JIAHUI PENG

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EDUCATION

McGill University *Sept. 2017 - Dec. 2021*

- Bachelor of Computer Science & Minor in Economics
- GPA: 3.31/4.0 (1st & 2nd year); 3.86/4.0 (3rd & 4th year)
- TA: COMP 421 Database Systems; COMP 273 Introduction to Computer Systems
- Applied Machine Learning (A); Artificial Intelligence (A); Introduction to Natural Language Processing (A); Introduction to Data Science(A); Algorithm Design (A); Database Systems (A); Computer Networks (A); Distributed Systems (A); Numerical Computing (A); Programming Languages and Paradigms (A)

ACADEMIC EXPERIENCE

Individual Researcher Jan. 2024 - Present
Part-time, collaborating with a graduate student Tianyu Shi from University of Toronto and Tengjiao Sun University of Southampton

· ***Text-to-Motion Generation (Machine Learning)***
· Proposed the Multimodal Conditional Representation and Editing (MCRE) module, a lightweight adapter for text-to-motion generation and editing.
· Designed and executed the qualitative and quantitative experiments to demonstrate the effectiveness and versatility of the MCRE module in text motion generation and editing.
· **Co-authored a workshop paper and submitted to ECCV.**

McGill University
Part-time Research Assistant, supervised by Prof. Bettina Kemme & Prof. Mona Elsaadawy

· ***Distributed Systems & Networks***
· Explore the P4 programming language's capabilities for monitoring large and complex distributed systems in SDN, and compared its performance and flexibility with the use of OpenvSwitch.
· Designed and implemented a program that runs on software switches using P4, enabling dynamic performance monitoring of a set of target network flows between each containerized component.

McGill University Sept. 2021 - Dec. 2021
Research Assistant, supervised by Prof. Jin Guo & Prof. Martin Robillard

· ***Human-Computer Interaction***
· Proposed to find a solution to help Chrome users to save time by avoiding clicking on the less desired search results.
· Designed a heuristic algorithm to summarize web pages and categorize search results by content.
· Developed a Chrome extension in JavaScript that displays summaries and classifications (e.g., Tutorial Website) in a pop-up when users hover over a search result.

McGill University May. 2020 – Apr. 2021
Research Assistant, supervised by Prof. Muthucumaru Maheswaran

· ***Edge Computing***
· Proposed to discover the bottlenecks and improve the data transmission and computation efficiency of an IoT system.
· Designed and tested a Network-Aware Scheduling Algorithm to minimize task execution times on edge servers by dynamically adjusting schedules based on network quality.

- Implemented a scheduling algorithm in JAMScript's edge servers using Node.js and C++ to dynamically allocate computational resources to real-time, interactive, and batch tasks sent from devices (driving vehicles) based on different priorities, preventing any task type from being starved.
- Identified and resolved JAMScript's server-side performance bottlenecks, enhancing task communication efficiency by 50x using Worker threads in Node.js.
- **Co-authored the paper 'Network-Aware Scheduling for Edge Computing Tasks in 5G' (the patent has been approved; the paper submission is pending).**

INDUSTRIAL EXPERIENCE

Citi Group Mar. 2022 - Present

- ***Securities & Cash Middle Office Full Stack Developer - Officer2***
- Researching and performing Chaotic Engineering to a cloud-based system to test its resilience against designed failures in network, OS, and database. (Chaotic Engineering, OpenShift, and Docker)
- Developing a web application that facilitates securities trading, capable of processing trades submitted by traders and displaying visual analyses of past transactions. (Java, TypeScript, Spring-Boot, Oracle SQL, REST Service, Angular, and Microservices)

- ***Equities Front Office Back-End Developer - Officer1***
- Developed and maintained a low-latency distributed quantitative trading system for low-touch trading in Cash Equities and Options. (Java and Low Latency Programming)

Citi Group May. 2021 – Aug. 2021

- ***Equities Middle Office Back Developer - Internship***
- Developed a program to visualize daily trading data, including trade performance, trade volume, and internal FIX message processing times, using data from the front office.(Python)
- Designed and developed a complex log parser to automate the analysis of FIX messages which eliminates human errors and saves the time spent on manual analysis. (Python)

Huishu Tech. Jul. 2019 – Sept. 2019

- ***Full-Stack developer - Internship***
- Worked as a Full-Stack developer and added new features in both front-end and back-end in a logging system application to improve the user experience. (Java, JavaScript, MySQL, REST Service, and Spring-Boot)

SKILLS

Programming Languages	Python, C/C++, MATLAB, Java, JavaScript/TypeScript, CSS, HTML
Python Packages	Pandas, Matplotlib, Numpy, Pytorch, Tensorflow
Software & Tools	LaTeX, Excel