

Gian-Gabriel Garcia

Assistant Professor
H. Milton Stewart School of Industrial and Systems Engineering
Georgia Institute of Technology

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I. Earned Degrees

University of Michigan , Ann Arbor, MI	
PhD, Industrial and Operations Engineering	8/2020
MS, Industrial and Operations Engineering	12/2016
University of Pittsburgh , Pittsburgh, PA	
BS, Industrial Engineering, <i>Summa Cum Laude</i>	12/2014

II. Employment History

Georgia Institute of Technology , Atlanta, GA	
H. Milton Stewart School of Industrial and Systems Engineering	
Assistant Professor	8/2021-Present
Harvard Medical School , Boston, MA	
Massachusetts General Hospital Institute for Technology Assessment	
Postdoctoral Fellow	7/2020-7/2021

III. Honors and Awards

A. International or National Awards

* indicates an award given to advised/mentored students for joint work

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| 1. *Finalist, SMDM Lee B. Lusted Prize in <i>Quantitative Methods & Theoretical Developments</i> awarded to PhD student Che-Yi Liao | 2023 |
| 2. *First Prize, SMDM Lee B. Lusted Prize in <i>Quantitative Methods & Theoretical Developments</i> awarded to PhD student Che-Yi Liao | 2022 |
| 3. *Finalist, SMDM Lee B. Lusted Prize in <i>Quantitative Methods & Theoretical Developments</i> awarded to PhD student Sun Ju Lee | 2022 |
| 4. Panel Fellow, NSF CMMI Game Changer Academies | 2022 |
| 5. Best Paper, IISE Transactions Focus Issue on <i>Operations Engineering & Analytics</i> | 2021 |

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| 6. First Prize, SMDM Lee B. Lusted Prize in <i>Quantitative Methods & Theoretical Developments</i> | 2020 |
| 7. First Prize, INFORMS Minority Issues Forum Paper Competition | 2020 |
| 8. First Prize, SMDM Lee B. Lusted Prize in <i>Quantitative Methods & Theoretical Developments</i> | 2018 |
| 9. INFORMS Bonder Scholarship for Applied OR in Health Services | 2018 |
| 10. INFORMS Minority Issues Forum Doctoral Colloquium Sponsorship | 2018 |
| 11. First Prize, INFORMS Minority Issues Forum Poster Competition | 2017 |
| 12. Finalist, INFORMS Bonder Scholarship for Applied OR in Health Services | 2017 |
| 13. NSF Graduate Research Fellowship | 2017-2020 |
| 14. Honorable Mention, Ford Foundation Fellowship Predoctoral Competition | 2016, 2017 |

B. Institute or School Awards

B.1. Georgia Institute of Technology

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| 1. Student Recognition of Excellence in Teaching: CIOS Honor Roll | Spring 2023 |
| 2. Thank a Teacher Certificate | Spring 2023 |
| 3. ISyE Diversity, Equity, and Inclusion Fellow | 2022 |
| 4. Student Recognition of Excellence in Teaching: CIOS Honor Roll | Spring 2022 |
| 5. Thank a Teacher Certificate | Spring 2022 |

B.2. University of Michigan

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| 1. Towner Prize for Distinguished Academic Achievement | 2020 |
| 2. Departmental Nomination, Cornell ORIE Young Researchers Workshop | 2019 |
| 3. IOE Graduate Student Instructor of the Semester | Winter 2017 |
| 4. Honorable Mention, IOE Bonder Scholar Fellowship | 2016 |
| 5. Rackham Merit Fellowship | 2015-2020 |

IV. Research, Scholarship, and Creative Activities

* indicates work conducted at Georgia Tech.

Student and postdoc coauthors advised/mentored by Dr. Garcia at Georgia Tech appear in **bold**.

Student coauthors supervised/mentored by Dr. Garcia outside of Georgia Tech appear in *italics*.

A. Published Books, Book Chapters and Edited Volumes

A.1. Refereed Book Chapters

- [BC2] ***A. K. McNealey**, W. J. Marrero, L. N. Steimle, and G.-G. P. Garcia (2023). "Optimization Methods for Interpretable Treatment and Screening". In: *Encyclopedia of Optimization*. 3rd ed. Springer, Cham
- [BC1] ***S. J. Lee**, **H. S. Pandey**, and G.-G. P. Garcia (2023). "Designing Interpretable Machine Learning Models Using Mixed Integer Programming". In: *Encyclopedia of Optimization*. 3rd ed. Springer, Cham (Forthcoming)

