JEFFREY KAM

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RESEARCH INTEREST

I am particularly interested in the following areas:

- Graph Theory and Algorithms
- Computer Algebra

EDUCATION

University of Waterloo Sep 2017 - Present

- Candidate for B.Math. in Computer Science and Combinatorics & Optimizations
- Minor in Pure Mathematics
- MAV: 87 % and 83 %
- 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

- **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

University of Waterloo - Symbolic Computation Group May 2020 - Sep 2020
Undergraduate Research Assistant *Waterloo, Canada*

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

BlackBerry - Security Research Group Janurary 2020 - April 2020
Security Research Intern *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

GTS Sep 2020 - Present
Software Engineering Intern (C++) *Remote (New York, US)*

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

Zenefits May 2019 - Aug 2019
Software Engineering Intern *Vancouver, Canada*

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

Horizn May 2018 - Aug 2018
Web Developer Intern *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

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

PROJECTS

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

Programming	Python (including Numpy), C++, C, Sage, TypeScript, JAVA, PHP
Databases	PostgreSQL, MySQL, NoSQL
Tools	Git, GCC, Docker, Linux, Jupyter Notebook