

# XINGYU (TOM) WANG

## Bachelor of Applied Science in Computer Engineering

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## EXPERIENCE

### FPGA Soft IP Engineering Intern

#### Altera

May 2025 – August 2028   Toronto, ON

- Working on Test Engine IP in the HBM (High Bandwidth Memory) subsystem
- Develop Feature, verify functionality and reduce resource usage of the Test Engine IP

### Student Research Assistant

#### 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.

## PROJECTS

### Evaluating Cache Scheduling Strategies for vLLM Inference

January 2025 – April 2025

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

### Capstone: Reinforcement Learning with SVT-AV1 Codec

January 2025 – August 2025

- 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

- Build **memory**, **data bus**, **various I/O** around a M68K CPU on FPGA. Interact with CPU using embedded C programming
- Implemented components include **DRAM controller**, **Cache Controller**, **SPI**, **Canbus**, **I2C**, **ADC/DAC**, and **Simple RTOS** usage 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

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

## SKILLS

C   Python   SystemVerilog  
Machine Learning   Pytorch  
Operating Systems   QEMU  
Computer Architecture  
Digital Logic Design  
VLSI   Microprocessor Design

## 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:

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