

# Saksham Sharma

LOW LATENCY SOFTWARE DEVELOPER

Indian Institute of Technology Kanpur · Computer Science and Engineering

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## Education

### Indian Institute of Technology Kanpur

Kanpur, India

BACHELOR OF TECHNOLOGY, MAJOR IN COMPUTER SCIENCE AND ENGINEERING

2014 - 2018

- Institute Rank 1 among 830 students. Cumulative Performance Index / **CGPA: 10.0/10.0**
- Awarded the President's Gold Medal, the highest academic award, by the Honourable President of India.

## Honors & Awards

2018	<b>President's Gold Medal</b> , For the best academic performance among graduating students	IIT Kanpur
2014	<b>Aditya Birla Group Scholarship Awardee</b> , Awarded to 15 students from all IITs	Mumbai
2014	<b>All India Rank 10</b> , Joint Entrance Exam Mains, 1.5 million candidates	India
2014	<b>All India Rank 138</b> , Joint Entrance Exam Advanced, 150,000 candidates	India
2014	<b>Merit Certificate Awardee, Overall 97.6%</b> , Grade 12 national examination	India
2013	<b>KVPY Scholarship Awardee</b> , Indian Institute of Science and Government of India	Bangalore
2010	<b>NTSE Scholarship Awardee</b> , Government of India	India

## Work Experience

### Limestone Trading Team, Tower Research Capital

Gurgaon, India

LOW LATENCY SOFTWARE DEVELOPER

Jul. 2018 - Present

- Work as a Quantitative Research developer, writing high performance and maintainable algorithmic trading systems in C++, which run the core trading strategies of the team across trading venues.
- Develop software in C++ and Python which allow our team to generalize strategies and research across exchanges and products, without compromising speed.

### GKE/Kubernetes Security Team, Google Seattle

Seattle, WA

SOFTWARE ENGINEERING INTERN, GOOGLE CLOUD

May. 2017 - Jul. 2017

- Worked on Kubernetes, Google's open source Docker container orchestration platform, to encrypt resources in cluster database at rest, a feature requested by industry for security hardening.
- Implemented envelope encryption using Key-Encryption-Keys and Data-Encryption-Keys to allow using remote cloud-based Key Management Services.
- Feature released as alpha in v1.7, integration with Google's Key Management System and others is upcoming.
- Collaborated with engineers across multiple companies. Received a returning job offer.

### 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.
- In proceedings of the 9th ACM/IEEE International Conference on Cyber-Physical Systems.

### New York Office, IIT Kanpur

Kanpur, India

FULL STACK DEVELOPER, UNDER PROF. MANINDRA AGARWAL

May. 2015 - Apr. 2016

- Worked on a scalable microservice based web application with an extensive technology stack.
- Designed and developed critical backend features while ensuring type-safety.
- Developed and deployed the complete search functionality (using Elasticsearch, Scala, TypeScript).

## Projects

### Tipsy: Tool to provide tips and corrections for C programs en masse

IIT Kanpur

UNDERGRADUATE PROJECT, PROF. AMEY KARKARE

Jan. 2017 - Apr. 2017

- Developed a tool in Scala to parse, analyze and classify C programs from large programming courses, to help provide suggestions and tips to weak students.
- Reduced C programs to a linear high level representation. Used it to find similar features between programs, thus allowing discovering corrections in a program using reference programs.
- Classified programs to provide suggestions to students based on programs similar to their submission.
- In **proceedings** of the 19th International Conference on Artificial Intelligence in Education, London.

### Anonymous and private couple matching platform

IIT Kanpur

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

Nov. 2016 - Apr. 2017

- Designed an algorithm and implemented a 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 backend, along with asymmetric encryption, to ensure confidentiality and fairness even while matching people.
- Deployed on campus for a week, with 1800+ users and 45 matches.

### 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 OpenCV, Kinect and Stereo Vision to detect the shuttle, and predict its trajectory.
- Finished 11th among 85 teams all over India.

## Extracurricular Activity

### Coordinator PROGRAMMING CLUB AND INFORMATION SECURITY GROUP, IIT KANPUR

Apr. 2016 - Apr. 2017

- Rewrote, deployed and populated the club website at pclub.in
- Organized and conducted workshops and lectures on programming topics.
- Set problems for, and organized various programming and capture the flag contests on campus.

### Microsoft code.fun.do hackathon 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.

### Teaching Assistant DATA STRUCTURES AND ALGORITHMS, PROF. SUMIT GANGULY

Aug. 2017 - Dec. 2017

## Skills

**Programming** C/C++, Scala, Haskell, Golang, Python, Node.js

**Web** Akka with Scala, JavaScript, TypeScript, Angular

**Utilities** Linux shell utilities, Git, Docker, Kubernetes, GDB, ElasticSearch,  $\text{\LaTeX}$

## Relevant Coursework

A*	Computer Networks	A*	Operating Systems	A*	Compiler Design
A*	Computer Organization	A*	Modern Cryptology	A*	Data Structures and Algos
A*	Distributed Systems	A*	Functional Programming	A	Programs Proofs and Types
A	Adv. Compiler Optimizations	A	Computer Architecture	A	Computer Systems Security
A*: Grade for exceptional performance			A: grade		

## Miscellaneous

- Blog about programming topics and functional programming at sakshamsharma.com
- Contribute to open source projects like Kubernetes, maintain some well appreciated projects on Github.
- Microsoft Build The Shield 2016, National 10th in final, on-site Capture The Flag contest.
- Administered a cloud in IIT Kanpur, deploying and managing services for the campus community.