Yu Xiaoming
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EDUCATION

Nanyang Technological University Singapore
BSc. in Mathematical Sciences August 2020-Present
CGPA: 4.92/5.00

RESEARCH EXPERIENCE

(In this section, all of my NTU research experiences are supervised by Assoc Prof. Andrew James Kricker.)

Final Year Project Nanyang Technological University
August 2022 - Present Singapore
• Investigated properties of the parabolic mapping class of once-punctured torus with a lemma proved.

• Explored the theory of Chekhov-Fock intertwiner and its trace in case of a four-punctured sphere (ongoing).

Odyssey Research Program Nanyang Technological University
July 2022 - August 2022 Singapore
• Studied the Bonahon-Wong version of Volume Conjecture in low-dimensional topology for the case of pseudo-Anosov maps.

• Made an A0-sized poster summarizing the key results of asymptotic analysis of the quantum trace of a pseudo-Anosov map for once-punctured torus as well as related geometric intuitions.

• Presented a 6-minute talk to the judge professors from Odyssey Committee (A research organization in NTU Math Division) during symposium.

Research Assistant Nanyang Technological University
May 2022 - July 2022 Singapore
• Studied hyperbolic geometry with a focus on Kleinian groups and complete hyperbolic metrics of surfaces by reading around 90% of Francis Bonahon's book 'Low-dimensional Geometry: From Euclidean Surfaces to Hyperbolic Knots'.

• Studied theory of fibre bundles and its applications in manifolds and covering spaces by reading relevant chapters of Chris J. Isham's book 'Modern Differential Geometry for Physicists'.

• Made 1-hour presentations on these topics every two weeks within the research group.

URECA (Undergraduate Research Experience) Nanyang Technological University
August 2021 - May 2022 Singapore
• Studied theory of skein algebra and quantum trace by reading relevant literatures and making 1-hour presentations on related topics monthly in the research group.

• Made an A0-sized poster containing explanations to the skein theory as well as the classical shadow in skein algebra.

• Produced a 7-page self-contained report introducing the basics of skein algebra.

• Awarded with Distinction.

• Invited as guest speaker and presented a 10-minute talk for the URECA annual research sharing session.

OSRP21 (Online Summer Research Program) University of Cambridge
July 2021 - August 2021 Cambridgeshire, United Kingdom
• Learnt theory of p-adic numbers by studying 95% contents in Fernando Q.Gouvea's book 'p-adic Numbers, An Introduction', with around 80% of problems solved in the book, with a wide range of difficulties.

• Produced a 58-page self-contained report using LaTeX.

• Obtained First with Distinction (81% UK Scale; Problem Solving: 80%, Report: 85%)

TEACHING EXPERIENCE

Teaching Assistant Nanyang Technological University
August 2022 - Present Singapore
• Selected as Teaching Assistant of the course *PS0001: Introduction to Computational Thinking* (An introductory course of Python to math and physics students).

• Conducted a 3-hour tutorial and lab session with class size 50 students weekly in collaboration with another teaching assistant. (Total 39 Teaching hours)

• Clarified students' doubts regarding lecture materials and corrected student's mistakes appearing in their codes every week.

Peer Tutor Nanyang Technological University
August 2022 - Present Singapore
• Selected as Peer Tutor for Learning Centre in NTU Math Division.

• Provided on-demand tutoring for Undergraduate Level 1 to Level 3 math classes, with an average of 5 teaching hours per week.

AWARDS AND HONOURS

2022:

• Dean's List Academic Year 2021-2022 (Awarded to top 5 % students)

• Odyssey Research Best Presentation Prize

• NTU Integration Bee Second Prize

• NTU Science Bowl First Prize

2021:

• Dean's List Academic Year 2020-2021

• International Mathematical Competition 2021 Second Prize

SKILLS

Programming: Python, R, LaTeX.

Language: English (Full working proficiency), Chinese (Native).