Himadri S. Pandey

Ph.D. Candidate, Machine Learning — Georgia Tech

hpandey30@gatech.edu LinkedIn Google Scholar Atlanta, GA

Research Interests

Decision-focused learning, differentiable optimization, sequential decision-making under uncertainty, reinforcement learning, and constrained resource allocation — with applications in healthcare, clinical decision support, and large-scale infrastructure.

Education

Georgia Institute of Technology *Expected 2027*
Ph.D. in Machine Learning, School of Industrial and Systems Engineering (ISyE)

University of Cincinnati *2019*
B.S. in Computer Science, Minor in Mathematics and Physics | University Honors Scholar

Selected Honors and Awards

- Finalist| *Lee B. Lusted Student Prize Competition, SMDM Annual Meeting* *2026*
- Finalist| *3 Minute Thesis Competition, Georgia Tech* *2026*
- Phillip J. and Delores A. Scott Graduate Student Health and Wellness Award | *Georgia Tech* *2024, 2025, 2026*
- George Fellowship | *ISyE, Georgia Tech* *2024, 2025*
- Winner | *MIF Student Poster Competition, INFORMS* *2024*
- David Cowan Scholarship | *Georgia Healthcare Information and Management Systems Society* *2024*

Publications

Peer-Reviewed

- **Pandey, H.S.**, Schmidt, J.D., Lynall, R.C., McCrea, M.A., McAllister, T.W., Broglio, S.P., Pasquina, P.F., Garcia, G.G.P., & CARE Consortium Investigators. "Quantifying the Diagnostic Utility of Baseline Testing: An Analysis of Collegiate Athletes from the NCAA-DoD CARE Consortium Dataset." *The American Journal of Sports Medicine*, 53(1):181–191, 2025.
- Lempke, L.B., Boltz, A.J., Garcia, G.G.P., Syrydiuk, R.A., **Pandey, H.S.**, Pasquina, P.F., McCrea, M.A., McAllister, T.W., Broglio, S.P., & CARE Consortium Investigators. "Optimizing Baseline and Post-Concussion Assessments Through Factor Structure Analysis: Findings from the NCAA-DoD CARE Consortium." *The Clinical Neuropsychologist*, 2023.

Under Review / In Preparation

- **Pandey, H.S.**, Garcia, G.G.P., Lempke, L., McCrea, M.A., McAllister, T.W., Broglio, S.P., Pasquina, P.F., & CARE Consortium Investigators. "So Many Tests, So Little Time: Operationally Constrained Machine Learning for Diagnostic Assessment under Time Constraints." *Under 3rd Round Review, IISE Transactions*, 2026.
- **Pandey, H.S.**, Wang, K., & Garcia, G.G.P. "Neural Index Policies for Restless Multi-Action Bandits with Heterogeneous Budgets." *Under Review, ICML*, 2026.
- **Pandey, H.S.**, Garcia, G.G.P., "Feature Ranking using MIP for Machine Learning Models." *In Preparation.*

Book Chapters

- Lee, S.J., **Pandey, H.S.**, & Garcia, G.G.P. "Designing Interpretable Machine Learning Models Using Mixed Integer Programming." *Encyclopedia of Optimization*, 3rd ed., Springer, 2023.

Conference Proceedings & Preprints

- Schreiner, H., **Pandey, H.S.**, Sokoloff, M., Tomko, K., Hasse, C., & Hittle, B. "A Python Upgrade to the GooFit Package for Parallel Fitting." *CHEP 2018 Proceedings*, 2018.
- Schreiner, H., Hasse, C., Hittle, B., **Pandey, H.S.**, Sokoloff, M., & Tomko, K. "GooFit 2.0." *arXiv preprint*, 2017.

Presentations

Refereed Talks

- **Pandey, H.S.**, Wang, K., & Garcia, G.G.P. "Resource-Aware Decision Making for Pediatric Post-Surgical Monitoring via Neural Index Policies." *Society for Medical Decision Making (SMDM) Annual Meeting*, 2026.
- **Pandey, H.S.**, Schmidt, J.D., Lynall, R.C., McCrea, M.A., McAllister, T.W., Broglio, S.P., Pasquina, P.F., Garcia, G.G.P., & CARE Consortium Investigators. "Value of Baseline Testing in Concussion Diagnosis." *American College of Sports Medicine (ACSM) Annual Meeting*, 2024.
- **Pandey, H.S.** "Time Constrained Concussion Diagnosis: An Analysis of the NCAA-DoD CARE Consortium Dataset" *Poster, MIF Student Poster Competition (Winner), INFORMS Annual Meeting*, Arizona, WA, 2024.
- Schreiner, H., **Pandey, H.S.**, Sokoloff, M., Tomko, K., Hasse, C., & Hittle, B."A Python Upgrade to the GooFit Package for Parallel Fitting." *CHEP 2018 (Computing in High-Energy Physics)*, Sofia, Bulgaria, 2018.