B. Academic Publications

B.1. Published and Accepted Journal Articles

- [J24] *L. B. Lempke, A. J. Boltz, G.-G. P. Garcia, R. A. Syrydiuk, **H. S. Pandey**, M. A. McCrea, T. W. McAllister, and S. P. Broglio (2023). Optimizing Baseline and Post-Concussion Assessments Through Factor Structure Analysis: Findings from the NCAA-DoD CARE Consortium. *The Clinical Neuropsychologist* (Accepted)
- [J23] *G.-G. P. Garcia, L. L. Czerniak, M. S. Lavieri, S. W. Liebel, K. Van Pelt, P. F. Pasquina, T. W. McAllister, M. A. McCrea, S. P. Broglio, and CARE Consortium Investigators (2023). Estimating the Relationship Between the Symptom-Free Waiting Period and Injury Rates after Return-to-Play from Concussion: A Simulation Analysis Using CARE Consortium Data. *Sports Medicine* (Accepted)
- [J22] ***S. J. Lee**, G.-G. P. Garcia, K. K. Stanhope, M. Platner, and S. L. Boulet (2023). Interpretable Machine Learning to Predict Adverse Perinatal Outcomes: Examining Marginal Predictive Value of Risk Factors throughout Pregnancy. *American Journal of Obstetrics and Gynecology MFM* 5(10), 101096
- [J21] *G.-G. P. Garcia, L. N. Steimle, W. J. Marrero, and J. B. Sussman (2023). Interpretable Policies and the Price of Interpretability in Hypertension Treatment Planning. *Manufacturing & Service Operations Management* 0(0), 1–15
- [J20] *G.-G. P. Garcia, M. S. Lavieri, T. W. McAllister, M. A. McCrea, S. P. Broglio, and the CARE Consortium Investigators (2023). Reducing the Price of Naïveté in Return-to-play from Sports-related Concussion. *Production and Operations Management* 32, 3081–3099
- Winner, 2020 SMDM Lee B. Lusted Prize in *Quantitative Methods & Theoretical Developments*
- [J19] *S. W. Liebel, C. G. Turner, A. C. Svirsko, G.-G. P. Garcia, P. F. Pasquina, T. W. McAllister, M. A. McCrea, S. P. Broglio, and the CARE Consortium Investigators (2023). Temporal Network Analysis of Neurocognitive Functioning and Psychological Symptoms in Collegiate Athletes after Concussion. *Journal of Neurotrauma*, neu.2022.0431
- [J18] *L. L. Czerniak, S. W. Liebel, H. Zhou, G.-G. P. Garcia, M. S. Lavieri, M. A. McCrea, T. W. McAllister, S. P. Broglio, and the CARE Consortium Investigators (2023). Sensitivity and Specificity of the ImPACT Neurocognitive Test in Collegiate Athletes and United States Military Cadets with ADHD and/or LD: Findings from the NCAA-DoD CARE Consortium. *Sports Medicine* 53, 747–759
- [J17] *K. E. Nolan, J. B. Caccese, A. P. Kontos, T. A. Buckley, G.-G. P. Garcia, N. Port, S. P. Broglio, T. W. McAllister, M. McCrea, P. F. Pasquina, J. P. Hayes, and on behalf of the CARE Consortium Investigators (2023). Primary and Secondary Risk Factors Associated With Concussion Symptom Clusters in Collegiate Athletes: Results From the NCAA-DoD Grand Alliance CARE Consortium. *Orthopaedic Journal of Sports Medicine* 11(4), 232596712311635

- [J16] *J. B. Caccese, G.-G. P. Garcia, A. P. Kontos, N. Port, K. Valerio, S. P. Broglio, M. McCrea, T. W. McAllister, P. F. Pasquina, T. A. Buckley, and CARE Consortium Investigators (2023). Test–Retest Reliability and Efficacy of Individual Symptoms in Concussion Management. *Clinical Journal of Sport Medicine* **33**(1), 52–60
- [J15] *G.-G. P. Garcia, R. Dehghanpoor, E. J. Stringfellow, M. Gupta, J. Rochelle, E. Mason, T. A. Pujol, and M. S. Jalali (2022). Identifying and Characterizing Medical Advice-Seekers on a Social Media Forum for Buprenorphine Use. *International Journal of Environmental Research and Public Health* **19**(10), 6281
- Garcia and Dehghanpoor have equal contributions as authors
- [J14] *G.-G. P. Garcia, E. J. Stringfellow, C. DiGennaro, N. Poellinger, J. Wood, S. Wakeman, and M. S. Jalali (2022). Opioid Overdose Decedent Characteristics during COVID-19. *Annals of Medicine* **54**(1), 1081–1088
- [J13] *C.-Y. Liao, G.-G. P. Garcia, C. DiGennaro, and M. S. Jalali (2022). Racial Disparities in Opioid Overdose Deaths in Massachusetts. *JAMA Network Open* **5**(4), e229081
- [J12] G.-G. P. Garcia, C. M. Schumb, M. S. Lavieri, H. Koffijberg, T. W. McAllister, M. A. McCrea, and S. P. Broglio (2022). Developing Insights for Possible and Probable Acute Concussions Using Cluster Analysis. *Journal of Neurotrauma* **39**(1-2), 102–113
- [J11] C. DiGennaro, G.-G. P. Garcia, E. J. Stringfellow, S. Wakeman, and M. S. Jalali (2021). Changes in Characteristics of Drug Overdose Death Trends during the COVID-19 Pandemic. *International Journal of Drug Policy* **98**(Accepted), 103392
- [J10] L. L. Czerniak, S. W. Liebel, G.-G. P. Garcia, M. S. Lavieri, M. A. McCrea, T. W. McAllister, and S. P. Broglio (2021). Sensitivity and Specificity of Computer-Based Neurocognitive Tests in Sport-Related Concussion: Findings from the NCAA-DoD CARE Consortium. *Sports Medicine* **51**(2), 351–365
- [J9] S. W. Liebel, K. Van Pelt, G.-G. P. Garcia, L. L. Czerniak, M. A. McCrea, T. W. McAllister, and S. P. Broglio (2020). The Relationship between Sport-Related Concussion and Sensation-Seeking. *International Journal of Molecular Sciences* **21**(23), 9097
- [J8] G.-G. P. Garcia, J. Yang, M. S. Lavieri, T. W. McAllister, M. A. McCrea, and S. P. Broglio (2020). Optimizing Components of the Sport Concussion Assessment Tool for Acute Concussion Assessment. *Neurosurgery* **87**(5), 971–981
- [J7] G.-G. P. Garcia, M. S. Lavieri, R. Jiang, M. A. McCrea, T. W. McAllister, and S. P. Broglio (2020). Data-Driven Stochastic Optimization Approaches to Determine Decision Thresholds for Risk Estimation Models. *IIE Transactions* **52**(10), 1098–1121
- Best Paper, 2021 IIE Transactions Focus Issue on *Operations Engineering & Analytics*
 - Winner, 2020 INFORMS Minority Issues Forum Paper Competition
 - Winner, 2018 SMDM Lee B. Lusted Prize in *Quantitative Methods & Theoretical Developments*
 - First Place, 2017 INFORMS Minority Issues Forum Poster Competition

