

John Dykes

Ottawa, Ontario
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Education

Bachelor of Mathematics, Honours with High Distinction	Carleton University	May. 2014 – Dec. 2017
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Master of Mathematics in Pure Mathematics	University of Waterloo	Jan. 2018 – Dec. 2018
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Employment Experience

Canadian Centre for Cyber Security	Sept. 2020 – Present
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Cryptanalyst

- Researching and implementing cryptographic algorithms in order to ensure cryptographic primitives used to protect Government of Canada communications continue to be effective in light of anticipated quantum computing advancements
- Worked on a team responsible for maintaining recommendations on the use of various cryptographic algorithms within the Government of Canada

Communications Research Centre Canada	Nov. 2019 – Sept. 2020
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Computer Research Programmer

- Worked on a team applying machine learning and Geocomputation to telecommunications data, including estimating the interference that cellular towers have on each other
- Attended a 1-week long training course on machine learning using Tensorflow

University of Waterloo	Jan. 2018 – Dec. 2018
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Teaching Assistant

- Marked assignments for undergraduate math classes
- Held office hours to answer student questions

Carleton University	Sept. 2017 – Dec. 2017
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Teaching Assistant

- Marked assignments for undergraduate math classes
- Held office hours to answer student questions
- Teaching tutorials for math courses

Research Experience

Canadian Centre for Cyber Security

Sept. 2020 – Present

- Classified research on cryptographic algorithms, in particular those algorithms which are meant to be effective against an adversary with access to a quantum computer.

University of Waterloo

May 2018 – Dec. 2018

Research Project for Master's Degree

- Worked with Dr. Yu-Ru Liu from the University of Waterloo
- Studied Waring's problem in Number Theory, in particular using Vinogradov's Mean Value Theorem

Carleton University

May 2017 – Aug. 2017

Honours Project for Bachelor's Degree

- Worked with Dr. Brett Stevens from Carleton University
- Studied so called "well formed scales" in mathematical music theory
- Used Python to create a program which found counterexamples to a conjecture by Marek Zabka concerning these well formed scales

Awards and Honours

- Carleton University Dean's Honour List student 2015-2018
- Carleton University Claude Bissel Scholarship 2015
- Carleton University A. Davidson Dunton Scholarship 2016, 2017
- Senate Medal for Outstanding Academic Achievement 2018

Computer Skills

- Strong knowledge of mathematical tools: Mathematica, SageMath, C, Python, R
- Strong knowledge of web development, including: Javascript, Typescript, HTML, CSS, tailwindCSS, React, Next.js.
- Comfortable working in Unix/Linux environment
- Ability to type at 150 words per minute

Other Achievements

- Completed Grade 10 piano performance examination
- Competed in the Canadian University Chess Championship, 2014
- Canadian Chess Federation rating: 2000