

Saksham Sharma

PRE-FINAL 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%, useful 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 - May. 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 a full search component (ElasticSearch and Angular) from scratch.
- 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

Aug. 2016 - Present

- Working on developing a protocol for video communication vis-a-vis Mosh (mobile shell).
- Using UDP to set up a connection-less and secure channel, persistent across network IP and location changes.
- Trade-off between video quality, stuttering rate vs network resources and reliability required.
- Exploring, devising ways for transmitting video with minimum requirements, distortion with UDP packets.

Anonymous and private pair matching platform

IIT Kanpur

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

Oct. 2016 - Present

- Designed and in the process of implementing an algorithm for fully anonymous matching of couples.
- Allows the end users to put zero trust in the server (admin), irrespective of code on the backend.
- Using homomorphic two party computation (assisted by an un-trusted server backend) and asymmetric encryption to ensure confidentiality and integrity.

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++ for 2 days.

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.

Network Concepts Implementation

IIT Kanpur

COURSE PROJECT, COMPUTER NETWORKS, PROF. SANDEEP SHUKLA

Aug. 2016 - Present

- Wrote an HTTP Server, an HTTP Proxy and an implementation of STCP Protocol using socket programming.

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#.
- A platform to learn coding, with a custom online judge written in Node.js. National 5th (coding milestone).

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 stack machines for a national competition.
- Wrote an online judge for a High Performance Computing contest run on the Param YUVA II supercomputer.

Skills

Programming C/C++, Scala, Python, Node.js, Haskell, Lisp

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

Operating Systems Gentoo Linux, Arch Linux, Ubuntu

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

Coursework

A* Data Structures and Algorithms

A* Introduction to Programming

A Computer Systems Security

A Abstract Algebra, Logic

i Computer Networks

A*: Grade for exceptional performance

A* Computer Organization

A* Tools for Computing

A Discrete Mathematics

i Programs, Proofs and Types

i Operating Systems

A: grade

i: In progress

Miscellaneous

- Blog about Networks, Linux, and programming in general at acehack.org
- Contribute to open source and maintain my 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.