- [J6] G.-G. P. Garcia, M. S. Lavieri, C. Andrews, X. Liu, M. P. Van Oyen, M. A. Kass, M. O. Gordon, and J. D. Stein (2019). Accuracy of Kalman Filtering in Forecasting Visual Field and Intraocular Pressure Trajectory in Patients With Ocular Hypertension. *JAMA Ophthalmology* **137**(12), 1416–1423
- [J5] G.-G. P. Garcia, M. S. Lavieri, R. Jiang, T. W. McAllister, M. A. McCrea, and S. P. Broglio (2019). A Data-Driven Approach to Unlikely, Possible, Probable, and Definite Acute Concussion Assessment. *Journal of Neurotrauma* **36**(10), 1571–1583
- [J4] G.-G. P. Garcia, K. Nitta, M. S. Lavieri, C. Andrews, X. Liu, E. Lobaza, M. P. Van Oyen, K. Sugiyama, and J. D. Stein (2019). Using Kalman Filtering to Forecast Disease Trajectory for Patients With Normal Tension Glaucoma. *American Journal of Ophthalmology* **199**, 111–119
- [J3] G. J. Schell, G.-G. P. Garcia, M. S. Lavieri, J. B. Sussman, and R. A. Hayward (2019). Optimal Coinsurance Rates for a Heterogeneous Population under Inequality and Resource Constraints. *IIE Transactions* **51**(1), 74–91
- [J2] G.-G. P. Garcia, S. P. Broglio, M. S. Lavieri, M. McCrea, and T. McAllister (2018). Quantifying the Value of Multidimensional Assessment Models for Acute Concussion: An Analysis of Data from the NCAA-DoD Care Consortium. *Sports Medicine* **48**(7), 1739–1749
 - Cited in American Medical Society for Sports Medicine position statement on concussion in sport (doi: 10.1136/bjsports-2018-100338)
- [J1] M. H. Mofrad, G.-G. P. Garcia, L. M. Maillart, B. A. Norman, and J. Rajgopal (2016). Customizing Immunization Clinic Operations to Minimize Open Vial Waste. *Socio-Economic Planning Sciences* **54**(March 2016), 1–17

B.2. Refereed Conference Papers

- [CP2] ***V. Nori-Naga, S. Sundar**, and G.-G. P. Garcia (2023). Analysis of Machine Learning and Ensemble Methods for Forecasting COVID-19 Cases in California. In: *Proceedings of the IIE Annual Conference & Expo 2023*, pp.New Orleans, LA
- [CP1] *G.-G. P. Garcia, L. L. Czerniak, M. S. Lavieri, S. W. Liebel, M. A. McCrea, T. W. McAllister, P. F. Pasquina, and S. P. Broglio (2022). Simulation-Optimization to Distinguish Optimal Symptom Free Waiting Period for Return-to-Play Decisions in Sport-Related Concussion. In: *2022 Winter Simulation Conference (WSC)*. Singapore: IEEE, pp.1021–1032
 - Garcia and Czerniak have equal contributions as authors

B.3. Other Refereed Material

Refereed Conference Abstracts

- [O18] ***C.-Y. Liao**, E. Keyvanshokoo, and G.-G. P. Garcia (2023). Data-Driven Counterfactual Optimization for Personalized Clinical Decision-Making. *Society for Medical Decision Making 45th Annual Meeting*, Philadelphia, PA

- [O17] ***C.-Y. Liao**, G.-G. P. Garcia, K. Paynabar, and M. S. Jalali (2023). Improving Prediction of Opioid-involved Overdose Deaths with Multivariate Spatio-Temporal Hawkes Process. *IISE Annual Conference*, New Orleans, LA
- [O16] ***V. Nori-Naga**, **S. Sundar**, and G.-G. P. Garcia (2023). Analysis of Machine Learning and Ensemble Methods for Forecasting COVID-19 Cases in California. *IISE Annual Conference*, New Orleans, LA
- [O15] ***S. J. Lee** and G.-G. P. Garcia (2022). A Preference-sensitive Approach to Optimal Screening Problems with Multiple Objectives: Application to Breast Cancer Screening. *Society for Medical Decision Making 44th Annual Meeting*, Seattle, WA
- [O14] ***C.-Y. Liao**, G.-G. P. Garcia, K. Paynabar, and M. S. Jalali (2022). A Novel Spatio-Temporal Modeling Framework for Improving Public Health Surveillance: An Application to Opioid-related Drug Overdose Deaths. *Society for Medical Decision Making 44th Annual Meeting*, Seattle, WA
- [O13] *G.-G. P. Garcia, L. N. Steimle, W. J. Marrero, and J. B. Sussman (2022). Design, Analysis, and Optimization of Interpretable Policies for Hypertension Treatment Planning. *Society for Medical Decision Making 44th Annual Meeting*, Seattle, WA
- [O12] *G.-G. P. Garcia, N. Ghaffarzagadan, and M. S. Jalali (2022). A Model-based Analysis of Screening Selection Rates for Post-traumatic Stress Disorder. *Society for Medical Decision Making 44th Annual Meeting*, Seattle, WA
- [O11] *G.-G. P. Garcia, M. S. Lavieri, T. W. McAllister, M. A. McCrea, and S. P. Broglio (2022). Design and Assessment of a Novel Decision-Theoretic Approach to Personalize Return-to-play from Concussion. *6th International Consensus Conference on Concussion in Sport*, Amsterdam, Netherlands
- [O10] *D. W. Van Pelt, G.-G. P. Garcia, S. R. Hinds, D. R. Howell, J. McCollum, S. J. Svoboda, and K. L. Van Pelt (2022). Daily Concussion Symptom Presence and Severity Is Highly Variable in a Healthy Population Over a 14-Day Monitoring Period. *6th International Consensus Conference on Concussion in Sport*, Amsterdam, Netherlands
- [O9] *K. L. Van Pelt, G.-G. P. Garcia, S. R. Hinds, D. R. Howell, J. McCollum, S. J. Svoboda, and D. W. Van Pelt (2022). Time of Day and Day of Week Do Not Meaningfully Impact Concussion Symptom Scores In Healthy Young Adults. *6th International Consensus Conference on Concussion in Sport*, Amsterdam, Netherlands
- [O8] *J. B. Caccese, G.-G. P. Garcia, A. P. Kontos, N. L. Port, K. Valerio, S. P. Broglio, M. A. McCrea, T. W. McAllister, P. F. Pasquina, and T. A. Buckley (2022). Test-Retest Reliability And Efficacy Of Individual Symptoms In Concussion Management. *ACSM Annual Meeting & World Congress*, San Diego, CA
- [O7] *G.-G. P. Garcia, L. N. Steimle, W. J. Marrero, and J. B. Sussman (2022). An Analysis of Structured Optimal Policies for Hypertension Treatment Planning. *IISE Annual Conference*, Seattle, WA

