JAIKE VAN TWILLER

Researcher with a passion for data-driven decision-making

jaike-van-twiller Publications on Google Scholar Github Repo

ABOUT ME

As an academic, I am committed to advancing sustainability for future generations. My research focuses on minimizing resource consumption and improving efficiency through operations research and data science projects. Through data-driven solutions, I develop optimization models with a balanced impact: improving environmental sustainability, societal well-being, and industrial efficiency.

EXPERIENCE

Postdoctoral Reseacher (1.0 FTE)

IT University of Copenhagen

July 2025 – Present day Copenhagen, Denmark

- Researching artificial intelligence for transportation, including hybrid metaheuristics of machine learning and large neighborhood search applied to planning problems in maritime logistics.
- Lecturing on reinforcement learning and coordinating with teaching assistants for the *Introduction to Artificial Intelligence* course.
- Supervising projects of bachelor's and master's students.
- Writing grant proposals, reviewing journal/conference papers, and establishing international collaborations for research and education.

PhD Fellow (1.0 FTE)

IT University of Copenhagen

April 2022 – June 2025 Copenhagen, Denmark

- Researching machine learning for combinatorial optimization applied to planning problems in maritime logistics.
- Lecturing on reinforcement learning and coordinating with teaching assistants for the *Introduction to Artificial Intelligence* course.
- Co-supervising projects of bachelor's and master's students.
- Supporting Maritime Hub to facilitate collaboration between students, researchers, and the maritime industry.

Visiting Researcher (1.0 FTE)

HEC Montréal

January 2024 – June 2024 Montréal, Canada

- Researching integrated machine learning and optimization for decision making under uncertainty.
- Student member at Group for Research in Decision Analysis (GERAD) and Mila - Quebec Artificial Intelligence Institute.

STRENGTHS

Analytical Thinking | Solution Oriented | Quantitative Research | Academic Writing | Public Speaking | Lecturing | Supervision

EDUCATION

Doctor of Philosophy in Computer Science

IT University of Copenhagen

April 2022 – Present day

- Thesis: *"Learning and Combinatorial Optimization for Efficient Container Vessel Stowage Planning"*
- Research visit at HEC Montréal

Master of Science in Operations Management & Logistics

Eindhoven University of Technology
GPA: 4.0 or 8.0/10

Sept 2019 – Nov 2021

- Thesis: *"Stochastic Program to Allocate Product Groups to Storage Capacity"*
- Exchange semester at Technical University of Denmark, thesis project at Novonesis.

Premaster in Operations Management & Logistics

Eindhoven University of Technology
GPA: 3.0 or 7.0/10

Sept 2018 – June 2019

- Prerequisite courses to enroll in MSc

Bachelor of Science in Industrial Engineering

Amsterdam University of Applied Sciences
GPA: 3.0 or 7.0/10

Sept 2013 – June 2018

- Thesis: *"Optimizing Preventive Maintenance of Electrical Operations in Airport Terminals"*
- Minor: *"Change Management & Leadership"*

Data Analyst (0.8 FTE)

Graniet Import B.V.

Jan 2022 – March 2022 | Amsterdam, The Netherlands

- Built dashboards to support operational decisions using data engineering and business intelligence tools.

MSc Graduate Student (1.0 FTE)

Novonesis

Feb 2021 – Nov 2021 | Bagsværd, Denmark

- Conducted thesis on developing a decision-support tool to minimize expected warehouse costs in a global supply chain network.
- Integrated two-stage stochastic mixed-integer programming with demand simulation and clustering algorithms

BSc Graduate Student (1.0 FTE)

Schiphol Group

Nov 2017 – Jul 2018 | Schiphol, The Netherlands

- Thesis on optimizing electrical maintenance with business process management, lean Six Sigma and statistical analysis.
- Formulating process optimization and data availability recommendations to support operational decision-making.

Research Student (1.0 FTE)

Boon Edam Nederland

Feb 2016 – Jul 2016 | Edam, The Netherlands

- Researching reduced warranty costs of service operations by applying the Lean Six Sigma methodology.
- Presenting operational and informational recommendations to reduce the expected warranty costs.

EXTRACURRICULAR

PhD Club Committee Member (0.1 FTE)

IT University of Copenhagen

Sep 2023 – Sep 2024 | Copenhagen, Denmark

- General committee member responsible for organizing events.

Board Chairman (0.2 FTE)

Student Association NoNoMes

Jul 2018 – Jul 2019 | Amsterdam, The Netherlands

- Chairman responsible for policy-making, leading general assemblies and coordinating with the secretary and treasurer.

Property Treasurer (1.0 FTE)

Student Association NoNoMes/Foundation DHZ

Oct 2016 – Oct 2017 | Amsterdam, The Netherlands

- Property management in collaboration with property chairman and property secretary to accommodate members.
- Treasurer is responsible for the financial management of procurement, sales, cash flows and capital investments of the property.

