Cover Letter

Dear Admission Committee,

Thank you very much for organizing this research boot camp. I am a second-year PhD student in Strategy at UCLA Anderson. Before UCLA, I completed a dual Master's in economics and bioinformatics in Taiwan. My master's thesis development timing coincided with ChatGPT's launch. This led me to spend roughly a year with clinicians and pharmacists attempting to build LLM-based applications that would actually improve personalized medicine. We iterated and pivoted from developing EHR-based diagnostic tools to building a clinical trial–patient matching application. This firsthand observation of AI's vertical diffusion into high-stakes clinical environments shaped the research questions I now pursue. They are questions I believe are timely and important for the field, and precisely why I need the rigorous theoretical training this boot camp provides.

Building on the insights from the clinical trial-patient matching project, at UCLA I collaborate with Professors Jane Wu and Jennifer Kao to study how pharmaceutical firms strategically adjust clinical trial sampling as continuous glucose monitors enable finer-grained measurement of treatment heterogeneity. Meanwhile, my observations during my studies in the U.S. sparked interest in how de-globalization affects Taiwan. This leads to my second project examining how Taiwanese electronics manufacturers forced to repatriate production from China navigate knowledge diffusion through supply chains and labor markets under mandated geographic proximity.

These projects share the belief that, amid rapid AI-physical world integration and ongoing deglobalization trends, innovation economists must revisit the boundaries of theories built during the era of expanding digitalization and globalization. Is the current shift merely stress-testing those theories? Or does it mark a new normal that calls for a fundamentally different framework? I hope to join this workshop to gain a solid grasp of the core theories shaping modern innovation research and to hear leading scholars' thoughts on the field's future direction.

As a second-year PhD student, I'm at a key stage in building my research agenda. What I need most right now is strong theoretical scaffolding to turn my intuitions into rigorous ideas and place them in the broader literature. Your boot camp offers exactly that foundation. I'm also excited to contribute. My hands-on experience in clinical AI, along with my research at the intersection of geopolitics and supply-chain innovation, brings fresh perspectives that could enrich discussions in the innovation economics community.

I have enclosed the requested materials, and Professor Jane Wu has submitted a letter of recommendation on my behalf. Thank you for your consideration.

Sincerely,

Tzu-Hui "Whitney" Yu

Research Statement

Much innovation research focuses on contexts relevant in the era of expanding digitalization and globalization. These streams of studies make implicit assumptions. For example, they assume most products are like digital products that can be tested cheaply through A/B tests and iterative deployment, making representative sampling feasible and external validity a non-issue. They also assume firms can locate activities wherever capabilities and knowledge reside. As the innovation frontier shifts toward digital-physical systems and geopolitical constraints disrupt knowledge flows, these assumptions break down. My research examines what happens when they do.

My first research project studies pharmaceutical innovation. In collaborative work with Professors Wu and Kao, I focus on diabetes clinical trials, where continuous glucose monitors (CGMs) now enable real-time and granular tracking of individual patient response. We document that CGM-adopting trials show smaller enrollment and tighter eligibility criteria, with restrictions intensifying where competitors have published subgroup analyses. I develop a model of sequential experimentation in which firms learn about conditional treatment effects across patient subgroups, incorporating their own results and competitors' signals from previous batches of experimentation. The model predicts that as measurement precision increases, firms oversample subgroups with favorable profiles. This incentive intensifies with competitor signal precision, treatment effect heterogeneity, and the number of planned experimentation batches. The model allows us to further examine how recent FDA initiatives (e.g., promoting adaptive trial design and N-of-1 trials) may inadvertently amplify these incentives, systematically eroding external validity.

My second project explores how the 2018 U.S.-China trade war affected local suppliers' innovation in Taiwan. The trade war forced Taiwanese electronics firms to repatriate production from China, potentially transferring advanced manufacturing knowledge and scaling experience to local suppliers. I am constructing a novel dataset—linking firm-to-firm transactions, employer-employee records, financial statements, and patents—that covers the universe of Taiwanese firms. This allows me to trace knowledge diffusion through supply chains, worker mobility, and innovation output. As industrial policy debates invoke innovation benefits of domestic production, my project tests whether those foundations transfer to forced-reshoring contexts.