- [O6] G.-G. P. Garcia, M. S. Lavieri, T. W. McAllister, M. A. McCrea, and S. P. Broglio (2020). The Value of Incorporating Symptom-Reporting Behavior in Optimal Treatment Decisions: An Application to Return-to-Play from Sports-Related Concussion. *Society for Medical Decision Making 42nd Annual Meeting*, Chicago, IL
- [O5] G.-G. P. Garcia, M. S. Lavieri, C. Andrews, X. Liu, M. P. Van Oyen, M. A. Kass, M. O. Gordon, and J. D. Stein (2019). Using a Machine Learning Technique Called Kalman Filtering to Forecast Conversion from Ocular Hypertension to Primary Open Angle Glaucoma. *The Association for Research in Vision and Ophthalmology*, Vancouver, BC
- [O4] G.-G. P. Garcia, M. S. Lavieri, R. Jiang, M. A. McCrea, T. W. McAllister, and S. P. Broglio (2018). A Novel Data-Driven Framework for Improving Risk-Based Medical Diagnosis with Application to Acute Concussion Assessment. *Society for Medical Decision Making 40th Annual Meeting*, Montreal, QC
- [O3] M. S. Lavieri, X. Liu, G.-G. P. Garcia, Z. Zhou, E. Lobaza, J. Wang, K. Sugiyama, K. Nitta, C. Andrews, M. P. Van Oyen, and J. D. Stein (2017). Using Kalman Filtering to Personalize the Monitoring of Persons with Normal Tension Glaucoma. *The Association for Research in Vision and Ophthalmology*, Baltimore, MD
- [O2] G.-G. P. Garcia, M. S. Lavieri, and S. P. Broglio (2017). A Markov Decision Process to Model Symptom Self-Reporting Behavior in Concussion Management. *The 3rd Multidisciplinary Conference on Reinforcement Learning and Decision Making*, Ann Arbor, MI
- [O1] G.-G. P. Garcia, M. S. Lavieri, and S. P. Broglio (2016). Quantifying Risk Thresholds for On-field Concussion Diagnosis. *Industrial and Systems Engineering Research Conference*, Anaheim, CA

B.4. Submitted Journal Articles

- [R4] ***C.-Y. Liao**, E. Keyvanshokoo, and G.-G. P. Garcia (2023). Data-Driven Counterfactual Optimization for Personalized Clinical Decision-Making. (Submitted).
 - Finalist, 2023 SMDM Lee B. Lusted Prize in *Quantitative Methods & Theoretical Developments*
 - Pre-print: <https://optimization-online.org/?p=23949>
- [R3] ***X. Gong**, **S. J. Lee**, and G.-G. P. Garcia (2023). Analysis of Monotone Policy Iteration for Interpretable Policies in Markov Decision Processes: Impact of State Ordering Rules. (Submitted).
 - Pre-print: <https://optimization-online.org/?p=23723>
- [R2] ***S. Ma**, A. Dehghanian, G.-G. P. Garcia, and N. Serban (2022). Learning Hidden Markov Models with Structured Dynamics. (Under revision)
- [R1] ***C.-Y. Liao**, G.-G. P. Garcia, K. Paynabar, Z. Dong, Y. Xie, and M. S. Jalali (2022). Tides Need STEMMED: A Locally Operating Spatio-Temporal Mutually Exciting Point Process with Dynamic Network for Improving Opioid Overdose Death Prediction. (Under revision).

- Winner, 2022 SMDM Lee B. Lusted Prize in *Quantitative Methods & Theoretical Developments*
- Accepted to 2023 INFORMS Workshop on Data Science
- Pre-print: <https://arxiv.org/abs/2211.07570>

B.5. Articles in Preparation and Working Papers

- [P7] *G.-G. P. Garcia, E. J. Stringfellow, and M. S. Jalali (2023). Looking Back: COVID-19 and the Drug Overdose Crisis. (Working Paper).
- [P6] ***S. J. Lee**, G.-G. P. Garcia, K. K. Stanhope, M. H. Platner, and S. L. Boulet (2023). Composite Clustered Multi-Task Learning for Prediction of Adverse Pregnancy Outcomes. (Working Paper).
- [P5] ***S. J. Lee** and G.-G. P. Garcia (2023). A Tolerance-based Approach to Lexicographic Multi-objective Partially Observed Markov Decision Processes. (Working Paper).
- [P4] *C. X. Bugg, Y. Yang, G.-G. P. Garcia, and K. R. Siegel (2023). Implementing Federal Food Service Guidelines in Federal and Private Worksite Cafeterias in the United States Improves Human and Planetary Health. (Working Paper).
- [P3] ***J. Aguirre**, G.-G. P. Garcia, and D. Dench (2023). Interpretable Class Ordered Monotone Policies and Rational Addiction Theory. (Working Paper).
- [P2] *B. Lahijanian, **H. S. Pandey**, **X. Chen**, R. C. Lynall, J. D. Schmidt, T. W. McAllister, M. A. McCrea, P. F. Pasquina, S. P. Broglio, and G.-G. P. Garcia (2023). The Diagnostic Utility of Baseline Testing: A Novel Metric to Quantify Who Benefits from Baseline Testing. (Working Paper).
- [P1] *G.-G. P. Garcia, N. Ghaffarzadegan, and M. S. Jalali (2023). Analyzing "Optimal" Diagnosis Policies for Post-traumatic Stress Disorder in the Presence of Social Stigma. (Working Paper).

