

## Jacob M. Aguirre

Operations Research Ph.D. Student  
H. Milton Stewart School of Industrial and Systems Engineering  
Georgia Institute of Technology

### I. Earned Degrees

- Georgia Institute of Technology
  - (2023– Present) Doctor of Philosophy, Operations Research
  - (2022– Present) Master of Science, Statistics
  - (2022–2024) Master of Science, Mathematics
  - (2022–2023) Master of Science, Economics
  - (2020–2022) Bachelor of Science, Economics, Mathematics
- Advisors: Dr. Anton Kleywegt & Dr. Renato D.C. Monteiro

### II. Employment History

- (Summer 2023) Graduate Research Fellow, Oak Ridge National Laboratory
- (Spring 2023) Graduate Research Assistant, Georgia Institute of Technology
- (2020–2022) Undergraduate Teaching Assistant, Georgia Institute of Technology
- (2020–2022) Undergraduate Research Assistant, Georgia Institute of Technology

### III. Honors and Awards

- (January 2024) H. Milton Stewart Fellowship
- (August 2023) Ernst & Young Fellowship
- (March 2023) NSF Graduate Research Fellowship
- (March 2023) DOE Computational Science Fellowship (Declined, Accepted NSF)
- (February 2023) Stewart ISyE Fellowship
- (February 2023) ISyE Travel Fund Fellowship
- (January 2023) GEM Foundation PhD Fellowship
- (Summer 2022) NSF SURE Research Fellow
- (Summer 2022) Georgia Tech Undergrad Presidential Research Scholar (×2)
- (May 2022) Georgia Tech SOE Outstanding Undergraduate Researcher
- (May 2022) Georgia Tech OMED Tower Award
- (August 2021) Coca-Cola Engineering Scholarship
- (2020–2022) Zell Miller (Full tuition) Scholarship

### IV. Research, Scholarship, and Creative Activities

#### A. Refereed Publications and Submitted Articles

##### A1. Published and Accepted Journal Articles

- [J1] **Aguirre, J.**, Blecker, A., Urmanbetova, A., Kower, P., (2023). “Discovering Careers and Diversity in Economics Through Inter-Institutional Student Club Collaborative”. *The American Economist*.

## **A2. Conference Presentation with Proceedings (Refereed)**

- [P2] **Aguirre, J.**, Blecker, A., Urmanbetova, A., Kower, P., (2023). “Discovering Careers and Diversity in Economics Through Inter-Institutional Student Club Collaborative”. *American Economics Association Annual Meeting*. New Orleans, Louisiana.
- [P1] Dench, D., **Aguirre, J.**, (2023). “The Effects of EVALI Crisis on Youth and Adult Use of e-Cigarettes”. American Society of Health Economists Annual Meeting. St. Louis, Missouri.

## **A3. Other Refereed Material**

- [O2] **Aguirre, J.**, Ma, R., Patel, S., (2022). *A Review of High Dimensional Nonlinear Reduction Techniques*. Georgia Institute of Technology.
- [O1] **Aguirre, J.** (2021). “The Effects of EVALI Crisis on Youth and Adult Use of e-Cigarettes”. Undergraduate Thesis. Georgia Institute of Technology.

## **A4. Submitted (or soon to be) Journal Articles (with Date of Submission)**

- [U7] **Aguirre, J.** (January 2024). “On Complexity of Tropical Ideals and Generic Semidefinite Programs”.
- [U6] **Aguirre, J.**, Monteiro, R., Kleywegt, A., (February 2024). “Convex Relaxations for Rank One Symmetric Tensor Completion using Burer-Monteiro methods”. Work-in-Progress.
- [U5] **Aguirre, J.**, Monteiro, R., Kleywegt, A., (January 2024). “A Perspective on Hybrid Frank-Wolfe Decompositions for scalable Semidefinite Programming.” Work-in-Progress.
- [U4] **Aguirre, J.** (December 2023). “Some topological results on convex polytopes and their subdivisions”.
- [U3] **Aguirre, J.**, Ayer, T., (2023). “Estimating Heterogeneous Treatment Effects for Recurrent Breast Cancer: A Causal Inference Analysis using MarketScan Data.” Working paper.
- [U2] **Aguirre, J.**, Kleywegt, A., Monteiro, R., (November 2023). “On Joint Assortment and Pricing Optimization under Mixtures of Multinomial logits: Hardness and approximations.” Work-in-Progress.
- [U1] Liu, X., **Aguirre, J.**, Liu, X., (2023). “Optimal Compressed Sensing Dynamic Mode Decomposition for In-Situ Large-scale Dataset”. Invited by first author to contribute for revisions at IISE transactions.

