Austin Herrick

122 Lasalle St, Apt 3, New York City, NY 10027
815-531-5473 | atnherrick@gmail.com
Github : github.com/AHerrick76 |Personal Website: aherrick76.github.io

EXPERIENCE

Convoy, Inc   Seattle, WA
Senior Data Scientist   July 2022 – October 2023

- Led development of a neural net model of market truck costs, which uses approximately 2 billion freight lane indices to measure the expected distribution of competitor costs for truck sourcing by shipping lane, date, and other freight characteristics.
- Presented this model to the president of the company and CTO, and worked with senior management throughout the organization to standardize the model as Convoy's official view of competitor costs and internal cost competitiveness.
- Developed new market benchmarking pricing methodology as part of contract negotiation with Convoy's largest customer. Responsible for all science work, including methodology, validation, and risk projection.
- Met with external data vendors to discuss current and future data products. Conducted cost-benefit analyses of several third-party datasets, made purchasing recommendations to senior management, and led science recommendations for contract renewal with a crucial vendor.
- Created data models to drive strategic pricing decisions during peak freight RFP season in partnership with product leadership and pricing analysts. Implemented a new strategy for pricing long-haul freight contracts.
- Built a weekly business review (WBR) tool for our Guaranteed Primary program, tracking over 100 distinct business metrics for a company segment with tens of millions in annual revenue.

Penn Wharton Budget Model (PWBM)   Philadelphia, PA

PWBM is a nonpartisan research institution that produces fiscal and demographic projections of proposed policies, which are used by members of Congress and federal decisionmakers. A core part of these analyses is our Demographic Microsimulation, a microfounded projection of the US population built from more than 30 interconnected economic models.

Senior Analyst   January 2019 – June 2022

- Lead development of the Demographic Microsimulation, which entails building code infrastructure, maintaining dependencies, and reviewing and integrating all new models and additions submitted by other researchers
- Administrate all repositories handling data retrieval and processing, enforcing best practices and updating infrastructure as necessary
- Manage data pipelines to smoothly retrieve, clean, and store government microdata surveys and administrative data, including the American Community Survey, Current Population Survey, and Survey of Income and Program Participation, each composed of millions of interviews over decades
- Co-lead hiring team for all incoming Research Associates in the organization, and lead training for new hires, including with a self-written Python course
- Supervise Research Associate projects, including creating timelines, assigning responsibilities, and providing guidance on model implementation
- Co-author working paper on immigration modelling and contribute to economic briefs presented to members of Congress
- Write and maintain 16,000-word internal technical documentation of the Demographic Microsimulation, and created a public use file and associated documentation
- Train developers and senior economists on use of our Github Flow system

Research Associate   July 2017 – December 2018

- Built statistical and machine learning models to project demographic factors including immigration, marriage markets, and fertility using techniques such as weighted multinomial logistic regression and Markov chain Monte Carlo
- Processed government survey datasets, using imputation and estimation techniques such as iterative proportional fitting and residual estimation
- Reviewed economic literature and social policy to inform modelling approaches
- Wrote blog posts to disseminate policy analysis and demographic trends to the public

University of Chicago   Chicago, IL

Research Assistant, Center for Robust Decisionmaking on Climate and Energy Policy   June 2016 – September 2016

- Generated a report detailing the capital malleability and committed emissions assumptions of over 20 complete general equilibrium climate models their sensitivity to capital transition concerns

EDUCATION

The University of Chicago   Chicago, IL

Bachelor of Arts in Economics   June 2017

- Relevant Coursework: Econometrics, Statistical Analysis, Computer Science, Micro and Macroeconomic Analysis (Honors), Accounting, Monetary Policy, Industrial Organization

PROGRAMMING

- *Python (including Pandas, Numpy, Tensorflow, Luigi, and Statsmodels)* – 6 years of professional experience in managing codebases, cleaning and analyzing microdata, visualizing and validating data, and building code infrastructure for large-scale modelling. Development work includes interlocking demographic microsimulation and freight market neural networks.
- *SQL* – Use Snowflake, Metabase, and Airflow to access real-time datasets and monitor pipeline stability.
- *Java* – Primary language used during graduate-level coursework
- *OCaml, R, Stata, Matlab* – Moderate use for coursework in computer science and economics

LEADERSHIP

Phoenix Sustainability Initiative   Chicago, IL

President   May 2016 – May 2017

Vice President   May 2015 – May 2016

- Managed, trained, and directed 7 Project Leaders overseeing teams of 5-6 members, responsible for a range of projects such as hosting discussion panels, promoting sustainable food, organizing career treks, and networking with the community

WRITING / PUBLICATIONS

- *Berkovich, Costa, Herrick*, (2022) "Immigration and the Macroeconomy". PWBM Working Paper Series. Available at https://budgetmodel.wharton.upenn.edu/issues/2022/1/5/w2022-1
- Briefs for PWBM *Economic Matters* blog. E.g, *Estimates of TCJA Repatriation of Foreign Earnings on Investment and GDP: (*https://budgetmodel.wharton.upenn.edu/issues/2018/8/29/estimates-of-tcja-repatriation-of-foreign-earnings-on-investment-and-gdp)
- *Churchill, Biderman, Herrick*, (2020) "Magic: The Gathering is Turing Complete". The Proceedings of the 10th International Conference on Fun with Algorithms. Available at https://arxiv.org/abs/1904.09828v2