Andy (Zhuoran) Zhang

412-616-6106 | andyzzr809@gmail.com | https://www.linkedin.com/in/zhuoran-zhang-809/ | www.zhangzr.net

Education

Carnegie Mellon University — Pittsburgh, PA
Doctor of Philosophy (Ph.D.) in Civil Engineering — June 2022
- Dr. Elio D'Appolonia Graduate Fellowship
- Dissertation: *Estimating and mitigating work zone impacts on crash risks: Causal inference with high-granular observational data*

Tsinghua University — Beijing, China
Bachelor of Engineering in Construction Management (major) *Magna Cum Laude* — July 2017
Bachelor of Science in Psychology (minor) — July 2017

Skills

Programming Languages: *Advanced* - Python, SQL, R, Stata; *Intermediate* - SAS, C++, JavaScript
Software & Packages: *Advanced* – MATLAB, ArcGIS, QGIS, Pandas, Scikit-learn, Tetrad, DoWhy, EconML, Git; *Intermediate* - PyTorch, GAMS, AWS, GCP, Teradata, BigQuery, Linux
Languages: *Fluent* - English, *Native* - Chinese

Professional Experience

Google, LLC. — Mountain View, CA
Data Scientist, Engineering – Ads Insights and Measurement — July 2022 - Present

Overstock.com, Inc. — Salt Lake City, UT
Machine Learning Data Science Intern – Experimentation Science — June - Aug. 2021
- Decided the sample size needed for an online A/B test on inferring the causal effect of delivery message accuracy on conversion rate.
- Created a panel data set covering hundreds of variables for thousands of subcategories of products over three years, collaborating with associates from four different departments.
- Proposed to leverage past experiments as instruments to mitigate the reverse causation problem when inferring the average treatment effect of site sale discount on gross merchandise sales

Department of Civil and Environmental Engineering, Carnegie Mellon University — Pittsburgh, PA
PhD Research Assistant — Aug. 2017 - June 2022
- Proposed a novel causal inference model based on Regression Discontinuity Design to infer safety effects of work zone configurations, eliminating confounding bias.
- Proposed to incorporate fixed-effect variable in the causal forest model to infer the heterogeneous treatment effect of work zone presence on crash risk with unmeasured confounders.
- Developed a causal model with Rubin's generalized methods (g methods) to infer the treatment effect of work zone presence on crash risk under different posted speed limits.

Teaching Assistant for 12-411 Project Management for Construction — Fall 2017 - Fall 2020

Selected Publications

[1] Zhuoran Zhang, Burcu Akinci, and Sean Qian. Inferring the causal effect of work zones on crashes: methodology and a case study. *Analytic methods in accident research* 33 (2022): 100203. doi: 10.1016/j.amar.2021.100203.
[2] Zhuoran Zhang, Burcu Akinci, and Sean Qian. Inferring heterogeneous treatment effects of work zones on crashes. *Accident Analysis & Prevention* 177 (2022): 106811. doi: 10.1016/j.aap.2022.106811
[3] Zhuoran Zhang, Burcu Akinci, and Sean Qian. How effective is reducing traffic speed for safer work zones? Methodology and a case study in Pennsylvania. In review at *Accident Analysis & Prevention* (2022).