

Ahan Gupta

Linkedin

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EDUCATION

- **University of Illinois Urbana-Champaign** Champaign, IL
PhD in Computer Science Aug 2022 - Present
- **National University of Singapore** Singapore
Bachelor of Computing in Computer Science Aug 2017 - Dec 2021

RESEARCH STATEMENT

I am broadly interested in researching high-performance Compiler & System level abstractions to accelerate deep-learning applications. My work melds both theory and practice, providing high-performance abstractions and systems that have strong theoretical guarantees.

EXPERIENCE

- **Google DeepMind** Mountain View, CA
Student Researcher May 2024 - November 2024
 - Investigated trainable KV-cache compression strategies at scale.
- **Citadel** Hong Kong
Software Engineering Intern May 2021 - Aug 2021
 - Designed an authentication library to enable developers to integrate authentication logic with different services
 - Contributed to a tool that monitors AWS usage of different desks
 - Designed and built a monitoring tool that enables traders to track internal services' uptime and accuracy
- **Google** Singapore
Software Engineering Intern May 2020 - Aug 2020
 - Designed Asynchronous Web APIs via OpenAPI for authorisation microservice in MojaLoop network
 - Designed database Schemas & built infrastructural groundwork to enable integration with said databases
 - Implemented APIs that enable secure FIDO signature validation in HapiJS and TypeScript
 - Merged all code into production

PUBLICATIONS

- Yueming Yuan, **Ahan Gupta**, Jianping Li, Sajal Dash, Feiyi Wang, Minjia Zhang. X-MoE: Enabling Scalable Training for Emerging Mixture-of-Experts Architectures on HPC Platforms. SC 2025.
- **Ahan Gupta**, Yueming Yuan, Devansh Jain, Yuhao Ge, David Aponte, Yanqi Zhou, Charith Mendis. SPLAT: Optimized GPU code generation framework for SParse reguLAR ATtention. OOPSLA 2025.
- Hoa La*, **Ahan Gupta***, Alex Morehead, Jianlin Cheng, Minjia Zhang. MegaFold: System-Level Optimizations for Accelerating Protein Structure Prediction Models. In submission 2025.
- Muyan Hu, **Ahan Gupta**, Jiachen Yuan, Vima Gupta, Xin Xu, Janardhan Kulkarn, Ofer Dekel, Vikram Adve, Charith Mendis. VTC: DNN Compilation with Virtual Tensors for Data Movement Elimination. In submission 2025.
- **Ahan Gupta**, Hao Guo, Yueming Yuan, Yanqi Zhou, Charith Mendis. FLuRKA: Fast fused Low-Rank & Kernel Attention. In Submission 2025. Preprint link: <https://arxiv.org/abs/2306.15799>.

* Denotes Equal Contribution

SERVICE

- **ACM TACO Reviewer**: 2025
- **ISCA AEC**: 2024

SKILLS SUMMARY

- **Languages**: Java, C++, Python, C, SQL, Javascript, Scala, Cuda
- **Tools**: Docker, Pytorch, Tensorflow, JAX, LLVM