Kunjun Li

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Education

National University of Singapore Aug 2022 - Present
Bachelor of Engineering in Computer Engineering (Honours)
Cumulative GPA: 4.75 / 5.0
Research Interest: Efficient Deep Learning, High Performance Computing.

Publications

TinyFusion: Diffusion Transformers Learned Shallow

Gongfan Fang*, **Kunjun Li***, Xinyin Ma, Xinchao Wang

Arxiv 2412.01199

PixelGen: Rethinking Embedded Camera Systems for Mixed-Reality

Kunjun Li, Manoj Gulati, Dhairya Shah, Steven Waskito, Shantanu Chakrabarty, Ambuj Varshney

Proceedings of the 2024 ACM/IEEE International Conference on Information Processing in Sensor Networks (IPSN '24). **Best Demo Runner Up**.

Professional Experience

UW Information Processing Lab Seattle (remote)
Undergraduate Research Assistant 12/2024 – Present
Supervisor: Prof. Jenq-Neng Hwang

• Enhanced Segment Anything 2 (SAM2) to process multiple-view camera video data, enabling robust segmentation and advanced vision-based analytics for winter sports scenarios.

NUS Learning and Vision Lab Singapore
Undergraduate Research Assistant 07/2024 – 12/2024
Supervisor: Prof. Wang Xinchao

• Developed TinyFusion, a novel learnable depth pruning framework for Diffusion Transformers, achieving a 2× speedup with an FID score of 2.86.

• Generalized TinyFusion to various architectures, achieving significant computational efficiency while maintaining strong performance.

• Conducted extensive analysis on post-pruning recoverability in large-scale Diffusion Transformer models.

NUS-NCS Joint Laboratory for Cyber Security Singapore
Undergraduate Research Assistant 07/2024 – 12/2024
Supervisor: Prof. Ambuj Varshney

• Proposed PixelGen, an innovative Embedded Camera System integrating Language Models and Diffusion Models, to generate High-Resolution RGB Images from monochrome images and sensor data.

• Paper Won Best Demo Runner Up at ACM/IEEE IPSN 2024 Conference.

Project Experience

Parallel Virus Scanning with CUDA NUS

• Developed and optimized a CUDA parallel program with asynchronous kernel launches and memory transfers, achieving significant performance gains on NVIDIA A100 and H100 GPUs.

High-Performance RISC-V Processor Design NUS

• Designed a pipelined RISC-V CPU in Verilog with dynamic branch prediction, hazard handling, and optimized matrix multiplication using the Karatsuba Algorithm.

More projects can be found at: kunjun-li.github.io/projects