XINGYU (TOM) WANG

Bachelor of Applied Science in Computer Engineering

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EXPERIENCE

FPGA Soft IP Engineering Intern

Altera

May 2025 – August 2026 | Toronto, ON

- Develop Feature, verify functionality and reduce resource usage of the Test Engine IP, which sends memory traffic to the on-chip memory (HBM, DDRRAM) through NoC interface on FPGA.
- Collaborate with cross-functional teams to ensure seamless integration of the IP into larger FPGA designs, enhancing overall system performance and reliability.

Student Research Asistant

UBC

April 2024 – April 2025 | Vancouver, BC

- Investigated supervised learning methods (LSTM, Transformer, etc.) for page prefetching using collected traces; achieved better results than heuristic algorithms (LEAP) on various workloads, with ongoing challenges in deployment and inference time.
- Supervision under: Shaurya Patel, Prof. Alexandra Fedorova in UBC Systopia Lab.

PROJECTS

Evaluating Cache Scheduling Strategies for vLLM Inference

January 2025 – April 2025 | Vancouver, BC

- Experiment OS cache prefetching strategies to for vLLM inference.
- Explore adaptive watermark tuning techniques to optimize memory usage and scheduling.
- Report avaliable at my GitHub.

Capstone: Reinforcement Learning with SVT-AV1 Codec

January 2025 – August 2025 | Vancouver, BC

- Used reinforcement learning to improve AV1 Codec constant bitrate mode by assigning Quantization Parameter (QP) offsets to superblocks within a frame, given a frame-level QP.
- Built an RL environment by exposing the C program API, enabling per-video optimization; generalization across different videos remains challenging.

Microsystem Design with Microprocessor

Jan 2024 – April 2024 | Vancouver, BC

- Build memory, data bus, various I/O around a M68K CPU on FPGA. Interact with CPU using embedded C programming
- Implemented components including DRAM controller, Cache Controller, SPI, Canbus, I2C, ADC/DAC, and Simple RTOS with multi-threading and priority interrupts.
- Integrate the above components with VGA and Voice modules, and map addresses accordingly both in RTL design and C programming to produce a Tetris game with the M68K CPU

AWARDS

NSERC Awards
Natrual Sciences and Engineering Research Council of Canada Undergraduate Student Research Award (USRA) for May 2024 - August 2024

Dean's Honors List
Academic Excellence Award 4 years in a row

SKILLS

SystemVerilog | C | Python | tcl | Perl | Pytorch | QEMU

EDUCATION

BASC. in Computer Engineering

University of British Columbia

Sept 2021 – Aug 2026

CGPA: 87%
Upper-level (3rd year+) courses: 89%
Affiliations: Systopia Lab
Course Highlights:

- **Compute Systems:** Computer Architecture, Digital & Microsystem Design, Computing Systems, VLSI, Accelerator Design
- **Software:** Software Development, Data Structures & Algorithms, Operating Systems
- **Other:** Machine Learning, Error Control Coding, Abstract Math, Video Codec