

# Saksham Sharma

Computer Science and Engineering  
Indian Institute of Technology Kanpur



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## WORK EXPERIENCE

### ***Accuracy Improvement of Expressions***

*Max Plank Institute for Software Systems, Germany  
Fellowship, under Dr. Eva Darulová May-July'16*

- Developed, evaluated a Scala tool to rewrite mathematical floating-point expressions and increase their accuracy using a genetic algorithm
- Improved expression errors by ~50%, useful for scientific and embedded uses.

***Full Stack Developer*** *May'15-Apr'16*  
*NYC Office IIT Kanpur, Prof. Manindra Agarwal*

- Implemented various features in a large scale polyglot web application with an extensive technology stack in a team setup (Phabricator, Git)
- Designed and wrote the complete search component in Node.js, Scala, Elasticsearch, TypeScript

## PROJECTS

***moVi: Mobile Video Protocol*** *Sept'16-Now*  
*Prof. Sandeep Shukla*

- Developed a UDP based video chat client robust to network, IP changes, akin to Mosh.
- Implemented State Synchronization Protocol, UDP Hole Punching, dynamic tweaking of video quality to maintain performance in bad network.

***Anonymous secure pair-matching*** *Oct-Nov'16*  
*Prof. P. Kurur, Prof. S. Nandakumar*

- Designed, implemented an algorithm for secure, anonymous matching of couples, where end users put zero trust in the server (admin) and its code.
- Use Diffie Hellman inspired secure two party computation to ensure confidentiality and integrity.

***HTTP-Over-Protocol: Web proxy*** *Aug '16*  
*Prof. Sandeep Shukla*

- Proxy for bypassing proxy restrictions by wrapping arbitrary data in HTTP packets.
- Top 5 on Github trending (C++) for 2 days

***Badminton playing robots*** *Oct'14-Mar'15*  
*ABU Robocon '15, Prof. Bhaskardas Gupta*

- Built 2 semi-autonomous full-size badminton playing bots using Image-processing, Kinect and Stereo Vision to track, predict shuttle path
- Overall 11th among 85 teams in national round

***Microsoft code.fun.do hackathon*** *Jan, Sept '15*  
*Two time winner, IIT Kanpur*

- An app to parse, plot implicit mathematical graphs
- Platform to learn coding, using an online judge

## EDUCATION

2014–Now **Bachelor of Technology**  
IIT KANPUR  
**CGPA: 10.0/10.0**

## AWARDS AND ACHIEVEMENTS

Now **Institute Rank 1, IIT Kanpur**  
*CPI: 10.0 in 4 Semesters*

2015 **Academic Excellence Award**  
*IIT Kanpur, 2014-2015*

2014 **All India Rank 10**  
*JEE Mains, 1.5 million candidates*

2014 **All India Rank 138**  
*JEE Advanced, 150,000 candidates*

2014 **Aditya Birla Scholarship**  
*Among 15 top students from all IITs*

2014 **National Merit, Overall 97.6%**  
*Grade 12 National Examination, CBSE*

2013 **KVPY Scholarship awardee**  
*Scholarship by IISc, Govt. of India*

2010 **National Talent Search (NTS)**  
*Scholarship by Govt. of India*

## COURSEWORK

Data Structures and Algorithms	A*
Computer Organization	A*
Introduction to Programming	A*
Tools for Computing	A*
Computer Systems Security	A
Discrete, Abstract maths, Logic	A
Computer Networks	i
Operating Systems	i

A\*: grade for exceptional performance i: Current

## TECHNICAL SKILLS

LANGS	C, C++, Python, Node.js, Scala
WEB	Express, Akka, TypeScript, Angular
UTILS	Linux shell, Git, Docker, Kubernetes, GDB, Elasticsearch, Emacs, Vim

## MISCELLANEOUS

- **Blog** about Linux, coding at [acehack.org](http://acehack.org)
- Contribute to **Open Source** on Github
- **Coordinator** of Programming Club, InfoSec IITK, organize contests, CTFs, lectures ([pclub.in](http://pclub.in))
- Administer **servers** in IIT Kanpur; deploying, automating services for campus community
- Microsoft Build The Shield, National 10th in the final round of **CTF**