TERENCE CHAU

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EDUCATION

Ph.D. Public Policy, University of Chicago — June 2023
Ph.D. Coursework: Microeconomics, Labor Economics, Econometrics, Machine Learning, Political Economy

Bachelor of Economics, Universidad de Costa Rica — 2016

SKILLS

Programming	R, Stata, GIS, Git, Python, SQL, Apache Spark (Scala), AWS S3, AWS SageMaker
Areas of Expertise	Causal Inference (Program Evaluation), Machine Learning, Causal ML, Econometrics

WORK EXPERIENCE

Economist Intern Core AI — June 2022 - September 2022
Amazon.com — *Seattle, WA*

- Owned project measuring causal effects of $300 million workforce safety initiative by estimating instrumental variables model and survival models in Spark on individual-level data with hundreds of millions of observations.
- Built strong relationships and lines of communication with teams of engineers, economists, and business experts to refine causal inference model and ensure its relevance.
- Effectively communicated complex insights to non-technical stakeholders, which persuaded them to agree to run a follow-up large scale, nationwide experiment. Assisted experimental design according to operational constraints.
- Received full-time offer.

Doctoral Researcher — June 2018 - Present
Harris School of Public Policy, University of Chicago — *Chicago, IL*

- Dissertation: Essays on the Economics of Innovation and Economic History
  - Quantified the causal impact of NASA's creation on innovation using patent data and difference-in-differences models. Showed spaceflight patenting increased 59.9% post-NASA, impact of these fields increased by 72.3%, and impact extended to non-spaceflight fields.
  - Carried out entity resolution to link patents to all 1850-1880 US manufacturing businesses using archival data and random forests. Described the relationship between firm characteristics and propensity to patent.
- Other projects:
  - Calculated and mapped river-level waterpower across entire US using high resolution hydrography and elevation GIS data to study waterpowered firm location choice in the 19th century.
  - Used NLP to carry out sentiment analysis on Congressional Record speeches to measure politician attitudes towards migrant groups around the 1892 Chinese Exclusion Act and its repeal in 1943.

Graduate Research Assistant — June 2018 - September 2022
Harris School of Public Policy & Booth School of Business, University of Chicago — *Chicago, IL*

- Built comprehensive US business dataset observing all manufacturing firms between 1850-1880 using logistic regression, random forests, and XGBoost. Managed 20 research assistants to label training data.
- Predicted domestic abuse recidivism in Manchester, UK. Showed current police protocols to predict risk perform similarly to a random guess. Developed asymmetric cost random forest classifier that increased predictive power by 27.2%.
- Estimated the causal effect of German geographic dialect on wages using historical dialect speech tags and LASSO instrumental variables models. Discovered estimation coding error in official IV-LASSO R library.

Graduate Instructor & Head Teaching Assistant — June 2018 - December 2021
Harris School of Public Policy, University of Chicago — *Chicago, IL*

- Taught data manipulation, data visualization, and causal inference in R to up to 329 students.

REFERENCES

- (Co-Chair) Richard Hornbeck, V. Duane Rath Professor of Economics and Neubauer Family Faculty Fellow, Booth School of Business, University of Chicago (richard.hornbeck@chicagobooth.edu)
- (Co-Chair) Jeffrey Grogger, Irving Harris Professor in Urban Policy, Harris School of Public Policy, University of Chicago (jgrogger@uchicago.edu)
- Dan Black, Professor, Harris School of Public Policy, University of Chicago (danblack@uchicago.edu)
- Vikram Pathania, Principal Economist, Amazon Core AI (vikrpath@amazon.com)