

# NILOOFAR GHARAVI

## Graduate Research Assistant

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## EXPERIENCE

### Research Assistant

#### Systopia Lab

📅 May 2021 – Present    📍 Vancouver, Canada

- Integrated an in-network data processor prototype into Trino, accelerating TPC-DS queries by a factor of 3
- Optimized the processing-in-memory implementation of JPEG decompression to reduce the memory footprint by 25%
- Implemented and evaluated a key-value store on an In-memory processor

### Technical System Analyst / Software Developer Co-op

#### Royal Bank of Canada

📅 Sep 2019 – Jan 2020    📍 Toronto, Canada

- Enhanced RBC Capital Market Felix Risk Services Process Manager by adding functionalities to the Java backend and Angular front-end
- Upgraded the authentication system to Jetty and Spnego on Windows servers; This allowed users to sign into the systems in one simple click, using SSO

### Software Engineering Co-op

#### National Research Council of Canada

📅 Jan 2019 – May 2019    📍 Victoria, Canada

- Designed and prototyped subsystems of Real-Time Controller (RTC) of the Narrow Field Infrared Adaptive Optics System (NFIRAOS) in the Thirty Meter Telescope (TMT)
- Benchmarked different synchronization methods, such as semaphore, conditional variables, barriers, UDP, and TCP sockets to compare their performance
- Developed and tested a synchronization handler library that utilizes UDP sockets to transfer data streams from various parts of the RTC running at 100Hz to 800Hz

## PUBLICATIONS

### Conference Proceedings

- Nider, Joel et al. (June 2022). “Bulk JPEG Decoding on In-Memory Processors”. In: *Proceedings of the 15th ACM International Conference on Systems and Storage*. SYSTOR '22. Haifa, Israel: Association for Computing Machinery, pp. 51–57. ISBN: 9781450393805. DOI: 10.1145/3534056.3534946. URL: <https://doi.org/10.1145/3534056.3534946>.
- Mustard, Craig et al. (June 2021). “Jumpgate: Automating Integration of Network Connected Accelerators”. In: *Proceedings of the 14th ACM International Conference on Systems and Storage*. SYSTOR '21. Haifa, Israel: Association for Computing Machinery. ISBN: 9781450383981. DOI: 10.1145/3456727.3463770. URL: <https://doi.org/10.1145/3456727.3463770>.
- Kerley, D. et al. (June 2019). *Herzberg extensible adaptive real-time toolkit (HEART) software architecture*. eng. Record identifier / Identificateur de l'enregistrement : 58fb69f4-6e92-4c08-bb00-459c91924fb5.

## EDUCATION

### MASc in Computer Engineering

#### University of British Columbia

📅 Sep 2021 – Dec 2023

- Under the excellent supervision of Dr. Alexandra (Sasha) Fedorova

### BASc in Computer Engineering

#### University of British Columbia

📅 Sep 2016 – Jun 2021

## STRENGTHS

System Design

Debugging

Scripting (Bash)

Linux

Embedded Systems

Storage Systems

## HUMAN LANGUAGES

English

Farsi

German

## MACHINE LANGUAGES

C/C++

Java

Go

Python

## FOR FUN

Programming in C, Mathematics, Physics Tutor

### Private, UBC AMS, Oxford Learning

📅 Jan 2016 - Dec 2021

### World Traveller

### Personal, IEEE International Field Trip

📅 2004 - Present

### Amateur Photographer