ZHENG Renpeng

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EDUCATION

2021 - 2022 ◇ **Imperial College London** London, UK

MSc (not yet awarded) in Pure Mathematics.

MSc Project Topic: Toric Variety (Studying), Supervisor: Dr Jonathan Lai.

Autumn Semester Courses: *Algebraic Curves*, *Manifolds*, *Commutative Algebra*, *Group Representation Theory*.

2017 - 2021 ◇ **The Chinese University of Hong Kong, Shenzhen** Shenzhen, China

BSc with Honours, **First Class**, in Mathematics and Applied Mathematics: Pure Mathematics stream.

AY2019-20/2020-21 Dean's List Award of School of Science and Engineering.

Courses: *Differential Geometry*, *Introduction to Geometry and Topology*, *Advanced Linear Algebra*, *Abstract Algebra*, *Complex Variables*, *Real Analysis*, *Partial Differential Equations*, *Probability Theory*.

Cumulative GPA 3.495/4.000, major GPA 3.794/4.000.

Summer 2019 ◇ **Girton College, Cambridge University** Cambridge, United Kingdom

Summer Programme

Summer 2018 ◇ **University of California, Berkeley** Berkeley, California, United States

Summer Session Vistor Student

Courses: *Abstract Algebra* and *Research & Data Analysis*

ACADEMIC ACTIVITIES

MSc Project

Nov 2021 - present ◇ Toric Variety

Studying toric variety under the supervision of Dr. Lai with the textbook W. Fulton, *Introduction to Toric Varieties*. I'll write a thesis and give a presentaion next year on it.

Reading Group

Aug - Sept 2021 ◇ Algebraic Topology

Cohosting on a weekly regular reading group with 2 students in CUHK(SZ).

Topics: *Singular homology theory* (Jan - Feb 2021), *complex K-theory and Bott periodicty of suspension* and *Weak homotopy equivalence and CW approximation*.

Textbook: A. Hatcher, *Algebraic Topology* and *Vector Bundles and K-Theory*

May 2019 - Jan 2021 ◇ Representation Theory of Semisimple Lie Algebra

Cohosting on a weekly regular reading group supervised by Prof. Daniel Wong in CUHK(SZ).

Topics: *Lie algebras and simply connected Lie groups*, *Classification of complex semisimple Lie algebras* and *Irreducible representations as quotients of verma modules*.

Textbook: B. C. Hall, *Lie Groups, Lie Algebras and Representations: An Elementary Introduction*

OTHER PERSONAL INTERESTS RELATED to MATHEMATICS

Try to use a simpler and stricter form to represent mathematicical concepts

- ◇ Implemented a run-able "math-rust" repository in github as "GiacomoZheng". I wrote "Young Tableaux" in 2020 and I'm writing the codes of "Toric Variety" now.
- ◇ Creating a new (programming) language *"gm"* in order to write the mathematics I'm learning (and going to learn) in a both machine-recognitiable and human-friendly way.