Ian Helfrich, PhD

ianthelfrich@gmail.com | ihelfrich.github.io

RESEARCH INTERESTS

Econometric and statistical methods; economic networks; spatial measurement and international trade; optimal transport and economic equilibrium; quantitative education.

CURRENT RESEARCH AND TEACHING PRACTICE

Co-founder, ThirdSpace. With Elizaveta Gonchar, develop an independent online quantitative research and learning lab connecting shared research projects, methods instruction, and mentorship across disciplinary and institutional boundaries.

EDUCATION

PhD, Economics | Georgia Institute of Technology 2024
MS, Geographic Information Science and Technology | Georgia Institute of Technology 2022
MS, Economics | Georgia Institute of Technology 2019
MA, Economics | Indiana University Bloomington 2018
MSc, Specialized Economic Analysis | Barcelona School of Economics 2015
BA, Economics | University of North Carolina at Chapel Hill 2014

Doctoral minor: Quantitative Psychology. **MSc specialization:** Economics and Public Policy.
Dissertation: *Redefining Trade Dynamics: Incorporating Network Centrality, Spatial Heterogeneity, and Optimal Transport Theory into Models of International Trade.* Georgia Institute of Technology, August 2024. Dissertation
Dissertation co-chairs: Tibor Besedes and Usha Nair-Reichert.

JOB MARKET PAPER

Helfrich, Ian. "The Rural Mobilization Gap in a U.S. Place-Based Tax Credit." Job market paper, August 2026. With acknowledged contributions from Katia Antunes and Elizaveta Gonchar. Paper

- Constructed a project-level panel from 19,907 CDFI Fund transactions covering 8,024 New Markets Tax Credit projects with origination years 2001–2022.
- Uses fixed effects, Gelbach decomposition, and distributional comparisons to examine observed rural–urban financing differences. Findings are descriptive and noncausal.
- Built a public evidence viewer connecting source records, model outputs, figures, and manuscript findings.

WORKING PAPERS AND PREPRINTS

Gonchar, Elizaveta, and Ian Helfrich. "Trade in the Spotlight: Enhancing Gravity Model Predictions with Nightlights and Population-Weighted Distance Measures." Preprint, 2025. SSRN 5202676

- Constructs population- and nightlight-weighted bilateral distance measures and evaluates them in gravity models of interstate and international trade.

Helfrich, Ian. "A Unifying Framework for Economic Equilibrium and Optimal Transport in Infinite-Dimensional Hilbert Spaces." Working paper, 2024. SSRN 4772016

- Examines the relationship between economic equilibrium and optimal transport when economic objects are represented in infinite-dimensional spaces.

RESEARCH IN PROGRESS

Human or Machine? Out-of-Time Validation of Task-Level AI Exposure Ratings | Sole author. Tests trained-human and GPT-4 task-level AI-exposure ratings against public measures of task use published after the ratings were constructed; in progress.
Effective Distance | With Elizaveta Gonchar. Further development of bilateral spatial measurement and structural-gravity validation; in preparation.
AI and the Entry-Level Labor Market | With Shane Vardanyan. Research design using CPS microdata, continuous-exposure event studies, and triple differences; empirical analysis in development.
Pictures of Inference | With Elizaveta Gonchar. Book and companion workbook in development on statistics and econometrics through visual explanations and worked problems.

TEACHING EXPERIENCE

Instructor of Record and Graduate Teaching Assistant During doctoral study
Georgia Institute of Technology

- Instructor of record for three undergraduate economics courses; additional teaching-assistant responsibilities included sections, recitations, assessment, and office hours.
- Received the Economics Graduate Teaching Assistant of the Year award in 2023.
- Georgia Tech course-evaluation record, 2022.

Graduate Teaching Fellow 2018–2019
Georgia Tech Center for Teaching and Learning
Member of the inaugural cohort. Designed professional-development curriculum and co-led orientation for teaching assistants and instructors.

Teaching Support 2016–2017
Duke University Global Executive MBA
Supported instruction in strategy, managerial economics, and global markets.

Graduate Teaching Assistant 2015–2016
Indiana University Bloomington
Supported undergraduate economics instruction during graduate study.

Online Instructor 2022–2023
Campus / MTI College
Taught Principles of Microeconomics in Summer and Fall 2022 and Principles of Macroeconomics in Spring 2023.

Independent Quantitative Instructor and Research-Design Coach 2021–Present
Wyzant and direct practice
- Teach economics, econometrics, statistics, finance, research methods, Python, SQL, Stata, and GIS to students, graduate researchers, and working professionals.
- Help researchers formulate questions, identify data requirements, choose credible comparisons, diagnose models, and interpret results.
- Completed more than 1,035 Wyzant teaching hours as of August 2026, with a 5.0/5 public rating.

CURRICULUM AND RESEARCH TOOLS

Statistics and econometrics. Visual explanations, public-data exercises, regression workflows, and worked problems connecting mathematical reasoning to implementation and interpretation.
Research computing. Python and SQL instruction covering data preparation, diagnostics, and reproducible analysis.
Spatial methods. Instruction connecting GIS, public data, geographic measurement, and economic interpretation.
NMTC evidence viewer. Public research companion connecting administrative records, model outputs, figures, and manuscript findings. Research repository

HONORS

Georgia Tech Economics Graduate Teaching Assistant of the Year 2023
Georgia Tech Graduate Student Government Senator of the Year 2020

RESEARCH AND ADVISORY EXPERIENCE

Independent Economist and Quantitative Researcher 2024–Present
Self-directed and collaborative applied research
- Develop research from question formulation and data construction through econometric analysis, diagnostics, interpretation, and technical writing.
- Build reproducible workflows linking source data, models, tables, figures, and public research tools; document assumptions and the limits of inference.

Independent Economic Advisor 2026–Present
Industrial-sector diagnostics
- Developed an industrial-sector diagnostic methodology covering indicator selection, analytical sequencing, composite-index construction, and international benchmarking.

POLICY RESEARCH CONTRIBUTION

Securing America's Future: A Framework for Critical Technology Assessment. National Network for Critical Technology Assessment, 2023. Additional contributor to the semiconductor demonstration in the NSF-sponsored report.

METHODS AND SOFTWARE

Methods: Panel and fixed-effects models; gravity models and PPML; network measures; spatial measurement; Gelbach decomposition; event-study, difference-in-differences, and triple-difference designs; quantile and median regression; clustered and bootstrap inference; measurement validation.
Software: R, Python, Stata, SQL (SQLite and DuckDB), Julia, Excel; QGIS and ArcGIS Pro; Git; LaTeX, Typst, and Quarto.
Research practice: Data provenance, reproducible analysis, sensitivity checks, technical writing, and visualization.

PROFESSIONAL SERVICE AND LEADERSHIP

Ad hoc referee: *Journal of Economic Theory.*
Georgia Tech Graduate Student Government, 2018–2020. Vice President for Campus Services and graduate senator. Coauthored a policy white paper and represented graduate students in campus planning and service discussions.

SELECTED RESEARCH AND TEACHING LINKS

Academic research and teaching dossier
Teaching and quantitative instruction
Research code and analytical tools

REFERENCES

Tibor Besedeš
Professor, School of Economics
Georgia Institute of Technology
tibor.besedes@econ.gatech.edu

Usha Nair-Reichert
Associate Professor, School of Economics
Georgia Institute of Technology
usha.nair@gatech.edu

David V. Anderson
Georgia Institute of Technology
anderson@gatech.edu