






# NILOOFAR GHARAVI



## Graduate Research Assistant

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## EXPERIENCE



### Research Assistant University of British Columbia

-  May 2021 – Present       Vancouver, Canada
- Modified Trino, previously known as Presto SQL, to offload operations such as filter, projection, shuffle, and join to an in-network data processing prototype, Jumpgate
  - Built a software accelerator using C and C++ to improve the performance of Jumpgate
  - Wrote Python scripts to auto-generate C functions based on the given SQL filter expression


### Technical System Analyst / Software Developer Co-op Royal Bank of Canada

-  Jan 2018 – Dec 2018       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 Univeristy of British Columbia

-  Sep 2021 – Present
- Under the excellent supervision of Dr. Alexandra (Sasha) Fedorova

### BASc in Computer Engineering Univeristy of British Columbia

 Sep 2016 – Jun 2021


## STRENGTHS

- Systems Design
- Debugging
- Communication
- Organizational and planning



## HUMAN LANGUAGES

- English        
Farsi        
German      

## MACHINE LANGUAGES

- C/C++        
Java        
Go        
Python      

## FOR FUN

- Math, C, Physics Tutor  
**Private, AMS, Oxford Learning**  
 Jan 2016 - Dec 2021
- World Traveller  
**Personal, IEEE International Field Trip**  
 2004 - Present
- Amateur Photographer