

EDUCATION

National Taiwan University, Taipei, Taiwan

September 2018 — June 2023

B.A. in Economics

B.S. in Mathematics

- GRADUATE LEVEL COURSES:
Real Analysis I (A+), Microeconomic Theory II (A), Games with Incomplete Information (A)
- UNDERGRADUATE MATHEMATICS COURSES (all courses offered by the Math Department):
Introduction to PDE (A), Introduction to Geometry (A+), Introduction to Complex Analysis (A),
Introduction to Algebra II (A), Linear Algebra II (A), Introduction to Probability Theory (A-),
and all required courses for math majors
- HONORS:
 - Dean’s List Award (top 5 %) \times 2
 - Harold H.C. Han Memorial Scholarship (3 out of 120 students)

RESEARCH INTERESTS

Microeconomic Theory, Information Economics, Political Economy

RESEARCH EXPERIENCE

UNDERGRADUATE THESIS

“Information Choice and Acquisition for Investment Assets”

Advisor: Prof. Melody Pei-Yu Lo

- Studied how agents strategically allocate their efforts expended on acquiring information about “the objective quality of the asset” (which matters to all agents) and their “personal preferences for the asset” (which are relevant only to themselves), when the asset serves the dual purposes of self-usage and investment.
- Studied how agents’ allocations of effort further affect the market surplus and the informativeness of prices in a noisy rational expectations economy.
- Derived an intuitive closed form solution for agents’ optimal allocations. Proved the existence of a unique symmetric equilibrium in which all agents have the same allocation.
- Found that when the government provides highly precise signals about the objective quality, agents will put more focus on learning about their personal preferences. This will increase the market surplus while making the price less informative.
- Computed market prices using knowledge of Bayesian statistics. Applied techniques in multivariate statistics such as whitening transformations and the multi-dimensional Gaussian integral formula and results in linear algebra such as the spectral theorem to obtain closed forms of agents’ expected payoffs and optimal allocations.

“Approval Ratings and Information Spillovers in Elections”

Advisor: Prof. Tsung-Sheng Tsai

- Studied how different approval ratings of political parties lead to different expected turnout rates and vote margins in elections under a pivotal voter model.
- Studied how electoral outcomes impact the beliefs of voters in nearby regions, which in turn affect the elections held in those regions. Two key pieces of information regarding the electoral result — the vote margin and turnout rate — play major roles when agents in nearby localities update their beliefs.
- Showed that if the turnout rate is high or the vote margin is small, agents in nearby localities will become more convinced that the approval ratings of the two parties are close.

- Provided a new explanation for the correlation between voter turnout rates in nearby localities — a phenomenon that has been found repeatedly in empirical studies.
- Used concepts in Bayesian statistics and results in measure theory such as the Radon-Nikodym theorem to characterize the effect of electoral results on agents' updated beliefs.

WORKING PAPER

“A Bayesian Approach to Adaptive Testing”

Co-authored with Hau-Hung Yang and Prof. Yu-Chang Chen

- We designed an algorithm for testing individuals' cognitive abilities. Based on an individual's responses to the previous questions, the algorithm chooses the difficulty of the next question that minimizes Bayes risk. The algorithm depends on the loss function of concern.
- At the end of the cognitive test, the algorithm calculates the Bayes estimator of an examinee's cognitive ability.
- Proved that our estimator converges to the individual's true ability in probability when the number of questions approaches infinity under mild conditions.
- Currently exploring the asymptotic normality and efficiency of our estimator.

RESEARCH ASSISTANT

Research Assistant to Prof. Yu-Chang Chen

July 2023 — Present

National Taiwan University

- Currently collaborating with Prof. Yu-Chang Chen on the paper “*A Bayesian Approach to Adaptive Testing.*”
- To be listed as the 2nd author of the paper.

Research Assistant to Prof. Tsung-Sheng Tsai

September 2022 — June 2023

National Taiwan University

- Assisted with proofs and theorems in Prof. Tsung-Sheng Tsai's paper “*Ties*” and provided several economic intuitions behind the results. The paper was later accepted by *Social Choice and Welfare*.
- Acknowledged by Prof. Tsung-Sheng Tsai in the paper for my assistance.

TEACHING EXPERIENCE

Teaching Assistant for Microeconomics (I) and (II)

September 2022 – June 2023

National Taiwan University

- One-year course for undergraduate economics major.
- Recorded videos to help clarify economics ideas.
- Used Python to visualize economic concepts, such as 3D graphs of utility functions and indifference curves.

Tools not Taught

June 2023 – Present

National Taiwan University

- Initiated a workshop named “Tools not Taught” with a friend for first- and second-year undergraduates.
- Our workshop provides a smooth introduction to \LaTeX and R. I am responsible for the \LaTeX part.

SKILLS

- Programming: Python, C++, R, STATA, \LaTeX .
- Languages: English (Fluent), Mandarin (Native).