


# George Mitchell

 : george-mitchell-math

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george-mitchell : 

gtmitchellmath.wordpress : **Personal Website**

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## RESEARCH EXPERIENCE

### Microsoft Research, Cryptography and Security

Research Intern, May 2022 - Aug 2022

Mentor: Craig Costello

- Improving and optimizing cutting edge techniques in the field of post-quantum cryptography.
- Adapting academic knowledge of algebraic curves to further advance Elliptic Curve Cryptography systems.

### The Graduate Center, CUNY

Dissertation Research, Aug 2016 - Present

- Establishing novel results on the Lifting Problem & providing a theoretical framework for future investigations of unsolved problems.
- Utilizing and adapting current research techniques, such as Galois covers of algebraic curves, good reduction of Galois covers, Hurwitz trees and depth Swan conductors, and applying them in new situations.

## EDUCATION

### PhD in Mathematics (Arithmetic Geometry)

Aug 2016-Present

The Graduate Center, City University of New York (CUNY), New York, NY

Dissertation: *On the Local Lifting Problem for Curves with Quaternion Actions*

Advisor: Andrew Obus

### MPhil in Mathematics

Aug 2016 - Sept 2020

The Graduate Center, CUNY, New York, NY

Oral Defense: *GAGA Theorems: Complex, Rigid and Formal*

Advisor: Andrew Obus

### Integrated MMath<sup>1</sup> Mathematics

Sept 2012 - June 2016,

Newcastle University, Newcastle Upon Tyne, UK

Thesis: *Galois Groups over the Rational Numbers*

Advisor: Stefan Kolb

Degree Class: First (4.0 on gpa scale)

## PROGRAMMING EXPERIENCE

### Newcastle University

Development of GAP Package, June-Sept 2015,

Project Lead: Dr. Andrew Duncan

- Contributed in the development of a GAP (Groups, Algorithms, Programming) package called *AutGrpOfPCG*. Debugged existing code, parsed techniques from the background research and implemented them within the package.

## PROGRAMMING SKILLS

- **Intermediate:**
  - **C++, R, Magma, Maple:** can write object oriented programs utilizing algorithms and containers. Can use machine learning packages and perform exploratory data analysis. Can automate symbolic algebra tasks.
- **Proficient:**
  - **Python, L<sup>A</sup>T<sub>E</sub>X, Bash:** can use industry libraries such as *Tensorflow*, *Pandas* and *NumPy*. Can write TeX formatted documents and have familiarity with Linux based distributions.

## TEACHING EXPERIENCE

### Hunter College, CUNY, New York, NY

Adjunct Lecturer, Aug 2018 - Present

- Taught as instructor of record: Calculus I, Calculus II, Elementary Statistics and Probability, College Algebra.
- Maintained overwhelmingly positive teaching evaluations.

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<sup>1</sup>In the UK, MMath is a combined Bachelors and Masters degree in a continuous four year program.