

# Krut Patel

krutpatel99@gmail.com | iamkroot.github.io | linkedin://krutpatel99 | github://iamkroot

## EDUCATION

### University of Illinois, Urbana-Champaign

*M.S. Computer Science*

Aug 2023 – May 2025 (Expected)

*Illinois, USA*

### Birla Institute of Science and Technology

*B.E. Computer Science*

CGPA: 9.71/10 (in top 1%ile)

Aug 2017 – Jul 2021

*Hyderabad, India*

## EXPERIENCE

### Microsoft Research India

*Research Fellow*

Aug 2021 – Jul 2023

*Bengaluru, India*

Worked with Dr. Kaushik Rajan and Dr. Aseem Rastogi on accelerating big-data systems using Just-In-Time code generation to execute SQL queries on native hardware.

- Built a multi-stage compiler with domain-specific optimizations for SQL
- Led the integration of the native query execution engine into the Azure Synapse suite to boost the performance of Spark jobs
- Developed tooling for the runtime, added Address Sanitizer support and hardware counter-based perf stats for profiling code and identifying system hotspots

### Ecole Polytechnique Federale de Lausanne (EPFL)

*Research Intern*

May 2021 – Jul 2021

*Remote*

Joined the DIAS Lab headed by Prof. Anastasia Ailamaki, contributing to a JIT-compiled in-memory database.

- Built a scalable CSV Parser using the principles of Block-based Lazy Parsing.
- Explored an adaptive recompilation technique to enable faster integer parsing based on input distribution characteristics.

### Microsoft Research India

*Research Intern*

Aug 2020 – Jan 2021

*Remote*

Joined the INSTalytics group led by Dr. Muthian Sivathanu, delivering performance improvements to SCOPE on Cosmos, the distributed big-data analytics platform powering Microsoft.

- Enriched the Cascades-based query optimizer with information about data partitions.
- Boosted the quality and amount of hash join plans being generated.

### Microsoft India (R&D)

*Software Engineering Intern*

May 2020 – Jul 2020

*Remote*

Interned in the Microsoft Edge browser team, building a prototype for the **Natural Language History Search** feature, which enables users to search previously viewed pages with queries in plain English (“cake recipe from last week”). This has been rolled out for general availability now.

## ACHIEVEMENTS

### BITS Pilani Merit Scholarship

All Semesters

Conferred the Merit Scholarship for excellence in academic studies, ranking in the top 1%ile of the batch every semester.

## TECHNICAL SKILLS

**Proficient:** Rust, C++, Python, C, JavaScript

**Familiar:** Bash, Java, Scala, x86 ASM

**Tools:** GDB, Git, LLVM, Docker, Nginx, Flask, Django, ReactJS

## EXTRACURRICULARS

### CRUx – The Programming and Computing Club

*Secretary*

Apr 2019 – Mar 2020

- Coordinated various club activities, hosted programming competitions and hackathons.
- Spearheaded the Girls Mentorship Program, a bootcamp aimed at increasing diversity by providing access to structured learning and guidance for various fields in programming.