C. Presentations

First author indicates presenting author

C.1. Invited Conference and Workshop Presentations

- 30. *G.-G. P. Garcia (2023). Leveraging Operations Research and Machine Learning for Robust, Interpretable, and Equitable Models in Healthcare. *Health Systems: The Next Generation 2023*, Georgia Tech, Atlanta, GA
- 29. ***H. S. Pandey**, G.-G. P. Garcia, and L. B. Lempke (2023). Optimizing Concussion Assessment: A Mixed-Integer Optimization Approach with Time Constraints. *INFORMS Annual Meeting*, Phoenix, AZ
- 28. ***S. J. Lee** and G.-G. P. Garcia (2023). Clustered Multi-Task Learning for Prediction of Adverse Pregnancy Outcomes. *INFORMS Annual Meeting*, Phoenix, AZ

27. *C. X. Bugg, G.-G. P. Garcia, Y. Yang, and K. R. Siegel (2023). Implementing Federal Food Service Guidelines in Federal and Private Worksite Cafeterias in the United States Improves Human and Planetary Health. *INFORMS Annual Meeting*, Phoenix, AZ
26. *C.-Y. Liao, G.-G. P. Garcia, and E. Keyvanshokoo (2023). Data-Driven Counterfactual Optimization for Personalized Clinical Decision-Making. *INFORMS Annual Meeting*, Phoenix, AZ
25. *W. J. Marrero, G.-G. P. Garcia, L. N. Steimle, and J. B. Sussman (2023). Interpretable Policies and the Price of Interpretability in Hypertension Treatment Planning. *INFORMS Annual Meeting*, Phoenix, AZ
24. *G.-G. P. Garcia, L. N. Steimle, W. J. Marrero, and J. B. Sussman (2023). Interpretable Policy Design with Application to Hypertension Treatment Planning. *INFORMS Annual Meeting* (Bonder Scholars Session), Phoenix, AZ
23. *S. J. Lee and G.-G. P. Garcia (2023). Clustered Multi-Task Learning for Prediction of Adverse Pregnancy Outcomes. *INFORMS Healthcare*, Toronto, ON
22. *B. Lahijanian, G.-G. P. Garcia, J. D. Schmidt, and R. C. Lynall (2023). Concussion Prediction Using Interpretable Machine Learning Models: An Evaluation of Baseline Testing in the NCAA-DoD CARE Consortium. *INFORMS Healthcare*, Toronto, ON
21. *G.-G. P. Garcia, L. L. Czerniak, M. S. Lavieri, S. W. Liebel, K. L. Van Pelt, P. F. Pasquina, M. A. McCrea, T. W. McAllister, and S. P. Broglio (2023). Simulation Analysis for Return-to-Play from Sports-Related Concussion. *INFORMS Healthcare*, Toronto, ON
20. *G.-G. P. Garcia, C.-Y. Liao, K. Paynabar, D. Zheng, Y. Xie, and M. S. Jalali (2023). A Locally Operating Spatio-Temporal Mutually Exciting Point Process with Dynamic Network for Improving Opioid Overdose Death Prediction. *INFORMS Healthcare*, Toronto, ON
19. *C.-Y. Liao, G.-G. P. Garcia, K. Paynabar, and M. S. Jalali (2023). A Novel Spatio-Temporal Model for Improving Public Health Surveillance: An Application to Opioid-Related Overdose Deaths. *POMS Annual Meeting*, Orlando, FL
18. *C.-Y. Liao, G.-G. P. Garcia, K. Paynabar, and M. S. Jalali (2023). Improving Opioid-involved Overdose Deaths Prediction with Multivariate Spatio-Temporal Hawkes Process. *IISE Annual Conference*, New Orleans, LA
17. *S. J. Lee and G.-G. P. Garcia (2022). A Tolerance-based Approach to Lexicographic Multi-objective Partially Observed Markov Decision Processes. *INFORMS Annual Meeting*, Indianapolis, IN
16. *C.-Y. Liao, G.-G. P. Garcia, K. Paynabar, and M. S. Jalali (2022). Improving Prediction of Opioid-involved Overdosed Deaths with Multivariate Spatio-temporal Hawkes Process. *INFORMS Annual Meeting*, Indianapolis, IN
15. *G.-G. P. Garcia, L. N. Steimle, W. J. Marrero, and J. B. Sussman (2022). Design and Analysis of Interpretable Policies for Hypertension Treatment Planning. *INFORMS Annual Meeting* (Bonder Scholars Session), Indianapolis, IN

