ODYSSEUS 2024 Scientific Programme

Monday 20 May. 9:30-11:00

MA1. (Room 1) Vehicle Routing Problems I. Chair: Alberto Guastalla

- Lucas Sippel and Michael Forbes. *A Fragment-Based Approach for Vehicle Routing Problems*
- Sylvain Lichau, Ruslan Sadykov, Julien François and Rémy Dupas. *Branch-Cut-And-Price Algorithm for Vehicle Routing Problem with Drones*
- Alberto Guastalla and Roberto Aringhieri. *An exact algorithm for a new variant of the Team Orienteering Problem*

MA2. (Room 6) Machine Learning I. Chair: Fausto Errico

- Daniel Müllerklein, Pirmin Fontaine and Janosch Ortmann. *A supervised machine learning approach for replenishment order decisions under transportation cost uncertainty*
- Nadia Ghernaout, Martin Cousineau, Christelle Guéret and David Rivreau. *A gas pipeline surveillance problem solved with a two-phase iterative approach using machine learning techniques*
- Fausto Errico, Mohsen Dastpak and Ola Jabali. *A Deep Reinforcement Learning Algorithm for the Vehicle Routing Problem with Stochastic Demands and Outsourcing*

MA3. (Room 5) Maritime Logistics I. Chair: Jaike van Twiller

- Letícia Caldas, Rafael Martinelli and Michel Gamache. *A Metaheuristic Approach for the Dynamic Berth Allocation Problem*
- Agnieszka Sivertsen, Line Reinhardt and Rune M. Jensen. *A novel formulation of the container stowage planning problem and initial results*
- Jaike van Twiller, Djordje Grbic and Rune Møller Jensen. *Deep Reinforcement Learning for Master Bay Stowage Planning*

Monday 20 May. 11:00-11:30 COFFEE BREAK

Monday 20 May. 11:30-13:00

MB1. (Room 1) Vehicle Routing Problems II. Chair: Michael Forbes

- Ignacio Erazo and Alejandro Toriello. *Submodular Dispatching with Multiple Vehicles*
- Federico Michelotto, Daniele Vigo, Demetrio Laganà and Roberto Musmanno. *A parallel metaheuristic framework for the Capacitated Vehicle Routing Problem*
- Michael Forbes and Lucas Sippel. *Vehicle Inventory Models for Direct Delivery Scheduling Problems*

MB2. (Room 6) Machine Learning II. Chair: Pantelis Lappas

- Christian Truden and Mike Hewitt. *Machine-Learning-Based Prediction of Multi-Compartment Vehicle Fleet Performance*
- Sifa Celik, Albert H. Schrotenboer, Layla Martin and Tom Van Woensel. *Deep Controlled Learning for the Dynamic Time Window Assignment Vehicle Routing Problem with Stochastic Travel Times*
- Luca Bertazzi, Demetrio Laganà and Pantelis Lappas. *A Machine Learning-assisted Algorithm for Solving the Unsplit Capacitated Vehicle Routing Problem*

MB3. (Room 5) Maritime Logistics II. Chair: Marco Silva

- Asefe Forghani, Line Reinhardt and Dario Pacino.*A two-stage stochastic model for dual cycling under uncertain RoRo cargo arrival*
- Marco Silva, Nabil Absi, Dominique Feillet, Azzedine Cheref, Pauline Mamour and Hamza Ben Ticha. *Impact of port volume commitment in container routing while considering real-life constraints*

Monday 20 May. 13:00-15:00 LUNCH

Monday 20 May. 15:00-16:30

MC1. (Room 1) Network Design. Chair: Mathieu Dahan

- Francesco Contu, Teodor Crainic, Massimo Di Francesco and Enrico Gorgone. *A multi – commodity location – network design problem with vehicle selection in City Logistics*
- Imen Ben Mohamed, Walid Klibi and Florian Bertrand. *Urban network design with ship-from store option*
- Onkar Kulkarni, Mathieu Dahan and Benoit Montreuil. *Resilient Relay Logistics Network Design Using k Shortest Paths*

