ARTHUR DELARUE

Stewart School of Industrial and Systems Engineering Georgia Institute of Technology 755 Ferst Drive NW, Atlanta, GA 30332 arthur.delarue@isye.gatech.edu adelarue.github.io +1 (617) 467-8954

EXPERIENCE

Georgia Institute of Technology, Stewart School of Industrial and Systems Engineering, Atlanta, GA
Gary C. Butler Faculty Fellow
Assistant Professor
2024 – 2025
2022 – Present

Lyft, Inc, Cambridge, MA Postdoctoral Fellow

2021 - 2022

EDUCATION

Massachusetts Institute of Technology, Cambridge, MA

Ph.D. Operations Research S.B. Physics and Mathematics

2021 2016

RESEARCH INTERESTS

Optimization and machine learning in marketplaces, experiments, transportation, public sector.

PUBLICATIONS

- 1. Algorithmic Precision and Human Decision: A Study of Interactive Optimization for School Schedules (with Z. Lian, S. Martin). Forthcoming in **Management Science** (2025).
 - Early versions accepted to MSOM Sustainable Operations SIG (2023), ACM Conference on Economics and Computation (2024).
- 2. Reducing Marketplace Interference Bias Via Shadow Prices (with I. Bright, I. Lobel). Forthcoming in **Management Science** (2024).
 - Early version accepted to ACM Conference on Economics and Computation (2023).
- 3. Simple Imputation Rules for Prediction with Missing Data: Theoretical Guarantees vs. Empirical Performance (with D. Bertsimas, J. Pauphilet). **Transactions on Machine Learning Research** (2024).
- 4. Policy Analytics in Public School Operations (with D. Bertsimas). **Operations Research** 71(1):289-313 (2023).
- 5. Course Scheduling Under Sudden Scarcity: Applications to Pandemic Planning (with C. Barnhart, D. Bertsimas, J. Yan). **Manufacturing & Service Operations Management** 24(2):727-745 (2022).
- 6. From Predictions to Prescriptions: A Data-Driven Response to COVID-19 (with D. Bertsimas et al.). **Health Care Management Science** 24, 253-272 (2021).
- 7. Reinforcement Learning with Combinatorial Actions: Application to Vehicle Routing (with R. Anderson, C. Tjandraatmadja). In **Advances in Neural Information Processing Systems** (2020).
- 8. Bus Routing Optimization Helps Boston Public Schools Design Better Policies (with D. Bertsimas, W. Eger, J. Hanlon, S. Martin). **INFORMS Journal of Applied Analytics** 50(1): 39-47 (2020).

- 9. Optimizing Schools' Start Time and Bus Routes (with D. Bertsimas, S. Martin). **Proceedings of the National Academy of Sciences** 116(13): 5943-5948 (2019).
- 10. Travel Time Estimation in the Age of Big Data (with D. Bertsimas, P. Jaillet, S. Martin). **Operations Research** 67(2): 498-515 (2019).

COMPLETED WORK

- 11. Adaptive Optimization for Prediction with Missing Data (with D. Bertsimas, J. Pauphilet). Major Revision at **Machine Learning** (2024).
- 12. Pricing Experiments in Matching Marketplaces under Interference: Designs and Estimators (with K. Karakolios). Submitted (2025).
- 13. Solving the Quadratic Assignment Problem using Deep Reinforcement Learning (with P.S. Bagga). arXiv: 2310.01604.
- 14. The Price of Interpretability (with D. Bertsimas, P. Jaillet, S. Martin). arXiv: 1907.03419.

IN PREPARATION

- 15. Heterogeneous Treatment Effects Under Marketplace Interference (with K. Karakolios).
- 16. Upfront Pricing and Competition in Marketplaces (with Z. Lian, T. Qin).
- 17. Designing Fair and Efficient School Transportation Eligibility Rules (with S. Martin, O. Phillips).
- 18. Fixed-Route or On-Demand: Integrated Operations for Modern Transit (with A. Jacquillat, S. Karam, J. Yan).
- 19. Data-Driven Police Staffing (with W. Xu).
- 20. Learning Knapsack Decision Rules using Permutation-Invariant Neural Architectures (with P.S. Bagga, J. Pauphilet).

AWARDS AND HONORS

| Research | |
|---|------------|
| INFORMS Wagner Prize (Semi-Finalist) | 2024 |
| INFORMS Data Mining Section Best Paper (Finalist) | 2021 |
| Pierskalla Award, INFORMS Health Applications Society (Winner) | 2020 |
| INFORMS Data Mining Section Best Student Paper (Finalist) | 2019 |
| INFORMS Franz Edelman Laureate | 2019 |
| MIT LIDS Student Conference Best Presentation (Runner-up) | 2019 |
| INFORMS Doing Good With Good OR Competition (Runner-up) | 2018 |
| MIT Operations Research Center Best Student Paper (Winner) | 2018 |
| Boston Public Schools Transportation Challenge (Winner) | 2017 |
| William Asbjornsen Albert Memorial Fellowship | 2016 |
| Zeno Karl Schindler Foundation Research Grant | 2014 |
| Third prize in Latin, Concours Général des Lycées ¹ | 2011 |
| Teaching | |
| Georgia Tech Student Recognition of Excellence in Teaching: CIOS Honor Roll | 2022, 2023 |
| Service | |
| Georgia Tech ISyE Inclusion Fellow | 2023 |

