mar. 2015

- Programmed and built 2 semi-autonomous robots capable of playing badminton on a standard size court.
- Used image processing with OpenCV to detect the shuttle and predict the trajectory.
- Used Kinect and Stereo Vision to get depth of field. Programmed the robot using Arduino run by Odroid.
- Finished 11th among 85 teams all over India.

Microsoft code.fun.do hackathon

IIT Kanpur

CONSECUTIVE TWO TIME HACKATHON WINNER

Jan. 2015, Sept. 2015

- An application to parse and plot graphs of implicit mathematical functions using C#, for Windows Phone.
- A platform to learn coding for Windows Phone, with a custom online judge written in Node.js.

Extracurricular Activity

Coordinator

IIT Kanpur

PROGRAMMING CLUB, INFORMATION SECURITY GROUP

Apr. 2016 - Present

- Rewrote, deployed, populated club website pclub.in
- Organize and conduct workshops, lectures on programming topics.
- Set problems for and organize various programming contests, capture the flag contests on campus.

Software Corner Manager

IIT Kanpur

TECHKRITI 2016, IIT KANPUR'S NATIONAL TECHNICAL FEST

Dec. 2015 - Mar. 2016

- Made an esoteric language based on turing machines for a national competition.
- Wrote an online judge for a High Performance Computing contest run on the Param YUVA II supercomputer.

Skills

Programming Proficient: C/C++, Python, Node.js; Experienced: Golang, Scala, Haskell

Web Express.js with Node.js, Akka with Scala, JavaScript, TypeScript, Angular

Operating Systems Gentoo Linux, Arch Linux, Ubuntu

Utilities Linux shell utilities, Git, Docker, Kubernetes, GDB, ElasticSearch, \LaTeX , Emacs and Vim

Coursework

A* Computer Networks
A* Data Structures and Algorithms
A* Introduction to Programming
A Computer Systems Security
A Abstract Algebra, Logic
i Modern Cryptology

A: Grade for exceptional performance*

A* Operating Systems
A* Computer Organization
A* Tools for Computing
A Discrete Mathematics
i Compiler Design
i Computer Architecture

A: grade

i: In progress

Miscellaneous

- Blog about Networks, Linux, and programming in general at acehack.org
- Contribute to open source, maintain some well appreciated projects on Github
- Microsoft Build The Shield 2016, National 10th in final, on-site Capture The Flag contest.
- Administer student servers in IIT Kanpur, including a community Gentoo mirror, deploying and managing services for the campus community.