## **B. Presentations**

### **B1. Invited talks**

- [I7] “A Stochastic Control Framework for Controlled Learning on the Fly” (July 2023). *Oak Ridge National Laboratory, Computing and Computational Sciences Directorate*.
- [I6] The Ohio State University, *An Inverse Markov Decision Process Approach to Optimal Smoking Cessation Treatment*, (April 2023).
- [I5] **Aguirre, J.**, Dench, D., (2022). “How the EVALI crisis affected e-cig and cigarette use and perceptions: evidence from PATH”. *Southern Economics Association Annual Meeting*.
- [I4] Georgia Institute of Technology, Economics seminar, (2022). “How the EVALI crisis affected e-cig and cigarette use and perceptions: evidence from PATH”.

- [I3] Georgia Institute of Technology, Health Policy seminar, *How the EVALI crisis affected e-cig and cigarette use and perceptions: evidence from PATH*, (2022).
- [I2] The Ohio State University, Economics workshop, (September 2022). “How the EVALI crisis affected e-cig and cigarette use and perceptions: evidence from PATH”.
- [I1] University of Virginia, *How the EVALI crisis affected e-cig and cigarette use and perceptions: evidence from PATH*, (April 2022).

## **B2. Conference presentations**

- [T6] **Aguirre, J.**, Blecker, A., Urmanbetova, A., Kower, P., (2023). “Discovering Careers and Diversity in Economics Through Inter-Institutional Student Club Collaborative”. *American Economics Association Annual Meeting*.
- [T5] **Aguirre, J.**, Garcia, G., Dench, D., (2023). “An Inverse Markov Decision Process Approach for Optimal Smoking Cessation”. *INFORMS Annual Meeting*. Phoenix, Arizona.
- [T4] Czerniak, L., **Aguirre, J.**, Sabogal, M., Cartes, S., (2023). “Minority Issues Forum PhD Panel”. *INFORMS Annual Meeting*. Phoenix, Arizona.
- [T3] Dench, D., **Aguirre, J.**, (2023). “The Effects of EVALI Crisis on Youth and Adult Use of e-Cigarettes”. *American Society of Health Economists 2023 Conference*.
- [T2] **Aguirre, J.**, Blecker, A., Urmanbetova, A., Kower, P., (December 2022). “Discovering Careers and Diversity in Economics Through Inter-Institutional Student Club Collaborative”. *Southern Economics Association Annual Meeting*.
- [T1] **Aguirre, J.**, Ma, R., Patel, S., (2022). “A Review of High Dimensional Nonlinear Reduction Techniques”. *Undergraduate Math Research Conference at Georgia Tech*.

## **C. Societal and Policy Impacts**

1. Reviewer for Georgia Governors Honors Program (GHP) Mathematics
2. Instructor (Mathematics) for Georgia Governors Honors Program (GHP) (Summer 2022)

## **D. Other Professional Activities**

1. Standing Committee member for Presidential Undergraduate Research Awards (PURA) at Georgia Tech (2023-2024)
2. Test writer for Georgia Tech ISyE high school statistics competition (2024)

## V. Education

### A. Courses Taught or Assisted

Semester	Number	Course Title	# Students
Fall 2022	ECON 8801	Grad. Behavioral Economics	17
Semester	Number	Course Title	# Students
Fall 2022	ECON 4803	Behavioral Economics	35
Semester	Number	Course Title	# Students
Summer 2022	ECON 2105	Intro to Macroeconomics	30
Semester	Number	Course Title	# Students
Spring 2022	ECON 2105	Intro to Macroeconomics	78
Semester	Number	Course Title	# Students
Spring 2022	ECON 2101	The Global Economy	76

Note: Occasionally taught lectures, prepared all course and project materials, and did all grading for both ECON 4803 & 8801.

### B. Individual Student Guidance

#### B1. Undergraduate Students

*Students advised as part of Undergraduate Research Ambassador Program*

- Kun-Lin Hsieh (Math), Spring 2022
- Maggie Xia (Math), Spring 2022
- Dhairya Patel (Biology), Spring 2022
- Xinyu Chen (ISyE), Spring 2022
- Carson Cole (Economics + Mathematics), Fall 2021 & Spring 2022
- Eric Chen (Economics), Fall 2021

## VI. Service

### A. Professional Contributions

#### A1. Appointments and Memberships

- (2022 – Present) Institute for Operations Research and Management Sciences (INFORMS)
  1. Mathematical Optimization Society (MOS)
  2. Revenue Management & Pricing Section
  3. Transportation Society and Logistics (TSL)
  4. Minority Issues Forum (MIF)
  5. Manufacturing and Service Operations Management Society (MSOM)
- (2021 – Present) Institute of Industrial and Systems Engineers (IISE)
- (2020 – Present) Society of Industrial and Applied Mathematics (SIAM)
- (2020 – 2023) American Economics Association (AEA)
- (2020 – 2023) American Society of Health Economists (ASHEcon)

January 29, 2024

**A2. Referee**

No data.