14. *G.-G. P. Garcia (2022). Optimal Clinical Assessment and Return to Play After Concussion. *5th Annual NCAA-US Department of Defense Grand Alliance Concussion Conference* (Virtual meeting)
13. *G.-G. P. Garcia, L. N. Steimle, and W. J. Marrero (2021). An Analysis of Structured Optimal Policies for Hypertension Treatment Planning: The Tradeoff Between Optimality and Interpretability. *INFORMS Annual Meeting*, Anaheim, CA
12. *G.-G. P. Garcia, M. S. Lavieri, T. W. McAllister, M. A. McCrea, and S. P. Broglio (2021). Estimating the Value of Incorporating Patient Behavior in Return to Play from Concussion. *INFORMS Annual Meeting* (Bonder Scholars Session), Anaheim, CA
11. G.-G. P. Garcia, C. DiGennaro, E. J. Stringfellow, J. Wood, N. Poellinger, and M. S. Jalali (2021). A Multi-state Analysis of Opioid Overdose Death Trends Since the Onset of COVID-19. *INFORMS Healthcare* (Invited Session), Virtual Meeting
10. G.-G. P. Garcia, L. N. Steimle, and W. J. Marrero (2021). An Analysis of Structured Optimal Policies for Hypertension Treatment Planning. *INFORMS Healthcare* (Bonder Scholars Session), Virtual Meeting
9. G.-G. P. Garcia, M. S. Lavieri, T. W. McAllister, M. A. McCrea, and S. P. Broglio (2020). The Value of Incorporating Symptom-Reporting Behavior in Return-to-play from Concussion. *INFORMS Annual Meeting* (Bonder Scholars Session), National Harbor, MD
8. G.-G. P. Garcia, M. S. Lavieri, and S. P. Broglio (2019). Optimizing Treatment Decisions Under Strategically Reported Symptoms. *INFORMS Annual Meeting* (Bonder Scholars Session), Seattle, WA
7. G.-G. P. Garcia, M. S. Lavieri, R. Jiang, T. W. McAllister, M. A. McCrea, and S. P. Broglio (2019). Data-Driven Stochastic Optimization Approaches to Determine Decision Thresholds for Risk Estimation Models. *INFORMS Annual Meeting* (Invited Session), Seattle, WA
6. G.-G. P. Garcia, J. Yang, M. S. Lavieri, T. W. McAllister, M. A. McCrea, and S. P. Broglio (2019). Doing More with Less: Applying Modern Predictive Modeling Methods to Improve Acute Concussion Assessment. *INFORMS Healthcare* (Bonder Scholars Session), Boston, MA
5. G.-G. P. Garcia, M. S. Lavieri, T. W. McAllister, M. A. McCrea, and S. P. Broglio (2019). Optimizing Treatment Decisions Under Objective Clinical Measures and Strategically Reported Symptoms. *INFORMS Healthcare* (Invited Session), Boston, MA
4. G.-G. P. Garcia, M. S. Lavieri, and S. P. Broglio (2018). Optimization Approaches for Concussion Management Decisions. *INFORMS Annual Meeting* (Invited Session), Phoenix, AZ
3. G.-G. P. Garcia, M. S. Lavieri, and S. P. Broglio (2018). Data-Driven Optimization Models for Concussion Management Decisions. *INFORMS Annual Meeting* (Bonder Scholars Session), Phoenix, AZ

2. G.-G. P. Garcia, M. S. Lavieri, R. Jiang, M. McCrea, T. W. McAllister, S. P. Broglio, and CARE Consortium Investigators (2017). A Novel Framework to Determine Decision Thresholds for Medical Diagnosis. *INFORMS Annual Meeting* (Invited Session), Houston, TX
1. G.-G. P. Garcia, M. S. Lavieri, and S. P. Broglio (2016). An Optimization Approach to Concussion Management. *INFORMS Annual Meeting* (Invited Session), Nashville, TN

C.2. Conference and Workshop Presentations

3. *C. G. Turner, A. Svirsko, G.-G. P. Garcia, and S. W. Liebel (2022). Trajectory Analysis of Concussion Symptoms. *INFORMS Annual Meeting*, Indianapolis, IN
2. *C. G. Turner, A. Svirsko, G.-G. P. Garcia, and S. W. Liebel (2021). Temporal Network Architectures of Neurocognitive and Psychological Symptoms in Collegiate Athletes with Sports-related Concussion. *INFORMS Annual Meeting*, Anaheim, CA
1. G.-G. P. Garcia, M. S. Lavieri, R. Jiang, T. W. McAllister, M. A. McCrea, and S. P. Broglio (2019). Data-Driven Stochastic Optimization Approaches to Determine Decision Thresholds for Risk Estimation Models. *ORIE Young Investigators Workshop*, Cornell University, Ithaca, NY

C.3. Invited Seminar Presentations

13. *Designing Responsible Artificial Intelligence for Diabetes Care, Georgia Center for Diabetes Translation Research, Emory University, September 2023
12. *Interpretable Policies and the Price of Interpretability in Hypertension Treatment Planning, Department of Industrial and Systems Engineering, Rochester Institute of Technology, October 2022
11. *Optimizing Acute Concussion Assessment: Insights from Predictive Analytics, Advancing Concussion Care, Synaptek, May 2022
10. *An Analysis of Structured Optimal Policies for Hypertension Treatment Planning: The Tradeoff Between Optimality and Interpretability, Center for Machine Learning, Georgia Tech, March 2022
9. *An Analysis of Structured Optimal Policies for Hypertension Treatment Planning: The Tradeoff Between Optimality and Interpretability, Department of Industrial and Systems Engineering, Virginia Tech, November 2021
8. Predictive and Prescriptive Analytics for Concussion Management Decisions, MGH Institute for Technology Assessment, Harvard Medical School, August 2020
7. Predictive and Prescriptive Analytics for Concussion Management Decisions, Department of Industrial and Systems Engineering, University of Minnesota, January 2020
6. Predictive and Prescriptive Analytics for Concussion Management Decisions, Department of Industrial Engineering, Clemson University, January 2020

5. Predictive and Prescriptive Analytics for Concussion Management Decisions, School of Industrial Engineering and Regenstrief Center for Healthcare Engineering, Purdue University, December 2019
4. Predictive and Prescriptive Analytics for Concussion Management Decisions, H. Milton Stewart School of Industrial and Systems Engineering, Georgia Tech, December 2019
3. Predictive and Prescriptive Analytics for Concussion Management Decisions, Department of Industrial and Systems Engineering, University of Florida, December 2019
2. Data-driven Decision Thresholds for Risk Estimation Models with Application to Acute Concussion Assessment, Edward P. Fitts Department of Industrial & Systems Engineering Department, North Carolina State University, April 2019
1. Data-driven Optimization for Concussion Management Decisions, Department of Industrial and Operations Engineering, University of Michigan, September 2018

