YU-CHUAN YU 游棫荃

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EDUCATION

National Changhua University of Education (NCUE)   *Sept 2020 - Jun 2024*
B.Sc. in Mathematics, B.Eng. in Computer Science and Information Engineering
GPA: 3.8/4

National Yang Ming Chiao Tung University (NYCU)   *Sept 2024 - Present*
M.S. in Applied Mathematics (with minor in Institute of Communications Engineering)
Advisor: Prof. Chi Ho Yuen (阮志豪)
Thesis (in progress): Realizations of Phased Matroids

TECHNICAL STRENGTHS

Programming Languages	Java, Agda, C/C++, C#, Python
Software & Tools	Git/GitHub, LaTeX, VS Code, Jupyter Notebook
Mathematics	Combinatorics, Graph Theory, Matroid Theory, Algebra
Optimization	Convex Optimization
Formalization	Agda Formalization

RESEARCH INTERESTS

Recently: Matroid Theory, Realization Spaces, White's Conjecture, Gröbner Bases.
Broadly: Combinatorial Structures, Algebraic Methods, Formal Methods, Type Theory, Constructive Proofs, Category Theory.

TEACHING EXPERIENCE

Teaching Assistant, Calculus II, NYCU   Spring 2024

Teaching Assistant, Discrete Mathematics, NYCU   Fall 2024

Student Teaching Practicum (High School Mathematics), Changhua County Hemei High School (彰化縣立和美高級中學)   Spring 2023

Student Teaching Practicum (Junior High Mathematics), Changhua County He Cyun Junior High School (彰化縣立和群國民中學)   Fall 2023

EXPERIENCE

Institute of Information Science, Academia Sinica   July 2024 - August 2024
Summer Intern   *Taipei, Taiwan*

- Bridging Combinatorial and Algebraic proof: An Algebraic Approach with Agda
- Advisor: Dr. Liang-Ting Chen (陳亮廷), Assistant Research Fellow, Academia Sinica

RELEVANT COURSES

Graduate Coursework
Advanced Algorithms
Optimization Theory and Application
Introduction to Combinatorics
Formal Languages and Theory of Computation
Graph Theory
Algebraic Graph Theory
Stochastic Process (Planned)
Information Theory (Planned)

Undergraduate Coursework
Topology I, II
Abstract Algebra II, III
Differential Geometry I
Self-Study & OCW Courses:
MIT Probabilistic Methods in Combinatorics
NYCU Introduction to Communication Systems
NYCU Introduction to Digital Communications

PRESENTATIONS

Invited Talk, International Conference on Graph Theory and Combinatorics & Twelfth Cross-strait Conference on Graph Theory and Combinatorics   July 10-13, 2023
A Polynomial Time Approximation Algorithm for Graph Isomorphism

Student Talk, 30th New-sprout Symposium for Young Combinatorists   August 28-29, 2023
A Polynomial Time P-estimating Algorithm for Graph Isomorphism

WORKSHOPS & SHORT COURSES

Formosan Summer School on Logic, Language, and Computation (FLOLAC 2024)
Type Theory: Principles and Foundations   July 2024

Formosan Summer School on Logic, Language, and Computation (FLOLAC 2025)
Special Topics in Applied Mathematical Logic   Planned July 2025

NCTS Mini-course: Expanders, Cayley Graphs, and Representation Theory of Finite Groups Planned July 4, 2025

AWARDS & COMPETITIONS

2023 2nd Platinum Creator Award Programming Contest (金匠獎程式競賽) - Java Category, Silver Medal