

# Kaushik Varadharajan

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## EDUCATION

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**Master of Computer Science**, University of Illinois Urbana-Champaign Aug 2025 - May 2026

**B.S. Computer Science and Linguistics**, University of Illinois Urbana-Champaign Aug 2022 - Dec 2024  
4.0/4.0 GPA, LAS Honors James Scholar, Dean's List

*Coursework:* Programming Languages & Compilers, Distributed Systems, Applied Machine Learning, Algorithms, Database Systems, Honors Computer Architecture, Systems Programming, Computational Linguistics, Speech Signal Processing

## EXPERIENCE

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**Software Engineering Intern**, Codeium — *Mountain View, CA* Jan 2025 - present

**Machine Learning Software Engineer Intern**, Arm — *San Jose, CA* May 2024 - Aug 2024

- Contributed to the Tensor Operator Set Architecture (TOSA), a minimal but expressive intermediate representation for precise compilers from machine-learning frameworks (PyTorch, TensorFlow) to diverse targets
- Refined the TOSA MLIR graph compiler with new operators and passes to better support state-of-the-art models
- Wrote Python bindings with Pybind for TOSA's open-source C++ reference model, so operators can be directly run for testing
- Tested serialization of operator graphs and quantized datatypes with Google's FlatBuffers library in C++ and Python
- Used Git, Gerrit, and Jenkins for code review, intellectual-property review, and CI/CD at scale

**Research Assistant**, ADAPT Group — *Urbana, IL* Dec 2023 - present

- Working on Dias, a dynamic just-in-time rewriter for Pandas code in Jupyter using syntax tree pattern-matching
- Investigating the use of syntax tree matching and formal methods to reduce reliance on LLMs in automatic code-writing tools

**Software Engineer Intern**, SwiftCX — *Remote* May 2023 - Oct 2023

- Finetuned MosaicML's MPT-7B for customer service on 30K support emails using Huggingface, PyTorch, and Postgres
- Created FastAPI backend for agent insights dashboard, collecting browsing data from S3 and Redis and processing with Pandas
- Used GPT-4 for text-to-SQL and intent detection, building a SolidJS/WebSocket app for natural-language database queries
- Implemented Redis cache to speed up ETL data transfer from Zendesk to AWS S3 data lake for 20 companies

## LEADERSHIP

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**Course Assistant**, Intro Algorithms and Models of Computation — *Urbana, IL* Jan 2024 - Dec 2024

- Held weekly office hours, grading assignments, and moderating online forums like Discord and EdStem
- Created extra slides and practice questions for new student-led midterm review sessions

**Infrastructure Co-Chair**, ACM @ UIUC — *Urbana, IL* May 2024 - Dec 2024

- Managed engineering teams for UIUC's largest computer science student organization

**Infrastructure Team Lead**, ACM @ UIUC — *Urbana, IL* Sep 2023 - May 2024

- Developed serverless API to manage role-based access control using AWS Lambda, Azure AD, and DynamoDB

## PROJECTS

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**CarScope** — **HackIllinois 2024 General Track Finalist** | *Huggingface, Flutter*

Built mobile app to identify cars using image classification model and answer questions using locally-hosted language model

**FPGA "Dinosaur Game"** | *Verilog*

Programmed a simple runner video game for Basys 3 FPGA, using Verilog to interface with VGA monitor

## SKILLS

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**Languages** Python, C, C++, Rust, SQL, Java, Javascript, Verilog, OCaml, Scheme

**Other** Git, AWS, Docker, Jenkins, Gerrit, PostgreSQL, MySQL, MongoDB, Neo4J, Django, Firebase

**AWS Certified Cloud Practitioner**