C.4. Invited Conference and Workshop Panels

3. *To Future Medical Failures: Racial and Gender Bias in Research, INFORMS Annual Meeting, Phoenix, AZ, October 2023
2. *To Future Medical Failures: Racial and Gender Bias in Research, INFORMS Healthcare, Toronto, ON, July 2023
1. *Finding Research Success in the Medical Community, INFORMS Annual Meeting, Indianapolis, IN, October 2022

C.5. Other Presentations

11. L. L. Czerniak, S. W. Liebel, G.-G. P. Garcia, M. S. Lavieri, M. A. McCrea, T. W. McAllister, and S. P. Broglio (2020). Sensitivity and Specificity of Computer-Based Neurocognitive Assessments in Sport-Related Concussion. *Traumatic Brain Injury Conference*, Washington D.C.
10. L. L. Czerniak, S. W. Liebel, G.-G. P. Garcia, M. S. Lavieri, M. A. McCrea, T. W. McAllister, and S. P. Broglio (2020). Characterizing the Accuracy of Computer-Based Neurocognitive Tests in Sport-Related Concussion. *INFORMS Annual Meeting Minority Issues Forum Poster Competition*, National Harbor, MD
9. G.-G. P. Garcia, J. Yang, M. S. Lavieri, T. W. McAllister, M. A. McCrea, and S. P. Broglio (2019). Optimization of the SAC, BESS, and SCAT Symptom Checklist for Acute Concussion Assessment. *Traumatic Brain Injury Conference*, Washington D.C.
8. G.-G. P. Garcia, M. S. Lavieri, C. M. Schumb, T. W. McAllister, M. A. McCrea, and S. P. Broglio (2018). Developing Insights For Hard-to-Diagnose Concussions Using Machine Learning. *INFORMS Annual Meeting Minority Issues Forum Poster Competition*, Phoenix, AZ

7. G.-G. P. Garcia, M. S. Lavieri, R. Jiang, M. McCrea, T. W. McAllister, S. P. Broglio, and CARE Consortium Investigators (2018). A Stochastic Programming Approach to Determine Decision Boundaries for Medical Diagnosis. *YinzOR Conference 3rd Place*, Carnegie Mellon University, Pittsburgh, PA
6. M. S. Lavieri, X. Liu, G.-G. P. Garcia, Z. Zhou, E. Lobaza, J. Wang, K. Sugiyama, K. Nitta, C. Andrews, M. P. Van Oyen, and J. D. Stein (2017). Using Kalman Filtering to Personalize the Monitoring of Persons with Normal Tension Glaucoma. *The Association for Research in Vision and Ophthalmology*, Baltimore, MD
5. G.-G. P. Garcia, M. S. Lavieri, R. Jiang, M. McCrea, T. W. McAllister, S. P. Broglio, and CARE Consortium Investigators (2017). A Stochastic Programming Approach to Determine Decision Boundaries for Medical Diagnosis. *Center for Healthcare Engineering and Patient Safety Symposium*, University of Michigan, Ann Arbor, MI
4. G.-G. P. Garcia, M. S. Lavieri, R. Jiang, M. McCrea, T. W. McAllister, S. P. Broglio, and CARE Consortium Investigators (2017). A Stochastic Programming Approach to Determine Decision Boundaries for Medical Diagnosis. *Engineering Graduate Symposium 2nd Place*(Session IOF-2), University of Michigan, Ann Arbor, MI
3. G.-G. P. Garcia, M. S. Lavieri, R. Jiang, M. McCrea, T. W. McAllister, S. P. Broglio, and CARE Consortium Investigators (2017). A Stochastic Programming Approach to Determine Decision Boundaries for Medical Diagnosis. *INFORMS Annual Meeting Minority Issues Forum Poster Competition 1st Place*, Houston, TX
2. G.-G. P. Garcia, M. S. Lavieri, and S. P. Broglio (2016). Optimal Return-to-Play From Concussion. *Center for Healthcare Engineering and Patient Safety Symposium*, University of Michigan, Ann Arbor, MI
1. G.-G. P. Garcia, M. S. Lavieri, and S. P. Broglio (2016). Optimal Return-to-Play From Concussion. *Engineering Graduate Symposium*, University of Michigan, Ann Arbor, MI

D. Grants and Contracts

D.1. As Principal Investigator

5. **Design and Assessment of Fair Algorithms for Counterfactual Explanations to Generate Digital Role Models for Patients with Type-2 Diabetes and Hypertension**
 Sponsor: National Institutes for Health (NIH AIM-AHEAD)
 Total Dollar Amount: \$992,472
 Role: PI
 Collaborators: Hui Shao (co-PI, Emory University), Esmaeil Keyvanshokoooh (co-PI, Texas A&M University), Mary Beth Weber (co-I, Emory University), Francisco Pasquel (co-I, Emory University)
 Period of Contract: September 2023 - September 2025
4. **Bonder Scholars Research Fund**
 Sponsor: Seth Bonder Foundation
 Total Dollar Amount: \$5,000

Role: PI

Awarded July 2023

3. **R03: Design, Analysis, and Optimization of Equitable and Value-based Baseline Testing Policies for Sports-Related Concussion**

Grant No. 1R03HS29422-01

Sponsor: Agency for Healthcare Research and Quality

Total Dollar Amount: \$93,011

Role: PI

Collaborators: Julianne Schmidt (co-I, University of Georgia), Robert Lynall (co-I, University of Georgia)

Period of Contract: April 2023 - March 2025

2. **COVID-19 Faculty Relief Program**

Sponsor: Georgia Tech

Role: PI

Total Dollar Amount: \$8,000

Period of Contract: February 2023 - June 2023

1. **Designing a Data-driven and Risk-specific Approach to Maternal Health Care**

Grant No. UL1-TR002378

Sponsor: I3 Emory SOM/Georgia Tech Innovation Award

Total Dollar Amount: \$100,000

Role: PI

Collaborators: Lauren Steimle (PI, Georgia Tech), Sheree Boulet (PI, Emory University School of Medicine), Marissa Platner (co-PI, Emory University)

