# Qi Zhang

Charlottesville, VA | 781-827-1647 | qz4vg@virginia.edu | qizhangecon.github.io | LinkedIn: qi-zhang-915b94384

## Summary

Ph.D. candidate in Economics specializing in causal inference, experimentation, and large-scale data analysis, with 5+ years of experience analyzing datasets up to 5.36M observations and 1.6M daily records. Skilled in defining success metrics, diagnosing root causes, designing quasi-experiments, running deep-dive analyses, and generating actionable insights. Proficient in Python, SQL, R, and Stata. Experienced in collaborating with cross-functional teams and translating analytical findings into actionable decisions.

## Core Skills

**Causal Inference & Experimentation:** Difference-in-Differences (DiD), Synthetic DiD, panel data methods, IV/2SLS, event studies, matching, regression discontinuity, quasi-experiments; designing and analyzing A/B-test–style experiments.

**Data Science & Statistics:** Linear and logistic regression, hypothesis testing, panel analysis, model evaluation, basic predictive modeling.

**Programming & Tools:** Python (pandas, numpy, statsmodels, scikit-learn), R (tidyverse, ggplot2), Stata, SQL, LaTeX.

**Communication & Collaboration:** Hypothesis generation and experiment design; clear written and oral communication; presenting to technical and non-technical audiences; collaborating with economists and domain experts.

## Education

**Ph.D. in Economics**, University of Virginia — May 2026 (expected)

**M.S. in Economics**, Tufts University — May 2020

**B.S. in Labor Economics & Social Security**, Zhejiang University — May 2018

## Selected Data Science & Research Projects

**Pollution Haven Next Door: Evidence from China (Job Market Paper)** — Paper Link

- Constructed a city–industry panel integrating administrative firm data, emissions records, and policy data **(5.36 million observations)** to study how regulation reshapes economic activity across locations.
- Designed and estimated **Synthetic DiD** and **triple-difference** models to identify causal impacts of air-quality regulation.
- Showed that regulation primarily **reallocated pollution across cities**: $SO_2$ emissions **fell by 10.7%** in treated cities but **rose by 20.7%** in neighboring cities, highlighting the importance of coordinated regional policy design.
- Presented findings clearly to technical and non-technical audiences.

**First in Use, First in Right, First in Productivity? The Empirics of Prior Appropriation in Colorado**

- Built a **9,381-structure panel dataset** combining administrative, geospatial, and historical records.
- Implemented an **instrumental variables strategy** to estimate how water productivity influences excess-use behavior under the Colorado water right system.
- Found that more productive water structures are **4.7 percentage points** more likely to use water in excess of their rights, informing the design of more efficient allocation mechanisms.

## Professional Experience

**Research Assistant (Graduate Data Scientist), University of Virginia** — 2023–Present

- Built and maintained data pipelines in Python to clean, join, and validate **1.6M+ daily water-use records** with administrative and geospatial data, creating a structure-level panel for analysis.
- Implemented econometric models **(logit, DiD, event studies, IV)** to study how water rights and productivity affect excess use; produced figures and summaries used in working papers and conference presentations.
- Collaborated with economists and water-resources researchers to define productivity and excess-use metrics and interpret empirical results for Colorado River stakeholders.

**Research Assistant, Tufts University** — 2019–2020

- Processed and merged 40 years (1970–2010) of historical electricity and census data using Python, including fuzzy-matching techniques to resolve inconsistent identifiers across datasets.
- Executed a **regression discontinuity** design to estimate the impact of electrification on household economic outcomes.
- Supported the development of a two-sector economic model analyzing productivity responses to environmental shocks.

## Honors and Awards

UVA Fellowship • Tufts Varkey Family Endowed Fellowship • Tufts Summer Scholarship