

# JEFFREY KAM

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## RESEARCH INTEREST

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I am particularly interested in the following areas:

- Graph Theory and Algorithms
- Computer Algebra

## EDUCATION

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### University of Waterloo

Sep 2017 - Present

- Candidate for B.Math. in Computer Science and Combinatorics & Optimizations
- Minor in Pure Mathematics
- MAV: 86.5 % and 82.5 %
- Term Dean's Honours List

### Relevant Courses

- Graph-theoretic Algorithms - CS762 (Graduate)
- Algorithms for Graph Minors - CO749 (Graduate)
- Introduction to Graph Theory - CO342
- Network Flow Theory - CO351
- Algorithms - CS341
- Algebraic Number Theory - PMATH441

## PUBLICATION

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- **UBCIS: Ultimate Benchmark for Container Image Scanning**,  
with Shay Berkovich and Glenn Wurster  
Published in 13th USENIX Workshop on Cyber Security Experimentation and Test (CSET 20).  
<https://www.usenix.org/conference/cset20/presentation/berkovich>
- **bioSyntax: Syntax Highlighting For Computational Biology**,  
with A. Babaian, et al.  
Published in BMC Bioinformatics 19, 303 (2018).  
<https://doi.org/10.1186/s12859-018-2315-y>

## RESEARCH EXPERIENCE

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### University of Waterloo - Symbolic Computation Group

*Undergraduate Research Assistant*

May 2020 - Sep 2020

Waterloo, Canada

- Experiment with  $J$ -ideal and Smith Normal Form
- Understanding relationship between matrix normal forms and ideals

### BlackBerry - Security Research Group

*Security Research Intern*

January 2020 - April 2020

Waterloo, Canada

- Researched and designed a universal benchmark for quantitatively measure the effectiveness and accuracy of container image scanners
- Analyzed techniques of image inspection and vulnerability scanning through open source technologies

- Designed a universal import framework for Anchore Engine to extend our scanning capabilities
- Researched about utilizing machine learning on fuzzing for algorithmic complexity vulnerability
- Presented on current developments of fuzzing with machine learning and algorithmic complexity based fuzzing, along with potential problems, experiments, and optimizations that the Security Research Group can perform.

## WORK EXPERIENCE

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### GTS

*Software Engineering Intern (C++)*

Sep 2020 - Present

*Remote (New York, US)*

- Working on performant C++ code in the Core Technology Team

### Zenefits

*Software Engineering Intern*

May 2019 - Aug 2019

*Vancouver, Canada*

- Developed new permission services in Django with extensive unit tests to guard against unauthorized edits of review data
- Designed a sequential document update service using a distributed message queue system Celery

### Horizon

*Web Developer Intern*

May 2018 - Aug 2018

*Toronto, Canada*

- Built Laravel components for internal app and wrote Python scripts to transfer clients' data in AWS
- Wrote automation scripts to scrape data from files and database and compile them into json files

## AWARDS

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- First place in HackSeq 2017 bioinformatics competition in UBC
- Honourable mention in Canadian Computing Competition Hong Kong 2017
- University of Waterloo President's Scholarship

## PROJECTS

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### Statistical Analysis on Amazon Marketplace Data

- Analyzed Amazon marketplace data with using Python frameworks, such as Numpy and Pandas
- Employed various mathematical methods, such as PCA, time series, decision tree, and sentiment analysis

## SKILLS

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### Programming

Python (including Numpy), C++, C, Sage, TypeScript, JAVA, PHP

### Databases

PostgreSQL, MySQL, NoSQL

### Tools

Git, GCC, Docker, Linux, Jupyter Notebook