

Mohanna Shahrads

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EDUCATION

Princeton University, Princeton, New Jersey, United States

Sep 2024 – Now

Ph.D. in Computer Science

McGill University, Montreal, Quebec, Canada

Sep 2020 – May 2024

Bachelor of Science in Computer Science

3.93/4.00 GPA

University of British Columbia, Vancouver, Canada

Sep 2023 – Dec 2023

Exchange Semester as a Computer Science Visiting Student

RESEARCH EXPERIENCE

PhD in Computer Science at Princeton University

Sep 2024 - Now

Princeton SNS Group, Princeton University, Advisor: Prof. Mae Milano

Princeton, NJ

- Broadly interested in resource management in microservices.
- Currently working on runtime coordination of microservices based on topological properties.

Research Intern

Sep 2023 – Dec 2023

Dependable Systems Lab, University of British Columbia, Supervisor: Prof. Karthik Pattabiraman

Vancouver, BC

- Contributed to developing a hybrid Information Flow Control framework for managing privacy in distributed IoT applications and integrated the framework into Node-Red.

NSERC USRA Research Assistant

May 2023 – Aug 2023

Distributed Information Systems Lab, McGill University, Supervisor: Prof. Bettina Kemme

Montreal, QC

- Contributed to designing a middleware on top of Neo4j, to support view declaration and usage over graph queries.

Volunteer Research Contributor

Sep 2022 – May 2023

UBC CIRRU Lab, University of British Columbia

Vancouver, BC

- Contributed to the UnFaaSener project, a framework that helps serverless developers reduce costs by offloading functions to non-serverless resources, and evaluated benchmarks comparing AWS Step Functions and GCP Workflows against UnFaaSener's performance.

PUBLICATIONS

- Kumseok Jung, **Mohanna Shahrads**, Gargi Mitra, Karthik Pattabiraman. "Turnstile: Hybrid Information Flow Control Framework for Managing Privacy in Internet-of-Things Applications". Under review in Usenix Security Symposium'25.
- **Mohanna Shahrads**, Yu Ting Gu, Yunjia Zheng, and Bettina Kemme. "Towards View Management in Graph Databases". In SEAGraph'24 workshop: Search, Exploration, and Analysis in Heterogeneous Datastores Graph Edition, Workshop at ICDE'24
- Ghazal Sadeghian, Mohamed Elsakhawy, **Mohanna Shahrads**, Joe Hattori, and Mohammad Shahrads. "UnFaaSener: Latency and Cost Aware Offloading of Functions from Serverless Platforms". In 2023 USENIX Annual Technical Conference (ATC '23).

INDUSTRY EXPERIENCE

Software Development Engineering Intern

June 2022 – Sep 2022

AWS IoT FreeRTOS Team, Amazon

Vancouver, British Columbia

- * Developed and open-sourced templates for automated IoT data ingestion and visualization from edge devices into AWS IoT Core benefiting AWS IoT ExpressLink customers, and adaptable to various IoT devices.

Data Engineering Intern

May 2021 – Aug 2021

DataLake Team, Canadian National Railway (CN)

Montreal, Quebec

- * Developed real-time Microsoft Power BI dashboards showcasing data from Azure Data Lake for team insights.

Research & Development Intern

Feb 2021 – May 2021

Affinity RCM Team, Harris Computer Corporation

Ottawa, Ontario

- * Developed an automated quality assurance (QA) framework using Selenium WebDriver and C# to support efficient web-based application testing.

TEACHING EXPERIENCE

Undergraduate Teaching Assistant

School of Computer Science, McGill University

Sep 2022 – Dec 2022

Montreal, QC

* Operating Systems Course (Comp 310), Instructor: Professor Muthucumaru Maheswaran.

HONORS AND AWARDS

- 2024 Princeton University First-Year Fellowship in the Natural Sciences and Engineering
- 2023 Fonds de recherche du Québec – Nature et technologies (FRQNT) (Quebec Research Funding)
- 2023 NSERC Undergraduate Student Research Award, Natural Sciences and Engineering Research Council of Canada, McGill University
- 2022 Québec Perspective Scholarship (PB PQ), Government of Quebec
- 2021 Member of the Golden Key International Honour Society, Dean of Students at McGill University
- 2021 McGill Faculty of Science Scholarship, Faculty of Science Scholarships Committee, McGill University
- 2021 Member of the McGill Dean's Honour List, McGill University
- 2021 Selected for Google CS Research Mentorship Program (CSRMP)