

# Satender Gunwal

Ph.D. Student, Information and Decision Sciences  
University of Illinois Chicago

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## BACKGROUND

### Education

- **Ph.D. in Information and Decision Sciences**, College of Business Administration, University of Illinois Chicago 2023–Present  
*Tentative Dissertation: Learning-Augmented Planning for Reliability and Scarcity Allocation in Energy and Water Infrastructure Systems*  
Advisor: Professor Selvaprabu Nadarajah
- **B.S.–M.S. in Mathematical Sciences**, Indian Institute of Science Education and Research (IISER) Mohali 2016–2021

### Experience

- **Graduate Research Assistant**, University of Illinois Chicago, Chicago, IL, USA 2023–Present
  - **Research Intern**, Argonne National Laboratory, Lemont, IL, USA 2024
  - **Pre-doctoral Research Associate**, Indian Institute of Management Ahmedabad, Ahmedabad, India 2021–2023
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## RESEARCH PAPERS

### Working Papers

- **Learning-Augmented Power System Expansion Planning for Spatial Reliability.**  
**Satender Gunwal**, Selvaprabu Nadarajah, Todd Levin.  
In preparation for submission to *Operations Research*.

### Published

- **A Linear Programming-Based Hyper Local Search for Tuning Hyperparameters** ([Link](#)).  
Ankur Sinha, **Satender Gunwal**.  
*Operations Research Letters*, 61 (2025), Article 107287.  
LP formulations for bilevel hyperparameter tuning in machine learning models.

## Work In-Progress

- **Value-Based Best-in-Class Water Management Decisions for Hyperscale Data Centers.**  
Arman Aminipanah, Lisa Bonnett, **Satender Gunwal**, Selvaprabu Nadarajah.
  - **CLEAN in the Americas: Start Local, Unlock Financing, and Leverage Technology to Bridge Local Action and Global Goals.**  
**Satender Gunwal**, Selvaprabu Nadarajah, Collaborators.
  - **What Companies Say vs. What Matters: LLM Analysis of Biodiversity Disclosures in Oil and Gas.** (Preprints: [EarthArXiv](#), [SSRN](#)).  
Mahtab Danaei, **Satender Gunwal**, Selvaprabu Nadarajah.
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## TEACHING EXPERIENCE

- **Course Development Assistant** (with Professor Selvaprabu Nadarajah): Co-developed two courses at the University of Illinois Chicago - IDS 509: Foundations of Analytics and AI for Supply Chain and Operations Management, and IDS 494: Data-Driven Decisions for Sustainable Business.
  - **Teaching Assistant**, IDS 509: Foundations of Analytics and AI for Supply Chain and Operations Management, University of Illinois Chicago (Fall 2024, Spring 2025).
  - **Teaching Assistant**, IDS 494: Data-Driven Decisions for Sustainable Business, University of Illinois Chicago (Fall 2024, Spring 2025).
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## INVITED TALKS

### Learning-Augmented Power System Expansion Planning for Spatial Reliability

- Commodity and Energy Markets Association (CEMA) Annual Meeting, Houston, TX (2025).
- INFORMS Annual Meeting, ENRE Electricity, Atlanta, GA (2025).

### CLEAN In The Americas: Start Local, Unlock Financing, and Leverage Technology to Bridge Local Action and Global Goals

- Sustainability Research and Innovation (SRI) Congress (Workshop Session), Chicago, IL (2025).

### Corporate Nature & Biodiversity Reporting in CDP Disclosures: A Large Language Model Study.

- Biodiversity + Nature in Energy and Transportation (BNEAT) Meeting, Chesterton, IN (2025).
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## COMPUTATIONAL SKILLS

**Languages:** Python, R, MATLAB, C/C++, Java, SQL

**Optimization:** Gurobi, CVXPY, Pyomo

**ML / Data:** PyTorch, NumPy, Pandas, Scikit-learn

**Systems:** Linux, Git, HPC environments