TECHNICAL SKILLS

Operations Research
Stochastic programs, Combinatorial optimization, Maritime transport and logistics, Inventory and capacity planning, Supply chain analysis

Artificial Intelligence
Reinforcement learning, Deep generative models, Graph representation learning, Unsupervised learning, Time series forecasting, Multivariate statistics, Business intelligence and visualization, Process mining

Programming & Software
Python, PyTorch, Gurobi, CPLEX, Git, Weights & Biases, Linux, SLURM, Power BI, MS Excel, SAP

LANGUAGES

Dutch
English
Danish

CERTIFICATES

Lean Six Sigma Green Belt

Skoledo

Jan 2018

REFEREES

Rune Møller Jensen, Associate Professor
@ IT University of Copenhagen
rmj@itu.dk

Agniezska Sivertsen, Industrial PhD Student
@ Sealytix
agnieszka.sivertsen@sealytix.com

PERSONAL INTERESTS

Sustainability | Technological innovation | Stock market | Change management | Politics | Football | Traveling | Music

PUBLICATIONS

Journals:

- Jaike van Twiller, Djordje Grbic, and Rune Møller Jensen. 2025. *AI2Stow: End-to-End Deep Reinforcement Learning to Construct Master Stowage Plans on Container Vessels.* Under Review.
- Jaike van Twiller, Agnieszka Sivertsen, Dario Pacino, and Rune Møller Jensen. 2024. *Literature survey on the container stowage planning problem.* European Journal of Operational Research.

Conferences:

- Jaike van Twiller, Yossiri Adulyasak, Erick Delage, Djordje Grbic, and Rune Møller Jensen. 2025. *Navigating Demand Uncertainty in Container Shipping: Deep Reinforcement Learning for Enabling Adaptive and Feasible Master Stowage Planning.* Under Review.
- Jaike van Twiller, Agnieszka Sivertsen, Rune Møller Jensen, and Kent H Andersen. 2024. *An Efficient Integer Programming Model for Solving the Master Planning Problem of Container Vessel Stowage.* International Conference on Computational Logistics.
- Jaike van Twiller, Djordje Grbic, and Rune Møller Jensen. 2023. *Towards a Deep Reinforcement Learning Model of Master Bay Stowage Planning.* International Conference on Computational Logistics.
- Mathias Offerlin Herup, Gustav Christian Wichmann Thiesgaard, Jaike van Twiller, and Rune Møller Jensen. 2022. *A Linear Time Algorithm for Optimal Quay Crane Scheduling*. International Conference on Computational Logistics.

PRESENTATIONS

Plenary talks:

- 25th DNV Nordic Maritime Universities Workshop. 2025. *Deep Reinforcement Learning for Revenue Management under Uncertainty in Master Stowage Planning on Container Vessels.* Lyngby, Denmark.
- International Conference on Computational Logistics. 2024. *An Efficient Integer Programming Model for Solving the Master Planning Problem of Container Vessel Stowage.* Monterrey, Mexico.
- European Conference on Operational Research. 2024. *An End-to-End Deep Reinforcement Learning Model for Master Stowage Planning on Container Vessels.* Lyngby, Denmark.
- Odysseus Workshop. 2024. *Deep Reinforcement Learning for Master Bay Stowage Planning.* Carmona, Spain.
- Journées d'Optimzation. 2024. *An End-to-End Deep Reinforcement Learning Model for Master Stowage Planning on Container Vessels*. Montréal, Canada.
- International Conference on Computational Logistics. 2023. *Towards a Deep Reinforcement Learning Model of Master Bay Stowage Planning.* Berlin, Germany.
- International Conference on Computational Logistics. 2022. *Deep Reinforcement Learning for Master Bay Planning on Container Vessels.* Barcelona, Spain.

Poster talks:

- D3A 2.0 Conference. 2024. *An End-to-End Deep Reinforcement Learning Model for Master Stowage Planning on Container Vessels.* Nyborg, Denmark.
- Nordic AI Meet. 2023. *Towards a Deep Reinforcement Learning Model of Master Bay Stowage Planning.* Copenhagen, Denmark.

TEACHING

Lecturing Reinforcement Learning in Introduction to Artificial Intelligence (BSc/MSc course)

IT University of Copenhagen

Spring Semester 2023 & 2025 — Copenhagen, Denmark

Head Teaching Assistant in Introduction to Artificial Intelligence (BSc/MSc course)

IT University of Copenhagen

Spring Semester 2023 & 2025 — Copenhagen, Denmark

PROJECT SUPERVISION

Data Engineering for Container Tarif Classificaiton (MSc)

IT University of Copenhagen & A.P. Møller-Maersk

Spring Semester 2024 — Copenhagen, Denmark

Metaheuristics to Optimize Multi-Vessel Container Terminal Operations (MSc)

IT University of Copenhagen & APM Terminals

Spring Semester 2024 — Copenhagen, Denmark

Applying Monte Carlo Tree Search to UNO: Dealing with Randomness and Hidden Information (BSc)

IT University of Copenhagen

Spring Semester 2023 — Copenhagen, Denmark

Linear Time Algorithm for Quay Crane Scheduling at Container Terminals (BSc)

IT University of Copenhagen

Spring Semester 2022 — Copenhagen, Denmark