# Saksham Sharma

Computer Science and Engineering Indian Institute of Technology Kanpur

#### 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

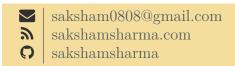
- Proxy for bypassing proxy restrictions by wrapping arbitrary data in HTTP packets.
- Top 5 on Github trending (C++) for 2 days

### 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 ADiscrete, Abstract maths, Logic AComputer Networks iOperating 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
- Contribute to **Open Source** on Github
- Coordinator of Programming Club, InfoSec IITK, organize contests, CTFs, lectures (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**