Shaurya Raswan

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BS/MS in Computer Science, University of California San Diego — Sep 2022 - June 2026
Focus: Programming Languages and Compilers — GPA: BS 3.83 - MS 4.00

EXPERIENCE

Teaching Assistant, CSE 131 Compiler Construction — Sep 2025 - Present
UC San Diego CSE Department — *La Jolla, CA*

- Teaching students through the full compiler pipeline within Rust: functional patterns, lexing/parsing, AST, ANF, type checking, IR, function closures, code gen, liveness for register allocation, and garbage collection.

Software Engineer Intern — Jun 2025 - Aug 2025
Societe Generale — *New York, NY*

- Built an async, multithreaded pipeline to cross-check manually extracted Bloomberg Terminal data against internal APIs; extended low-latency TCP feed handler to capture those missing fields, eliminating EUCs.
- Shipped full-stack Angular + SpringBoot features with JPA repository patterns for PostgreSQL management, including trade booking over WebSocket and release notes with XSS sanitization.

Software Engineer Intern — Jun 2024 - Aug 2024
SMBC Group — *New York, NY*

- Architected the first external data ETL and ML repositories on Azure Databricks. Developed scheduled web scraping and ingestion pipelines to unstructured + structured Parquet datasets using PySpark RDD parallelism.
- Applied vector embedding NLP models with named entity recognition (Gensim with NLTK, MPNet, FinBERT) for parallel entity resolution and SEC + FED sentiment analysis.

Compiler Construction Researcher — Oct 2022 - Present
Kastner Research Group — *La Jolla, CA*

- Extending LLVM backend for Dr.Jit to support ROCm HIP, enabling Mitsuba differential rendering for AMD GPUs. Tool expansion used for our underwater ray tracing, segmentation, and object tracking research.
- Investigated CNNs + Gaussian mixture models for tiny object tracking in high-noise, low-contrast datasets.

PROJECTS

Snek. Linear algebra compiler with abstract syntax tree supporting register allocation, type inference, garbage collection, graph pruning, and simple quantization. Built with Rust and LLVM for x86 NASM.

Toopy. OpenCL CNN inference pipeline using explicit im2col for convolution lowering and CLBlast batched GEMM.

IsaBunny. 9-bit synthesized SystemVerilog CPU with custom ISA and Python assembler. Made for floating and fixed point type casting, type coercion, and addition. Supports pipelining, branching, and fully associative cache.

UCSD Sustainable Investment Group. Dev for $8,000 student investment fund. Launched EC2 pipelines for ingestion from Refinitiv to S3 buckets. Founded sigpytch, a PyPI library used for portfolio optimization/backtesting.

AWARDS

CruzHacks 2024. 1st place. Built computer vision ASL translator app with pose estimation + LSTM.

Bonnie Reiss Fellowship 2024. $4,000 scholarship. Evaluated UCSD grid decarbonization of on- vs off-site solar.

OC Beckman Award. 1st place, $16,000 scholarship. Built custom LEGO spectrophotometer detecting lake algae blooms. Presented findings at 2022 Caltech Beckman Symposium.

Skills	Python, Rust, C++, Java, TypeScript, RxJS, Haskell, SystemVerilog, GCC, LLVM, OpenCL, Spark, Flask, Postgres, Gradle, Maven, PyTorch, Tensorflow, OpenCV, Pandas, JVM, Docker, MongoDB, AWS
Classes	OS, Architecture, Parallel Computation, Statistical NLP, Compilers, Cryptography, Software Eng
Fun	Tabla, Trumpet (UCSD Mariachi), Skateboarding, Biking, Tarot, Reading, Creative Writing