

# Matheus Stolet

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## Interests

***Distributed systems, privacy, operating systems, security***

## Education

**University of British Columbia — M.S.c in Computer Science**

September 2019 - August 2021

*Supervisors: Dr. Ivan Beschastnikh and Dr. Aline Talhouk*

**University of British Columbia — BA in Computer Science & Minor in Philosophy**

September 2015 - May 2019

## Research

**SmartCache** - 2020 - Present

- Currently developing a practical approach to save the DP budget across queries by designing a cache that uses and interpolates old results
- Generated a differentially private synthetic dataset to answer queries without depleting the budget
- Optimized weights in synthetic dataset so that we can more accurately answer future queries

**LEAP** - 2019 - 2020

- Designed and engineered LEAP, a distributed and federated platform for data analytics that avoids sharing patient-identifiable information and reduces privacy risks
- Utilized differentially private methods to protect sensitive patient information
- Leveraged a distributed architecture that allows users to perform statistical queries and federated learning on multiple nodes
- Presented work at the BC Cancer Research Summit

**TraVista** - 2019 - Present

- Developed TraVista, a new visualization tool that helps developers understand the traces collected from a distributed system
- Designed multiple visualization tools that compared traces, captured dependencies, and displayed the order of events in a distributed system

**Finesse** - 2019 - Present

- Collaborated on Finesse, an extension to the FUSE library that improves the performance and extensibility of user space file systems
- Reduced kernel overhead by utilizing a message passing layer between the application and the file system
- Conducted extensive performance benchmarks of user-space file systems
- Presented a poster at EuroSys 2020. Working on the full version of paper

**Biscotti** - 2019

- Assisted in Biscotti, a P2P multi-party machine learning system that uses blockchain and crypto primitives to coordinate a privacy-preserving ML process
- Parallelized bottlenecks to improve performance
- Implemented a federated averaging algorithm to reduce convergence time of machine learning models

- Implemented compression techniques to reduce communication costs
- Was acknowledged on paper for my contributions

## Employment

### UBC, Vancouver — Research Assistant

May 2019 - August 2019

- Developed a data analytics platform to perform distributed queries in hospitals and research centres
- Used differentially private techniques to prevent information leakage from distributed queries
- Presented the work on seminars at UBC and BC Cancer Research Centre

### Thrive Health, Vancouver — Software Developer Intern

May 2018 - August 2018

- Developed a program to triage patients before surgery
- Used React and Redux to build webapp frontend
- Developed a media transcoder to convert videos into mp4 and to extract thumbnail from pictures
- Used AWS lambdas and SQS to scale deployment of media transcoder

## Teaching

### UBC, Vancouver — Graduate Teaching Assistant: Distributed Systems

January 2020 - May 2020

- Helped students with topics such as distributed system design, replication, and failure recovery
- Responded student questions on an online discussion board
- Coordinated grading and assignment ideas with the course team

### UBC, Vancouver — Undergraduate Teaching Assistant: Internet Computing

September 2018 - December 2018

- Conducted tutorials on network infrastructure, packet routing, and communication protocols
- Held office hours to help students with assignments and lecture material
- Graded assignments and quizzes

## Presentations and Posters

### EuroSys Poster Session - 2020

- Presented Finesse at EuroSys virtual poster session

### BC Cancer Research Summit - 2019

- Presented LEAP a Large-scale federated and privacy preserving Evaluation & Analysis Platform to healthcare researchers

## Awards

**2020** - International Student Tuition Award

**2019** - International Student Tuition Award

**2016** - Dean's List

**2016** - Trek Excellence Scholarship

**2016** - Faculty of Arts International Student Scholarship