

Saksham Sharma

HIGH FREQUENCY TRADING - DIRECTOR, QUANTITATIVE RESEARCH TECHNOLOGY

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

- Ranked 1st in the graduating batch of India's most competitive institute. **CGPA: 10.0/10.0**
- Awarded the President's Gold Medal, the highest academic award, by the **President of India**.

Honors & Awards

2018	President's Gold Medal , For the best academic performance among graduating students	IIT Kanpur
2014	Aditya Birla Group Scholarship Awardee , Awarded to 15 future leaders from all IITs	Mumbai
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 - CBSE	India
2013	KVPY Scholarship Awardee , Indian Institute of Science and Government of India	Bangalore
2010	NTSE Scholarship Awardee , Government of India	India

Work Experience

Tower Research Capital LLC

Chicago, IL

DIRECTOR, QUANTITATIVE RESEARCH TECHNOLOGY

Jul. 2018 - Present

- Lead efforts on designing and scaling high performance Machine Learning systems for quantitative research, within tower's largest and one of the oldest trading teams.
- Design advanced programming languages abstractions and DSLs for ML research and trading systems.
- Design, plan, and implement advanced automated trading systems in C++. These proprietary systems underpin our team's quantitative trading strategies and allow them to execute competitively across the world.
- Help develop quantitative trading algorithms that trade billions of USD daily across the world's major financial exchanges. This improves market efficiency and provides price discovery for market participants.
- Manage, and help plan future directions of work to improve quantitative research processes of the team.
- Worked at Tower Research Capital's India subsidiary until Sept 2019; NYC until Feb 2026, Chicago since then.

GKE/Kubernetes Security Team, Google Seattle

Seattle, WA

SOFTWARE ENGINEERING INTERN, GOOGLE CLOUD

May. 2017 - Jul. 2017

- Worked on Kubernetes, Google's open source 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.
- Collaborated with engineers across multiple companies. Received a returning job offer.

Max Planck Institute for Software Systems

Saarbrücken, Germany

RESEARCH FELLOW, ADVISED BY DR. EVA DARULOVÁ

May. 2016 - Jul. 2016

- Developed a Scala tool to rewrite floating-point expressions to decrease errors.
- Obtained successful results, improving expression errors by ~50%, for scientific and embedded applications.

Talks

After Reflection - Building C++'s Missing DSL-Stack

Aspen, CO, US

C++NOW - AN INTIMATE ANNUAL CONFERENCE FOR C++ LANGUAGE EXPERTS.

May 2026

- Develop a runtime DSL within C++ with multiple frontend languages and backend architectures.
- Use reflection to add type-safety to ABI boundaries of JITed modules.

Reflection based libraries to look forward to

CPPCON - THE LARGEST C++ CONFERENCE IN THE WORLD.

Aurora, CO, US

September 2024

- The largest C++ conference in the world. Talk on advanced reflection based libraries in C++.

Write fast code like a native

CPPNORTH - THE CANADIAN C++ CONFERENCE.

Toronto, CA

July 2025

- Talk on writing high performance C++ code.

Reflection is good for (code) health - New-age libraries

C++NOW - AN INTIMATE ANNUAL CONFERENCE FOR C++ LANGUAGE EXPERTS.

Aspen, CO, US

May 2024

- Talk on various reflection usages in C++.

A low latency deepdive of Python with Cython

PYCON US - THE LARGEST PYTHON CONFERENCE IN THE WORLD.

Pittsburgh, PA, US

May 2024

- Talk on writing performant Python code with C++ intuition.

Writing Python bindings for C++ libraries - Easy-to-use performance

CPPCON - THE LARGEST C++ CONFERENCE IN THE WORLD.

Aurora, CO, US

October 2023

- Talk on understanding performance of Python and C++ interop.

Writing Python bindings for C++ libraries - Easy-to-use performance

C++NOW - AN INTIMATE ANNUAL CONFERENCE FOR C++ LANGUAGE EXPERTS.

Aspen, CO, US

May 2023

- Talk on understanding performance of Python and C++ interop.

Publications

TipsC: Tips and corrections for programming moocs

S SHARMA, P AGARWAL, P MOR, A KARKARE - ARTIFICIAL INTELLIGENCE IN EDUCATION

London, UK

June 2018

- Developed a tool in Scala to parse, analyze and classify C programs in large programming courses, to help provide suggestions and tips to weak students automatically with no manual intervention.
- Classified programs to provide suggestions to students based on programs similar to their submission.

Sound Mixed-Precision Optimization with Rewriting

E DARULOVA, E HORN, S SHARMA - ACM/IEEE 9TH INTERNATIONAL CONFERENCE ON CYBER-PHYSICAL SYSTEMS (ICCPSS)

Porto, Portugal

April 2018

- Rewrite mathematical expressions to minimize floating-point errors using genetic algorithms.

Organizations

WG21 - The ISO C++ Standardization Committee

INTERNATIONAL STANDARDS ORGANIZATION

International

Nov 2023 - Present

- Help decide the future of the C++ programming language through committee meetings held quarterly in different parts of the world.
- Provide ideas and feedback on the latest features being developed to improve C++, which underpins most critical software infrastructure in the world.

The Boost Foundation

INTERNATIONAL STANDARDS ORGANIZATION

US

Nov 2023 - Present

- Discuss and do talks on high-quality C++ language libraries maintained by Boost.
- Represent Boost through the US ISO national body, at international ISO committee meetings to ensure the representation interests of the foundation.

Skills

Programming C/C++ (advanced, C++17), Python (advanced, CPython), Scala, Golang, Haskell, Node.js, JavaScript

Utilities Advanced Linux shell scripting, Git, Docker, GDB, Elasticsearch, \LaTeX