

Yeonu Chae

Ph.D. Student, Industrial and Operations Engineering, University of Michigan
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EDUCATION

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| University of Michigan, Ann Arbor (Ann Arbor, MI, USA)
<i>Ph.D. Student in Industrial and Operations Engineering</i>
• Advisor: Prof. Siqian Shen. | <i>Aug 2025 – Present</i>
GPA: 4.00/4.00 |
| Seoul National University (Seoul, South Korea)
<i>B.S. in Industrial Engineering; B.S. in Artificial Intelligence</i>
• Interdisciplinary Major in Artificial Intelligence. | <i>Mar 2020 – Feb 2025</i>
GPA: 3.95/4.00; ranked 1st |

HONORS AND AWARDS

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- **Rackham Travel Grant.** Rackham Graduate School, University of Michigan, 2026.
 - **Optimization Grand Challenge 2024, Finalist.** Korean Institute of Industrial Engineers, 2024. Ranked 4th out of 370+ teams in the first round for an offline vehicle-sharing combinatorial optimization algorithm for food delivery.
 - **Lee Joong-Han Award, Academic Sector.** Seoul National University, 2024. Awarded annually to one individual for academic and research excellence in Industrial Engineering.
 - **Space Weather Prediction AI Competition, Finalist.** National Korea Space Center, 2023.
 - **Kwanjeong Undergraduate Fellowship, 2022–2024; SNU Women in Engineering Science Scholarship, 2022; Merit-Based Scholarship, SNU, 2021.**

PUBLICATIONS

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- **Yeonu Chae**, Mengshi Lu, and Siqian Shen. “Battery Degradation-aware Planning and Operations of Shared Electric Vehicle Fleets with Robust Satisficing.” To be submitted, 2026.
 - **Yeonu Chae**, Siqian Shen, and Mengshi Lu. “Infrastructure and Operations Co-Design for Mixed Autonomous and Human-Driven Ride-Hailing Fleets.” To be submitted, 2026.
 - Yong Jin Jeong, Hyunjae Kim, Sangwon Jung, Seongha An, **Yeonwoo Chae**, Gahyun Lee, Inwoo Kim, Jun Hee Lee, Chun Yong Kang, and Jang Wook Choi. “A Unified Deep Learning Framework for User-Driven Battery RUL Prediction.” In preparation for submission to *Energy & Environmental Science*, 2024.

PRESENTATIONS

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- “Battery Degradation-aware Planning and Operations of Shared Electric Vehicle Fleets with Robust Satisficing.” **INFORMS Transportation Science and Logistics Conference**, Boston, MA, July 26, 2026. Co-authors: Mengshi Lu and Siqian Shen.
 - “Infrastructure and Operations Co-Design for Mixed Autonomous and Human-Driven Ride-Hailing Fleets.” **2026 INFORMS Annual Meeting**, San Francisco, CA, Nov. 1–4, 2026. Co-authors: Siqian Shen and Mengshi Lu.

UNIVERSITY OF MICHIGAN COURSEWORK

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- IOE 610: Linear Programming II; IOE 611: Nonlinear Programming; IOE 614: Integer Programming; IOE 591: Transportation and Logistics System Optimization.
 - IOE 515: Stochastic Processes I; IOE 516: Stochastic Processes II.

RESEARCH EXPERIENCE

Graduate Research Assistant

University of Michigan; Advisor: Prof. Siqian Shen

Aug 2025 – Present

Ann Arbor, MI, USA

- Developed robust optimization models for battery-health-aware EV-sharing infrastructure planning and mixed-fleet ride-hailing operations under uncertainty.
- Built Python/Gurobi computational pipelines for large-scale network optimization, scenario-based evaluation, and out-of-sample performance analysis.

Research Assistant

Seoul National University; Advisor: Prof. Taesup Moon

Nov 2023 – Present

Seoul, South Korea

- Applied FEDformer, TimesNet, and non-stationary Transformer models to battery RUL prediction; improved prediction R^2 by approximately 110% through feature selection.

Research Assistant

Seoul National University; Advisor: Prof. Sungzoon Cho

Jun 2023 – Nov 2023

Seoul, South Korea

- Developed a heuristic clustering-based framework for categorical-variable selection in manufacturing data, with stock data used for validation.

PROFESSIONAL EXPERIENCE

Optimization Engineer

[Omelet](#), Seoul, South Korea

Jan 2025 – Jul 2025

- Developed optimization algorithms for demand forecasting and inventory-control decision support for a major convenience-store client.

TEACHING, MENTORING, AND LEADERSHIP

Head Teaching Assistant, AI Big Data Camp

Institute for Industrial Systems Innovation, Seoul National University

Aug 2023; Jan 2024

Seoul, South Korea

- Organized two AI Big Data Camps for 80+ high school students and coordinated 10 teaching assistants for lectures and hands-on sessions.

Peer Tutor in Industrial Engineering

Seoul National University; Nobel Leadership Camp

2021 – 2024

Seoul, South Korea

- Tutored operations research and statistics topics including Markov chains, Poisson processes, renewal theory, estimators, hypothesis testing, and regression.

Student Leadership and Community Building

University of Michigan and Seoul National University

2021 – Present

Ann Arbor, MI; Seoul, South Korea

- **Vice President**, Korean Graduate Student Council, University of Michigan.
- **President**, AI Research Club AttentionX, Seoul, South Korea.
- **Vice President**, Industrial Engineering Student Council, Seoul National University.

TECHNICAL SKILLS

Programming Languages: Python, C++, R, MATLAB, SQL

Libraries and Tools: PyTorch, TensorFlow, Scikit-learn, Pandas, NumPy, Git

Optimization: Gurobi, Xpress-MP, Mosel

Languages: Korean (native), English (fluent)