

VINCENTIUS JANSSEN

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EDUCATION

The Chinese University of Hong Kong

BEng. Computer Science – GPA: 3.3/4.0; Second Class Honours, Upper Division

Shenzhen, China

Sep 2019 – May 2024

Core Courses: Computer Architecture, Compiler Construction, Parallel Programming, Cloud Computing, Operating Systems, Computer Graphics, Software Engineering, Data Structures and Algorithms, Database Systems, Speech and Language Processing.

Gap Year: AY2021-2022, Unable to return to campus due to pandemic

Awards: Dean's List AY2023-24, USTF/TA Award AY2023-24, Best Capstone Project 2024

EXPERIENCE

Huawei Hong Kong Research Center

Compiler Technologies Lab – Compiler Engineer

Science Park, Hong Kong

Sep 2024 – Present

- Working on production LLVM/MLIR ML graph compiler
- Writing transformation passes for HLO dialects
- Developing model parallelization and sharding framework
- Backporting upstream MLIR patches

The Chinese University of Hong Kong

Speech Lab – Research Assistant

Shenzhen, China

May 2024 – Sep 2024

- Researching RAG boosted hierarchical prosody control systems for text-to-speech (TTS). Supervised by Prof. Zhizheng Wu.
- Experimenting on Non-Autoregressive (NAR) models, e.g. FastSpeech2

Computer Architecture – Undergraduate Teaching Assistant

Jan 2024 – May 2024

- Ported CMU 15-213 (ICS) Binary Bomb Lab from **x86 (IA-32)** to **RISC-V (RV64)**.
- Deployed autograder and assignment request server on **Microsoft Azure** with **Cloudflare** DDoS protection.
- Developed and released a containerized (**Docker**) development environment, reducing user setup time by over 100x.
- Environment available for audit at ghcr.io/janssen-v/rvemu.
- **Received USTF/TA Award AY2023-24 in recognition of exceptional teaching performance** and for commitment towards fostering a conducive learning environment through innovative teaching methods.

PROJECTS

Multiple Dispatch Micro Kernels for IREE

Performance optimization of the IREE VM Runtime

- Optimized VMVX backend micro-kernel dispatcher with multiple dispatch, achieving up to 70% speed-up on Intel Golden Cove.
- Performed profiling of common TensorFlow workloads on different backends and CPU configurations to identify hotspots.
- **Received distinction and awarded CUHK(SZ) Best Capstone Project Award 2024.**

openRGB-IR

RGB-IR color filter array debayering plugin for fast-openISP

github.com/janssen-v/openRGB-IR

- Reduced near infrared spillover from resulting image stream without use of band pass filter, fully eliminating red color cast.
- Implemented guided up-sampling of IR images with conventional Bayer pixels, for a 4x increase in resolution.

Simplified C Compiler

A compiler for a simplified C language in C++ and Python

- Developed a lexer, parser, and code generator from scratch to compile code into MIPS32 assembly.
- Developed efficient data structures to support implementation of compiler modules and functionality, primarily abstract syntax trees (AST) and symbol tables among others.

SKILL SUMMARY

Programming	C++, Python3, Java
Frameworks	LLVM, MLIR, PyTorch
Cloud & DevOps	Azure, AWS, Docker, Git
Miscellaneous	QEMU, GDB, Linux Shell