With this empirical research agenda, what I need is systematic exposure to the theoretical canon. The NBER Innovation Research Boot Camp offers exactly that training at exactly the right stage. My projects are far enough along to benefit from theoretical reframing, and early enough that the insights from this boot camp can shape how they are developed, not merely how they are written up. Meanwhile, I am committed to contributing to the workshop community in return. I came to this field through clinical technology development and empirical work on Taiwanese firm behaviors during the global semiconductor reshoring trend. With these, I aspire to bring perspectives from outside the traditional economics pipeline on questions the field increasingly needs to grapple with.

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EDUCATION

University of California, Los Angeles (UCLA), United States

Ph.D. in Management (Strategy) 2029 (expected)

Selected doctoral coursework: Microeconomics (ECON 201A, 201B); Econometrics (MGMT 201A, 201B); Industrial Organization (ECON 271A, 272A); Empirical Corporate Finance (MGMT 251).

National Taiwan University, Taiwan

M.A. in Economics and M.S. in Biomedical Engineering and Informatics (dual degree) 2024

B.A. in Economics and B.S. in Bio-Industry Development (dual degree) 2021

PEER-REVIEWED PUBLICATIONS

1. Yu, Tzu-Hui; Mei, Yung-Yu; Tseng, Yufeng Jane (2023). "Biopharma innovation trends during COVID-19 and beyond: Evidence from global partnerships and fundraising activities, 2011–2022." *Globalization and Health*, 19(1), 1–17.

2. Yu, Tzu-Hui; Su, Bo-Han; Battalora, Leo Chander; Liu, Sin; Tseng, Yufeng Jane (2022). "Ensemble modeling with machine learning and deep learning to provide interpretable generalized rules for classifying CNS drugs with high prediction power." *Briefings in Bioinformatics*, 23(1), bbab377.

WORK IN PROGRESS

1. "Measurement and Pharmaceutical Innovation." With Jane Wu and Jennifer Kao.

2. "The Effects of Reshoring on Suppliers: Evidence from Taiwanese Manufacturers amid the U.S.–China Trade War." With Jin-Tan Liu.

OTHER PUBLICATIONS

Liu, Jin-Tan; Liu, Jin-Long; Yu, Tzu-Hui. "Changes in Risk Perception and Epidemic Prevention Attitudes among the Taiwanese Population during COVID-19." In *Humanistic Reflections during the Pandemic* (in Chinese).

TEACHING EXPERIENCE

Teaching Assistant, *Market Entry Strategy*, UCLA, 2026. Instructor: Prof. Marvin Lieberman.

Teaching Assistant, *Critical Thinking and Problem Solving*, 2020–2023. Instructor: Prof. Sheng-Ming Lee. Organized the most popular project-based consulting courses in school [Media Coverage].

Teaching Assistant, *Basic Microeconomics*, 2021.

Teaching Assistant, *Price Analysis*, 2021. Instructor: Prof. Yusen Sung.

HONORS AND AWARDS

E.SUN Talents Scholarship Award, 2021
National Science and Technology Council Research Grant, 2020
Government Scholarships for Overseas Study (GSOS), 2019

Completed Courses

PhD-level Economics

- ECON 200 – Math Methods in Economics
- ECON 201A – Microeconomics I (Firm & Consumer)
- ECON 201B – Microeconomics II (Game Theory & Information)
- MGMTPHD 201A – Econometrics I
- MGMTPHD 201B – Econometrics II
- ECON 271A – Industrial Organization: Price, Policy & Regulation
- ECON 272A – Topics in Industrial Organization
- ECON M204N – Pharmaceutical Economics & Policy
- MGMTPHD 254 – Empirical Corporate Finance

Others

- MGMTPHD M251 – Research & Development Policy
- MGMTFE 420 – Business Strategy
- MGMT 298D – Foundations in Strategy Research
- NEURO 240 – Measurements in Phenotypic Traits
- BIOMATH 259 – Controversies in Clinical Trials
- ENGR 232E – Large Scale Network Analysis