

# Kaleb Ruscitti

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3A Mathematical Physics  
705-309-9847 - [kaleb.ruscitti@uwaterloo.ca](mailto:kaleb.ruscitti@uwaterloo.ca) - [kaleb.ruscitti.ca](http://kaleb.ruscitti.ca)

## **Education:**

*University of Waterloo*

Candidate for Bachelor of Mathematical Physics, minor in Pure Mathematics

Expected Graduation: April 2021

Relevant Coursework:

- Physics: Optics, Thermal Physics, Intro to Quantum Mechanics, Electricity and Magnetism 2
- Maths: Ordinary Diff. Equations, Real and Complex Analysis, Linear Algebra 2, Group Theory

## **Employment History:**

*Institute for Quantum Computing (12 mo.)*

Jan-April 2019 (Ongoing)

Undergraduate Research Assistant under Dr. Raffi Budakian

- Developing a novel technique to measure the electrical transfer function of an experimental system.
- Learning about nuclear magnetic resonance and spin physics, as applied to quantum information.
- Working with microscale and vacuum-safe components, including computer assisted design and assembly for use in the experiment.

Jan-April 2017, 2018

Undergraduate Research Assistant under Dr. Rajibul Islam.

- Completed a major laboratory project that will be used in future experiments.
- Developed fundamental knowledge of optics and electronics, and applied it to create functional lab equipment.
- Presented and explained my work to peers in group meetings and conferences.

## **Projects:**

*Digital Holographic Beam-shaping for Ion Addressing*

QITI Group (Dr. Islam) at the Institute for Quantum Computing

- Implemented a scheme for robust, in-situ, quick and fully programmable laser beam-shaping and optical aberration correction.
- Constructed the required equipment myself, including the optics, circuits and machining the mount.
- Developed and published a software package in Python to facilitate the implementation of this scheme on any spatial light modulator.

## **Presentations:**

*“Adaptive Optics for Ion-Addressing in an Ion Trap Quantum Simulator”* - PhUnC 2018, Western University.

**Grants and Awards:**

*Undergraduate Student Research Award, NSERC*

Jan. 2019

**Other Relevant Skills:**

Experienced in computer programming in Python, C++ and LabVIEW

Experienced with symbolic and numeric mathematical computations. (MATLAB, Sage)

Proficient in French and Mandarin Chinese.