Period of Contract: January 2022 - December 2023

V. Teaching

A. Courses Taught

Semester	Course Number	Course Title	Response Rate	Overall Rating*
Fall 2023	ISyE 8803	Special Topics: Prediction Modeling in Medical Decision Making and Health Policy		
Spring 2023	ISyE 3232	Stochastic Manufacturing & Service Systems (T14)	59/63	4.89
Spring 2023	ISyE 3232	Stochastic Manufacturing & Service Systems (T15)	69/74	4.94
Spring 2022	ISyE 3232	Stochastic Manufacturing & Service Systems	57/62	4.99
Spring 2022	ISyE 8803	Special Topics: Prediction Modeling in Medical Decision Making and Health Policy	12/15	4.89

*Overall score reflects interpolated median for the question: Concerning everything, the instructor was an effective teacher.

B. Individual Student Guidance

B.1. Ph.D. Students

B.1.a. In Process Ph.D. Students

4. Amaya McNealey (co-advised with Lauren Steimle)

Degree Program: Industrial Engineering
Advising Start Date: Fall 2022
Awards: *ISyE George Family Fellowship*, Fall 2023

3. Himadri Pandey

Degree Program: Machine Learning
Advising Start Date: Fall 2022

2. Che-Yi Liao (co-advised with Kamran Paynabar)

Degree Program: Machine Learning
Advising Start Date: Fall 2021
Milestones: Qualifying Exam, Spring 2023
Awards: Finalist, INFORMS Bonder Scholarship, 2023
Finalist, SMDM Lee B. Lusted Prize in *Quantitative Methods and Theoretical Developments*, 2023
First Prize, SMDM Lee B. Lusted Prize in *Quantitative Methods and Theoretical Developments*, 2022
ISyE George Family Fellowship, Spring 2022, Fall 2023

1. Sun Ju Lee

Degree Program: Operations Research
Advising Start Date: Fall 2021
Milestones: Comprehensive Exam in OR, 2021
Dissertation Proposal Examination, Summer 2023
Awards: Finalist, SMDM Lee B. Lusted Prize in *Quantitative Methods and Theoretical Developments*, 2022

B.2. Mentorship of Postdoctoral Fellows or Visiting Scholars

2. Caleb X. Bugg
Jerry and Harriet Thuesen Postdoctoral Fellow
August 2022 - Present
1. Behshad Lahijanian (co-advised with Nicoleta Serban)
Tennenbaum Postdoctoral Fellow
August 2022 - Present

VI. Service

A. Professional Contributions

A.1. Society Officers, Activities, and Membership

- Leadership Roles:
 1. Vice President Co-chair of Communications, INFORMS Minority Issues Forum 2024
- Award Committees:
 5. Judge, INFORMS Poster Competition 2023
 4. Judge, INFORMS Health Applications Society Student Paper Competition 2023
 3. Judge, INFORMS Poster Competition 2021
 2. Judge, INFORMS Minority Issues Forum Best Paper Award committee 2021
 1. Member of INFORMS Seth Bonder Scholarship for Applied Operations Research in Health Services committee 2021-2023
- Membership:
 3. INFORMS: Institute for Operations Research and Management Science
 2. SMDM: Society for Medical Decision Making
 1. IISE: Institute of Industrial and Systems Engineering
- Conference Session Chair:
 4. IISE Annual Conference & Expo, 2022
 3. INFORMS Annual Meeting, 2017, 2020, 2023
 2. INFORMS Healthcare, 2019, 2021, 2023
 1. ISERC, 2016
- Mentoring:
 2. INFORMS Healthcare, Coffee Break Mentoring for PhD students, 2023
 1. INFORMS Annual Meeting, AMAZON SCOT Mentorship Program, 2021

A.2. Technical Journal or Conference Referee Activities

- Technical Journal Referee:
 13. European Journal of Operational Research
 12. Healthcare Management Science
 11. IISE Transactions
 10. IISE Transactions on Health Systems
 9. INFORMS Journal on Computing
 8. Management Science

7. Manufacturing & Service Operations Management
 6. Medical Decision Making
 5. Naval Research Logistics
 4. Omega - The International Journal of Management Science
 3. Operations Research
 2. Operations Research Letters
 1. Production & Operations Management
- Medical and Health Policy Journal Referee:
 9. American Journal of Public Health
 8. Applied Neuropsychology: Adult
 7. BMJ Open Sport & Exercise Medicine
 6. BMC Medical Research Methodology
 5. International Journal of Sports Medicine
 4. JAMA Network Open
 3. Journal of Athletic Training
 2. Neurosurgery
 1. The Clinical Neuropsychologist
 - Conference Referee:
 2. INFORMS 18th Workshop on Data Mining
 1. Society for Medical Decision Making Annual Meeting 2022, 2023

A.3. Proposal Panels and Reviews

1. National Science Foundation, 2022

B. Public and Community Service

B.1. Broadening Participation in Engineering

6. INFORMS DEI Ambassador Program, *To Future Medical Failures: The Extent of Racial and Gender Bias and Research*, 2023 (with Behshad Lahijanian and Nicoleta Serban)
5. ISyE DEI Fellows Mentorship Initiative, August 2022-July 2023
4. Panelist for Engineering, Data Science, and Coding Seth Bonder Youth Summer Camp by Kids Teach Tech, July 2022
3. Invited Guest Speaker, “Mentorship for Every Season: Receiving, Giving, and Finding Mentorship throughout Your Career”, BINDx (Black Industrial Engineers), University of Michigan, January 2022

2. Student Liaison and Alumni Recruitment Chair, Pitt EXCEL Alumni Council, University of Pittsburgh, 2020-2022
1. Keynote Speaker, Pitt EXCEL Homecoming Event, University of Pittsburgh, October 2020