Invited Talks

- **Pandey, H.S.**, Wang, K., & Garcia, G.G.P. "Neural Index Policies for Multi-Action Restless Multi-Armed Bandits with Heterogeneous Budgets." *INFORMS Healthcare Conference*, 2026.
- **Pandey, H.S.**, Garcia, G.G.P., Lempke, L., McCrea, M.A., McAllister, T.W., Broglio, S.P., Pasquina, P.F., & CARE Consortium Investigators. "So Many Tests, So Little Time: Operationally Constrained Machine Learning for Diagnostic Assessment under Time Constraints." *INFORMS Healthcare Conference*, 2026.
- **Pandey, H.S.**, Wang, K., & Garcia, G.G.P. "Neural Index Policies for Restless Multi-Action Bandits with Heterogeneous Budgets." *INFORMS Optimization Society Conference*, 2026.
- **Pandey, H.S.**, Wang, K., & Garcia, G.G.P. "Neural Index Policies for Restless Multi-Action Bandits with Heterogeneous Budgets." *INFORMS Annual Meeting*, 2025.
- **Pandey, H.S.**, *INFORMS "Smarter Decisions for a Better World" Flash Research Talks*, Morehouse College, Atlanta, GA, Sept. 2025.
- **Pandey, H.S** & Garcia, G.G.P. "Resource Allocation." *INFORMS Annual Meeting*, 2024.
- **Pandey, H.S.**, Garcia, G.G.P., Lempke, L., McCrea, M.A., McAllister, T.W., Broglio, S.P., & CARE Consortium Investigators. "Optimizing Concussion Assessment: A Mixed-Integer Optimization Approach with Time Constraints." *INFORMS Annual Meeting*, 2023.
- **Pandey, H.S.** "Using GooFit with Python." *DIANA-HEP Workshop*, 2018.

Prior Research Experience

Diana HEP Fellow, *CERN, Geneva, Switzerland* *April 2018 – June 2018*

AI Research Scholar, *MIT, Cambridge, MA* *Jan. 2018 – March 2018*

Undergraduate Research Assistant, *University of Cincinnati* *May 2016 – Dec. 2017*

Industry Experience

Applied Scientist Intern, *Amazon Web Services, Seattle, WA* *May 2025 – Aug. 2025*

- Designed AWS's first time-series forecasting framework for ML traffic between EC2 and S3 GPU fabrics, supporting long-term capacity planning.
- Cleaned and engineered large-scale, anomaly-prone datasets and incorporated multiple exogenous features into time-series models; presented results and insights directly to AWS customers.

Applied Scientist, *Lucas Systems, Pittsburgh, PA* *Aug. 2019 – June 2022*

- Developed and deployed solutions for warehouse operations — a heuristics- and regression-based **online order-batching system**, a **real-time workforce forecasting tool**, and a heuristics-based **storage-location assignment strategy** — collectively reducing average picking time by 26%.
- Built real-time data processing and ML deployment pipelines on Azure and AWS.
- Mentored two data scientists and organized knowledge-sharing talks ("Machine Learning 101," "Docker 101").

Software Enginnering Intern, *Pumpkin Inc, San Francisco, CA* *Jan. 2017 – March 2017*

- Developed flight onboard software for a Cubesat.
- Redesigned and built the company website.

Leadership and Service

Conference Service

Session Chair, *INFORMS Annual Meeting* *2024, 2026*

Session Chair, *IISE Annual Meeting* *2025*

Editorial and Reviewing

Conference Abstract Reviewer, *SMDM Annual Meeting* *2026*

Journal Reviewer, *BMJ Open Sport & Exercise Medicine* *2025*

Outreach

Invited Speaker — OR Outreach, *INFORMS Flash Research Talks, Morehouse College* *Sept. 2025*

University Service

Graduate Representative, *Emerging Leader Advisory Board, Georgia Tech* *2024 – 2025*

Bee Well Ambassador, *ISyE, Georgia Tech* *2023 – Present*

Mental Health Committee Member, *Graduate Student Government Association, Georgia Tech* *2023 – 2025*

Student Organization Leadership

President, *UC CubeCats, University of Cincinnati* *May 2017 – May 2018*

Teaching and Mentoring

Instructor – Machine Learning, *Georgia Institute of Technology* *Summer 2026*

Peer Leader, *University of Cincinnati* *Aug. 2016 – Dec. 2016*

Mentor, *CATiSE, UC CubeCats, University of Cincinnati* *Aug. 2016 – Dec. 2016*

Coding Mentor, *Google Ignite CS Bearcat Coders, University of Cincinnati* *Aug. 2015 – Dec. 2016*

Honors, Awards, and Fellowships

- Finalist| *Lee B. Lusted Student Prize Competition, SMDM Annual Meeting* *2026*
- Finalist| *3 Minute Thesis Competition, Georgia Institute of Technology* *2026*
- Phillip J. and Delores A. Scott Graduate Student Health and Wellness Award | *Georgia Tech* *2024, 2025, 2026*
- George Fellowship | *ISyE, Georgia Institute of Technology* *2024, 2025*
- Winner | *MIF Student Poster Competition, INFORMS* *2024*
- David Cowan Scholarship | *Georgia Healthcare Information and Management Systems Society* *2024*
- Topper Fellowship | *Georgia Institute of Technology* *2022*
- Employee of the Quarter (Q3) | *Lucas Systems* *2021*
- UC CEAS International Outreach Scholarship | *University of Cincinnati* *2015–2019*
- Best Senior Design Project (1st Prize) | *CEAS-Expo, University of Cincinnati* *2019*
- Dean's List (7/8 semesters) | *University of Cincinnati, CEAS* *2015–2018*
- CRA-W Grace Hopper Celebration Scholar *2018*
- DIANA-HEP Fellowship *2018*
- SmallSat Student Award | *Small Satellite Conference* *2016, 2017*

Technical Skills

Programming: Python, C++, Julia, SQL, Java, MATLAB

ML / Optimization Frameworks: PyTorch, TensorFlow, scikit-learn, Gurobi, JuMP

Methods: Decision-focused learning, differentiable optimization, reinforcement learning, POMDPs, mixed-integer programming, probabilistic models, deep learning

Tools / Infrastructure: Git/GitHub/GitLab, Docker, AWS, Azure, CMake, LaTeX

Last updated: April 28, 2026