TERENCE CHAU

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WORK EXPERIENCE

Intern - Economics, Core AI June 2022 - September 2022
Amazon *Seattle, WA*

- Measured causal effects of $300 million workforce safety initiatives by estimating instrumental variables models in AWS SageMaker and survival models using Spark on individual-level panel data sets with hundreds of millions of observations.
- Collaborated cross-functionally with data engineers, economists, and business experts to acquire data and refine causal inference model.
- Effectively communicated solo project insights to non-technical stakeholders, which persuaded them to agree to run a follow-up large scale, nationwide experiment. Assisted experimental design.

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

- Dissertation: Essays on Innovation and Economic History
  - Quantified the causal impact of NASA's creation on innovation using rich patent data along with difference-in-differences and event study models. Showed spaceflight patenting increased 59.9% post-NASA, impact of these fields increased by 72.3%, and impact extended to non-spaceflight fields.
  - Linked patents to all 1850-1880 US manufacturing firms using newly digitized 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.
  - Mined Congressional Record speeches and used natural language processing to analyze politician sentiment on 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*

- Longitudinally linked 1850-1880 US manufacturing firms using logistic regression, random forests, and XGBoost. Designed data pipeline and supervised 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 coding in R and theories and applications of causal inference to up to 329 students.

EDUCATION

Ph.D. & M.A. in Public Policy, University of Chicago June 2023
Field Specializations (Department of Economics): Labor Economics; Econometrics and Statistics

Bachelor of Economics, Universidad de Costa Rica 2016

SKILLS

Programming	Advanced: R, Stata, GIS, Git. Intermediate: Python, SQL, Apache Spark (Scala), AWS
Areas of Expertise	Economics, Causal Inference (A/B Tests, Quasiexperiments), Causal Machine Learning