

Jiaxuan Chen

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Interests: Computer systems, Virtualization, Linux drivers, Storage Systems, Databases, Compilers

EDUCATION

Ph.D. in Computer Science, McGill University

Sep 2023 - Expected 2027

- Advised by [Prof. Oana Balmau](#).

B.S. Computer Science, McGill University

Sep 2019 - May 2023

- First Class Honours.
- Dean's Honors List (2020).

RESEARCH EXPERIENCE

vPIM: Processing-in-memory Virtualization

McGill University & Grenoble-INP

Supervisor: [Prof. Alain Tchana](#) & [Prof. Oana Balmau](#)

May 2022 - Present

- Research on Processing-in-memory technology of UPMEM PIM
- Virtualization of PIM capable memory to allow its utilization in the cloud
- Design and build the virtual driver for the Linux guest kernel and the corresponding module for the Firecracker hypervisor following the virtio architecture.
- Design and conduct experiments to evaluate the virtualized prototype of UPMEM PIM.

Deploying Persistent Memory in Time-series Database

McGill University DISCS Lab

Supervisor: [Prof. Oana Balmau](#)

Sep 2021 - May 2022

- Research on the capabilities and utilization of non-volatile memory
- Focus on applying persistent memory modules (PMEM) to Time-series Databases
- Build Benchmark tests to evaluate the performances of TimescaleDB and InfluxDB
- Participate in deploying persistent memory in TimescaleDB.

WORK EXPERIENCE

Teaching Assistant for Distributed System

School of Computer Science, McGill University

Sep 2023 - Dec 2023

- Organize and hold demo sessions for students to present their assignments.
- Hold office hours and answer questions related to assignments on an online discussion forum (Ed)

COURSEWORK PROJECTS

Study on Data Management for the Ethereum Blockchain

- Study on the fundamental concepts in Ethereum data structure.
- Research on the advantages and disadvantages of the LSM Design for Ethereum Data Storage.
- Discuss using Time-series databases to improve storage performance on Ethereum Data Storage.

A Comparative Analysis Between NLP models mBERT and XLM-RoBERTa

- Designed and performed a comparative analysis between two cross-lingual language models, Multilingual BERT(mBERT) and XLM-RoBERTa (XLM-R), on an Amazon reviews dataset consisting of reviews in six different languages.
- Fine-tuned the multilingual Bert model, collected and analyzed the data

Mini C Compiler

- Implemented a mini object-oriented C compiler using Java
- This compiler is capable of compiling C to MIPS and running the MIPS output on a Java simulator
- Including implementation of a parser, AST, semantic analysis, code generation, register allocation, and object-oriented programming support