Ravit Pichayavet

niu.ravit@gmail.com • niuravit.github.io • in rpichayavet

Ravit Pichayavet is an Applied Scientist in Amazon Fulfillment Technology (AFT) Science. He completed his Ph.D. in Industrial Engineering (Supply Chain Engineering) at Georgia Tech's *H. Milton Stewart School of Industrial and Systems Engineering (ISyE)*, advised by *Professor Alan Erera*. His research focuses on the optimization of high-velocity logistics, specifically within middle-mile and last-mile operations. Ravit specializes in developing data-driven models and large-scale optimization technology for routing, scheduling, and resource allocation, in close collaboration with industry partners and using large-scale commercial datasets to solve complex, real-world logistics challenges.

Research Interests: Supply chain logistics, Middle-mile and last-mile logistics, Vehicle routing and scheduling, Resource allocation, Service network design, Large-scale optimization, Decomposition method, Machine learning

Education

- **Georgia Institute of Technology** — **Atlanta, GA, USA**
  Ph.D. in Industrial Engineering — *Jan 2021 – Dec 2026*
  - Major: **Supply Chain Engineering** | Minor: **Computation and Machine Learning**
  - Thesis: *Data-Driven Optimization of High-Velocity Logistics Systems: Addressing Challenges from Last-mile Delivery to Middle-mile Freight Management*
  - Cumulative GPA: 3.81/4.00 | Defended: **July 2026** | Degree conferred: **December 2026**

- **Georgia Institute of Technology** — **Atlanta, GA, USA**
  M.S. in Operations Research — *Jan 2021 – May 2026*
  - **Pursued concurrently** with Ph.D. coursework

- **Chulalongkorn University** — **Bangkok, Thailand**
  B.Eng. in Electrical Engineering — *Aug 2015 – July 2019*
  - Major: Electronics and Communication Engineering
  - GPA: **3.97/4.00** | **First Class Honors, Gold Medal** (Summa Cum Laude)

Skills

- **Optimization & Modeling:** Linear, Discrete, and Large-scale Optimization; Decomposition Methods (Column Generation, Benders Decomposition); Supply Chain and Logistics Network Design; Warehouse Management; Simulation and Stochastic Modeling
- **Programming:** Python (Advanced), Java, C#, C, Object-Oriented Programming (OOP), Git
- **Solvers & Mathematical Tools:** Gurobi, FICO Xpress, MATLAB, R
- **Data Science & Machine Learning Tools:** Data Mining, Supervised/Unsupervised Learning, Predictive Modeling, Statistical Analysis, Time-series Analysis (Scikit-learn, Pandas, NumPy), AWS
- **Languages:** Thai (Native), English (Fluent)

Experience

- **Applied Scientist** — **Amazon, Bellevue, WA**
  Amazon Fulfillment Technology (AFT) Science — *Aug 2026 – Present*

- **Applied Scientist Intern** — **Amazon, Bellevue, WA**
  Middle Mile Science, Less-than-truckload (LTL) Team — *May 2025 – Aug 2025*
  - Engineered and implemented a large-scale routing optimization module utilizing **Mixed-Integer Programming (MIP)**, **Column Generation**, and **Local Search Heuristics** to improve line-haul freight consolidation and routing within the North America middle-mile network.

- **Graduate Research Assistant** — **Georgia Tech, Atlanta, GA**
  Michelin North America: Demand-Driven Shipment Allocation — *July 2024 – July 2025*
  - Collaborated with the Physical Internet Lab to optimize strategic shipment planning and carrier resource procurement.
  - Developed a **stochastic optimization** model to determine optimal reservation strategies that minimize costs under high demand uncertainty.
  - Integrated **machine learning**-based demand forecasts into the optimization framework to balance pre-booked capacity with spot-market procurement.
- **Graduate Research Assistant** — **Georgia Tech, Atlanta, GA**
  UPS: Improvement Heuristics for Large-Scale LTL Networks — *July 2022 – July 2026*
  - Developed high-performance **local search heuristics** to address extremely **large-scale flow and load planning problems**.
  - Designed and implemented greedy improvement algorithms that iteratively identify and execute marginal reflowing optimizations across a massive logistics network to minimize operational costs.
- **Graduate Research Assistant** — **Georgia Tech, Atlanta, GA**
  SF Express: Rate-based Vehicle Routing Problem — *July 2021*
  - Optimized multi-echelon city logistics networks by modeling package transfers between regional hubs and localized micro-hubs or parcel lockers.
  - Developed a steady-state, rate-based vehicle routing model to determine optimal fleet sizing and route frequency, implemented via **Column Generation** for high-density urban operations.
- **Research Assistant** — **Chulalongkorn University, Bangkok**
  Vehicle Routing Problem with Drones — *July 2019 – Dec 2020*
  - Developed an exact MIP formulation to minimize total logistics costs for synchronized multi-truck and multi-drone delivery systems.
  - Implemented the optimization engine in **Python** using the **Gurobi** solver, benchmarking performance against traditional delivery models.

Teaching Experience

- **Graduate Student Instructor** — **Georgia Tech, Atlanta, GA**
  ISyE 3103: Supply Chain Modeling: Logistics — *Spring 2026*
  - Served as the **Lead Instructor** for an undergraduate course, delivering lectures on inventory management, freight transportation, and supply chain network design.

Conference Presentations

- **Marginal Cost Path Local Search for Large-Scale Consolidation Flow and Load Planning** — **San Francisco, CA**
  INFORMS Annual Meeting — *Nov 2026*
- **Data-Driven Freight Shipment Reservation Problem** — **Atlanta, GA**
  INFORMS Annual Meeting — *Oct 2025*
- **Improvement Heuristics for Extremely Large-Scale LTL Flow and Load Planning** — **Seattle, WA**
  INFORMS Annual Meeting — *Oct 2024*
  [Slides Available]
- **Rate-based Vehicle Routing Problem for Delivery in Densely Populated Urban Areas** — **Chicago, IL**
  INFORMS TSL Second Triennial Conference — *July 2023*
  [Slides Available]

Working Papers

- **Rate-based Vehicle Routing Problem for Delivery in Densely Populated Urban Areas**
  Internal Review

- **Improvement Heuristics for Extremely Large-Scale Parcel Consolidation Network**
  Working Paper
- **Data-Driven 3P Freight Shipment Resource Reservation Problem**
  Working Paper

Honors and Awards

- **Stewart M. Fellowship**, ISyE, Georgia Institute of Technology 2021
- **Day Fellowship**, ISyE, Georgia Institute of Technology 2021
- **King Anandamahidol Scholarship (Engineering)**, The King Anandamahidol Foundation 2019
  - The most prestigious national scholarship in Thailand, awarded to the top engineering graduate to pursue doctoral studies abroad.
- **Certificate of Outstanding Academic Achievement**, Chulalongkorn University 2019
  - Recognition for achieving the highest GPA among all engineering graduates (Gold Medal).