Saksham Goel

sakshamgoel99@gmail.com | sgoel.xyz | saksham-goel

Education

The University of Texas at Austin **GPA : 4.0 / 4.0**
MS in Computer Science | Fully-funded Research Assistantship *Aug 2021 - May 2023*
Verification of Distributed Systems, Advanced OS, Datacenters

IIT Bombay **GPA : 9.59 / 10**
B.Tech. in Computer Science and Engineering (Hons.) | Minor in Applied Statistics *Jul 2017 - May 2021*
Virtualization, Verification of Concurrent Programs, Haskell

Industry Experience

Virtu Financial *Austin, Texas*
Core Developer *May 2023*
- Low-latency distributed infrastructure for high-frequency trading, supporting single digit nanosecond tick-to-order latency.
  Tech Stack: C++, OpenOnload

Netflix *Los Gatos, California*
Software Developer Intern *May 2022 - Aug 2022*
- Developed and evangelized features to reduce peak load. Designed an MVP for low-latency workers to reduce p99 launch time by 90%. Improved CRDB transactional throughput by 2x for distributed semaphores in Netflix's big data workflow orchestrator.
  Tech Stack: Java, Spring Boot, Redis, Cockroach DB

Mosaic Research Capital *Hong Kong (Remote)*
Quantitative Developer *May 2021 - Aug 2021*
- Developed highly concurrent low-latency infrastructure for high-frequency trading in crypto exchanges by market-making algorithms. Led an overhaul of the order management system, bringing down the tick-to-order latency by **20%**.
- Modularized a monolith into gateway, market data parsing, and trading strategy components.
  Tech Stack: C++ 17, Aeron Transport, Linux perf, Shared Memory

Uber *Bangalore, India*
Software Developer Intern *May 2020 - Jul 2020*
- Full-stack development to build an MVP of a scalable survey platform. Authored an **RFC** of a system that provides synchronous client experience over an asynchronous backend achieving **millisecond latency** SLA guarantees. **Used in production** as of Dec 2020.
  Tech Stack: Go, Kafka, Schemaless, WebSocket, HiveQL

AWL Inc. *Sapporo, Hokkaido, Japan*
Software Developer Intern *Nov 2019 - Jan 2020*
- Developed microservices and deployed DNN models on an ARM-based ASIC edge device to provide AI capabilities to conventional Video Management Systems. This work was showcased in the **CES 2020**.
  Tech Stack: C++, RabbitMQ, OpenVINO, Azure IoT Framework

Publications

ISMM 2020 **Garbage Collection using a Finite Liveness Domain**, A. Bansal*, *S. Goel**, P. Shah*, A. Sanyal, P. Kumar

SPIE 2020 **WeLineation: Crowdsourcing Segmentations for Ground Truth Estimation**, *S. Goel*, Y. Sharma, M. Jauer, T. Deserno

Research Experience

Liveness Based Garbage Collection *IIT Bombay, India*
Undergraduate Researcher (under Prof. Amitabha Sanyal) *2018 - 2020*
- Designed a **liveness analysis** based garbage collection technique for functional languages that showed **10x gains** in speed & memory on standard benchmark suites.
- Published and presented as the opening talk of the virtual ACM SIGPLAN **ISMM'20 conference** (co-located with PLDI'20)

TU Braunschweig *Braunschweig, Germany*
Research Intern (under Prof. Thomas Deserno) *May 2019 - Jul 2019*
- Designed expectation maximization algorithms and developed a system to crowdsource reliable medical image segmentations. This was used by 200+ volunteers to generate 5000+ masks. Published in the SPIE Medical Imaging Conference 2020.

Honors & Awards

2021 **J N Tata Scholar**, for pursuing higher education in computer science *India*
2020 **Institute Academic Award**, for excellent academic performance (Top 7 out of 121) *IIT Bombay*
2020 **Undergraduate Research Award**, for exceptional research work and publication *IIT Bombay*
2017 **All India Rank 25 in JEE Advanced**, amongst more than 1 million candidates *India*
2015 **National Talent Scholar**, a scholarship by NCERT, Government of India (Top 1000 out of 1 million+) *India*

Teaching

Undergraduate Operating Systems, Teaching Assistant with Prof. Mythili Vutukuru *Fall 2020, IIT Bombay*

Undergraduate Calculus, Teaching Assistant with Prof. Shripad Garge *Fall 2018, IIT Bombay*