


George Mitchell

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george-mitchell : 

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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 MMath¹ 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^AT_EX, 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.

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