¹ National competition for French high schools across all subjects.

| MIT William L Stewart Jr. Award | 2020 |
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| Advisee awards | 2024 |
| Olivia Phillips: Gary C. Butler PhD Fellowship Kleanthis Karakolios: Onassis Foundation Fellowship | 2024 2023 |
| TEACHING EXPERIENCE | 2020 |
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| Georgia Institute of Technology, Instructor | 0 1 2025 |
| ISYE 4601 Senior Design (undergraduate capstone) | Spring 2025 |
| ISYE 6673 Financial Optimization (Master of Finance elective) | Fall 2022, 2023, 2024 |
| ISYE 3133 Engineering Optimization (undergraduate core) | Spring 2023 |
| MIT Sloan School of Management | |
| 15.083 Integer Optimization (PhD elective, TA) | Spring 2021 |
| 15.071 The Analytics Edge (MBA elective, TA) | Spring 2018 |
| 15.S60 Computing in Optimization and Statistics (Head Instructor) | Winter 2019, 2020, 2021 |
| 15.S41 Software Tools for Business Analytics (Session Instructor) | Winter 2018, 2020 |
| Guest Lectures | |
| IEOR E4418 Transportation Analytics and Logistics (Columbia IEOR | Spring 2022 |
| API 504 Policy Analysis for Transnational Affairs (Harvard Kennedy | School) Spring 2021 |
| MN 4480 Supply Chain Management (Naval Postgraduate School) | Winter 2021 |
| 15.060 Data, Models, and Decisions (MIT Sloan) | Fall 2020 |
| 15.053 Optimization Methods in Business Analytics (MIT Sloan) | Spring 2019, 2020, 2021 |
| 15.071 The Analytics Edge (MIT Sloan) Spr | ing 2018, Fall 2019, Spring 2019 |
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| ADVISING | nig 2010, Fan 2019, Spring 2019 |
| ADVISING | Fall 2023 - Present |
| ADVISING Olivia Phillips, PhD student in Operations Research | Fall 2023 - Present |
| ADVISING | |
| ADVISING Olivia Phillips, PhD student in Operations Research Weiqing (Lynn) Xu, PhD student in Operations Research | Fall 2023 - Present Spring 2023 - Present |
| ADVISING Olivia Phillips, PhD student in Operations Research Weiqing (Lynn) Xu, PhD student in Operations Research Kleanthis Karakolios, PhD student in Machine Learning | Fall 2023 - Present Spring 2023 - Present Fall 2022 - Present |
| ADVISING Olivia Phillips, PhD student in Operations Research Weiqing (Lynn) Xu, PhD student in Operations Research Kleanthis Karakolios, PhD student in Machine Learning Puneet S. Bagga, Undergraduate student in Computer Science SERVICE | Fall 2023 - Present Spring 2023 - Present Fall 2022 - Present |
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Emerging Technologies, Service Science, Socio-Economic Planning Sciences, IEEE Transactions on Pattern Analysis and Machine Intelligence.

INDUSTRY EXPERIENCE

Lyft, Inc, Cambridge, MA

Postdoctoral Fellow 2021 – 2022

Google, Cambridge, MA

Research Intern 2019

Jane Street Capital, New York, NY

Trading Intern 2015

SELECTED INVITED TALKS

2024 University of Virginia - Darden School of Business - Data Analytics and Decision Sciences

UCL School of Management - Operations, Technology & Innovation

Imperial College School of Business - Analytics & Operations

Loyola University Chicago - Quinlan School of Business - Supply Chain Management

Johns Hopkins University - Carey School of Business - Information Systems

London Business School - Management Science & Operations

INSEAD Paris - Technology & Operations Management

MIT - Department of Economics - Blueprint Labs

HEC Paris - Information Systems & Operations Management

University of Cyprus - Business & Public Administration

2023 University of British Columbia – Sauder School of Business – Operations & Logistics

2022 Carnegie Mellon University – YinzOR Student Conference (Plenary)

2021 Lyft, Inc - Rideshare Labs

Cornell Johnson School of Management – Operations, Technology & Information Management Columbia Business School – Decisions, Risk and Operations

Boston University – Questrom School of Business – Operations & Technology Management

UCLA - Anderson School of Management - Decisions, Operations & Technology Management

2020 Georgia Institute of Technology – Stewart School of Industrial and Systems Engineering Naval Postgraduate School – Operations Research

Kellogg-Wharton Virtual Operations Management Workshop

2019 Center for Strategic and Budgetary Analysis – Data as a Resource Workshop

Google Research Cambridge

Cornell Tech - AI100 Prediction in Practice Workshop

2018 MIT – Sloan School of Management – Operations Research & Statistics

MIT - Special Seminar on Operations Research for Social Good

SKILLS AND INTERESTS

Languages: French (native), German (intermediate), Spanish (intermediate), Greek (beginner).

Software: Julia, R, Python, C++, Bash, Mathematica, Matlab, SQL.

Citizenship: USA, France

MEDIA

My work has been featured in *The Wall Street Journal*, *The Boston Globe*, *Wired*, *Popular Mechanics*, *Kellogg Insight*, and *WBUR (NPR Boston)*.