MC2. (Room 6) Pickup & Delivery I. Chair: Sanne Wøhlk

- Timo Gschwind, Marjolein Aerts-Veenstra and Marilène Cherkesly. *A Unified Branch-Price-and-Cut Algorithm for Multi-Compartment Pickup and Delivery Problems*
- Casper Bazelmans and Albert Schrotenboer. *Price-and-Branch for a Real-Life Multidepot Pickup and Delivery Problem with Scheduled Lines*
- Sanne Wøhlk, José Belenguer and Maximiliano Cubillos. *A Branch and Cut algorithm for a skip pick-up and delivery problem*

MC3. (Room 5) Humanitarian/healthcare Logistics. Chair: Diana Ramirez-Rios

- Rosemarie Santa Gonzalez and Teodor Gabriel Crainic. *A Stochastic Prize Collection Methodology for Mobile Clinic Deployment Planning*
- Jessa Rhea and Jeffrey Ohlmann. *Disaster Response on a Network with Stochastic Demand and Uncertain Edge Accessibility*
- Diana Ramirez-Rios and José Holguín-Veras. *A Discrete-Continuous Approximation Model for Optimal Facility Location in Disaster Response Logistics*

Monday 20 May. 16:30-17:00 COFFEE BREAK

Monday 20 May. 17:00-18:30

MD1. (Room 1) Service Network Design I. Chair: Teodor Gabriel Crainic

- Gita Taherkhani, Mojtaba Hosseini and Ali Hassanzadeh. *Exact solution methods for an integrated multi-stakeholder freight transportation system with stochastic demand*
- Olivier Péton, Oscar H. Ariztegui Beltrán, William J. Guerrero Rueda and David L. Cortés Murcia. *Service network design for freight transportation in a river network*
- Teodor Gabriel Crainic, Bita Payami Shabestari, Ioana Bilegan and Walter Rei. *Service Network Design with Uncertainty on Water Levels for Intermodal River Transport*

MD2. (Room 6) Pickup & Delivery II. Chair: Sara Stoia

- Muchammad Arya Zamal, Albert H. Schrotenboer and Tom Van Woensel. *A Real-Life Stochastic and Dynamic Pickup-and-Delivery Problem in Megacities*
- Jessica Wang Yuan and Jintao You. *Planning of Truck Platoons: An Exact Solution for The Multi-trip Pickup and Delivery Problem*
- Sara Stoia, Jeffrey Ohlmann, Demetrio Laganà and Francesca Vocaturo. *Analysis of Locker Usage and Crowdshipping in Stochastic Pickup-and-Delivery*

MD3. (Room 5) Air transportation. Chair: Irina Gribkovskaia

- Alan Erera, Ritesh Ojha, Wenbo Chen, Hanyu Zhang, Pascal Van Hentenryck. *Learning to Optimize Load Plans with Volume Splitting*
- Enrico Angelelli, Claudia Archetti and Lorenzo Peirano. *The Air Transport Unit Consolidation Problem*
- Irina Gribkovskaia and Gaute Øiestad Slettemark. *Tactical offshore helicopter planning*

Tuesday 21 May. 9:30-11:00

TA1. (Room 1) Service Network Design II. Chair: Giacomo Lanza

- Adrien Nicolet and Bilge Atasoy. *Choice-Driven Service Network Design and Pricing in a Competitive Environment*
- Simon Belieres and Mike Hewitt. *Stochastic Scheduled Service Network Design Problem with Flexible Schedules: mathematical formulations and exact approaches*
- Giacomo Lanza, Teodor Gabriel Crainic, Mauro Passacantando and Maria Grazia Scutellà. *Continuous Time Formulation to Scheduled Service Network Design with Stochastic Travel Times*

TA2. (Room 6) Vehicle Routing Problem extensions I. Chair: Nicolas Cabrera

- Simone Zanda, Massimo Di Francesco and Roberto Wolfler Calvo. *Branch and price for heterogeneous multi-compartments vehicles routing problem*
- Edgar Ricardo Silva Russi, Nacima Labadie and Caroline Prodhon. *A Matheuristic for the Grey Zone 2E-VRP with Covering Options, Multi-trip and Synchronization*
- Nicolas Cabrera, Jean-Francois Cordeau and Jorge E. Mendoza. *The Workforce Scheduling and Routing Problem with Park-and-loop*

TA3. (Room 5) Last-Mile Delivery I. Chair: Matthew Roorda

- Stefan Voigt, Markus Frank and Heinrich Kuhn. *Last mile delivery routing problem with some-day option*
- Sara Reed and Michael Lash. *Value of Real-Time Parking Information for Routing Last-Mile Delivery*
- Mohammad Hesam Rashidi, Mehdi Nourinejad and Matthew Roorda. *A Learning Framework for Generating Practical Last-mile Delivery Routes*

