

# En Hua Hu

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**Citizenship:**

Canadian

**Research Interests:**

Behavioral Economics, Experimental Economics, Microeconomic Theory

## EDUCATION

Ph.D. in Economics, University of Toronto

2024 (Expected)

*Committee:* Yoram Halevy (co-supervisor), Colin Stewart (co-supervisor),  
Marcin Peski

M.Sc in Economics &amp; Philosophy, London School of Economics

2018

B.Sc in Economics, Mathematics &amp; Philosophy, University of Toronto

2017

## RESEARCH

**Confidence in Inference** (Job Market Paper)**A Procedural Model of Complexity Under Risk****Updating Bias and Model Misspecification: Evidence from the Classroom**

## AWARDS AND GRANTS

Ontario Graduate Scholarship

2020 - 2021

University of Toronto Doctoral Fellowship

2018 - 2023

## PROFESSIONAL EXPERIENCE

Teaching Assistant 2016 - present

- MAT133: Calculus for Commerce
- ECO206: Intermediate Microeconomics
- ECO316: Intro to Game Theory
- ECO326: Advanced Microeconomics
- ECO426: Market Design
- ECO1200: Economic Theory - Micro (MA)
- ECO2200: Microeconomic Theory I (PhD)

Research Assistant 2018 - 2022

- Yao Luo: mathematical proofs and proofreading
- Anton Tsoy: proofreading
- Colin Stewart: graph plotting, mathematical proofs
- David Freeman: lab assistance

Visiting Student at the Paris School of Economics 2022

## SEMINARS AND CONFERENCE PRESENTATIONS

Doctoral Workshop in Applied Econometrics (Toronto)	2019
IÉSEG School of Management (Lille)	2022
Bounded Rationality in Choice (Prague)	2022
Decision: Theory, Experiments, and Application (Paris)	2022
Foundations of Utility and Risk (Ghent)	2022
ESA North American Meeting (Santa Barbara)	2022
Behavioral and Experimental Economists of the Mid-Atlantic (New York)	2023
ESA North American Meeting (Charlotte)	2023
European Winter Meeting of the Econometric Society (Manchester)	2023 (Scheduled)

## ACADEMIC SERVICE

Co-President, Graduate Economics Union 2022 - 2023

## LANGUAGES

English (native), French (native), Mandarin (native)  
*Programming:* Matlab, Otree, Python, Stata, R

## REFERENCES

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# Abstracts

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## Confidence in Inference

(Job Market Paper)

I study an agent who chooses between objects, each associated with a sample of signals. This is a pervasive setting, ranging from comparing different Google map reviews before deciding on a restaurant to comparing lab test results in pharmaceutical research. Previous works have focused on the belief-updating process; this work examines the choice behavior implied by models of belief updating. I characterize the set of choices that are rationalizable by known models of belief updating. A *separability* axiom turns out to be key and is implied by these models. A simple thought experiment yields a natural choice pattern that violates separability. Separability also implies that indifference curves must be parallel straight lines, which I test experimentally. In a controlled experiment, 95% of subjects violate separability, instead displaying indifference curves that fan out. My experiment involves three between-subject treatments and a novel incentive-compatible confidence elicitation mechanism. Using these, I establish that subjects ignore the given information structures and choose exclusively based on the sample's size and proportion of good signals. Subjects tend to ignore the sample size. Consistent with the intuition of the thought experiment, sample size neglect is also correlated with higher confidence. A model incorporating uncertainty regarding signal informativeness can account for the thought experiment and the subjects' observed choices.

## A Procedural Model of Complexity Under Risk

I consider a decision-maker who uses rules to simplify lotteries to compare them. I characterize the expected utility model in this setting and highlight its complexity requirements, which a purely axiomatic characterization overlooks. I relax these requirements to characterize two models of complexity aversion: outcome support size cost and entropy cost models. I consider an additional aspect of complexity: decision-makers find it easier to evaluate a lottery when outcomes are close in value. To capture this, I characterize a third model of complexity aversion. Here, the DM first partitions together outcomes that are close in value and then evaluates the lottery along with the complexity of the partition. This representation offers a measure of complexity that is not restricted to the probability and support size but also accounts for the cardinal values of the outcomes. I also empirically compare the models and find support for partition complexity.

## Updating Bias and Model Misspecification: Evidence from the Classroom

with Marc-Antoine Chatelain, Paul Han, and Xiner Xu

Mainstream economic models assume agents are correctly specified regarding their environment and process information without bias. In many settings, the failure of these assumptions can have a significant impact on learning and choice. To understand these issues better, one must obtain data not only on the actual environment but also on agents' dynamic and potentially noisy perception of the environment. We investigate these issues via first-year students in large mathematics classes who receive test scores throughout the term as signals of their ability and return to effort. These test scores are highly informative, and past test scores correlate highly with future scores. We collect a high-frequency dataset by surveying students in an incentive-compatible manner before and after each test. The dataset is also novel in that we are the first to collect belief data regarding not only students' expected grade but also their belief in the noisiness of the test scores. We find that students overestimate the noisiness of tests by a factor of 2 and update in a biased manner. We conduct a

randomized control trial where students are not given additional information but are told about the accuracy of tests. We find students can update their beliefs about the noisiness of the testing correctly, and this leads to improvement in their updated beliefs. This suggests a substantial amount of updating failure due to misperception can be corrected.

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