Tuesday 21 May. 11:00-11:30 COFFEE BREAK

Tuesday 21 May. 11:30-13:00

TB1. (Room 1) Service Network Design III. Chair: Alexander Bode

- Sara Khodaparasti, Maria Elena Bruni, Teodor Gabriel Crainic, Guido Perboli and Walter Rei. *Scheduled Service Network Design with Packing Considerations*
- Daniel M Ocampo-Giraldo, Ana María Anaya-Arenas and Janosch Ortmann. *Collective Distribution Network Design Problem*
- Alexander Bode, Mike Hewitt, Dirk Mattfeld and Marlin Ulmer. *Dynamic Service Network Design*

TB2. (Room 6) Vehicle Routing Problem extensions II. Chair: Dominique Feillet

- Jingyi Zhao, Tuan Anh Pham and Thibaut Vidal. *A hybrid genetic algorithm for the inventory routing problem*
- Sara Charaf, Duygu Tas, Simme Douwe Flapper and Tom Van Woensel. *Solving the Two-Echelon Inventory-Routing Problem: A Matheuristic Approach*
- Maxime Agius, Nabil Absi, Dominique Feillet and Thierry Garaix. *Heuristic and exact algorithms for a vehicle routing problem with route cost equity constraints*

TB3. (Room 5) Last-Mile Delivery II. Chair: Deborah Pareo

- Andreas Barstad, Peter Schütz, Mohamed Kais Msakni and Lars Magnus Hvattum. *Breaking down The Amazon Routing Challenge: A heuristic approach for the clustered TSP*
- Alberto Santini, Claudia Archetti and Minakshi Punam Mandal. *Tactical staffing and workforce scheduling decisions for green last-mile delivery*
- Gianpaolo Ghiani, Emanuela Guerriero, Emanuele Manni and Deborah Pareo. *Combining ground drones, public transportation and traditional vehicles in last-mile distribution*

Tuesday 21 May. 13:00-15:00 LUNCH

Tuesday 21 May. 15:00-16:30

TC1. (Room 1) City Logistics. Chair: Julia Lange

- Johannes Gückel, Pirmin Fontaine and Teodor Gabriel Crainic. *A large neighborhood search for tactical planning in cooperative two-tier city logistics systems*
- Simon Kwon, Walid Klibi, Mathieu Dahan and Benoit Montreuil. *Bid Construction for Urban Parcel Logistics via Combinatorial Auctions*
- Julia Lange, Teodor Crainic, Timo Gschwind and Walter Rei. *A Construction Matheuristic for Two-Tier Synchronized City Logistics*

TC2. (Room 6) Vehicle Routing Problems extensions III. Chair: Juan Jose Miranda Bront

- Aitor López Sánchez, Frederic Semet, Marin Lujak and Holger Billhardt. *Agricultural fleet vehicle routing problem with implements*
- Yannick Oskar Scherr, Margaretha Gansterer and Richard F. Hartl. *The impact of profit sharing on collaborative vehicle routing with dynamic request acceptance*
- Juan Jose Miranda Bront and Gonzalo Lera Romero. *Solving a Joint Vehicle Routing and Generalized Assignment Problem via Column Generation*

TC3. (Room 5) Equilibrium/bilevel models. Chair: Elena Fernández

- Juan G. Villegas R., Jose Fernando Camacho-Vallejo and Alejandro Montoya. *The bilevel vehicle routing problem with private fleet and external drivers*
- Cristián E. Cortés, Pablo A Rey and Vanesa Vansteenkiste. *Integrated network equilibrium model for private cars and urban logistic systems*
- Elena Fernández, Ivana Ljubic and Nicolas Zerega. *The Multicommodity Flow Problem with Outsourcing Decisions*

Tuesday 21 May. 16:30-17:00 COFFEE BREAK

Tuesday 21 May. 17:00-18:30

TD1. (Room 1) Crowd shipping. Chair: Simona Mancini

- Alp Arslan, Firat Kilci, Shih-Fen Cheng and Archan Misra. *Choice-based Crowd-shipping for Next-day Delivery Services: A Dynamic Task Display Problem*
- Patrick Stokkink, Alfio Simone Mosset and Nikolas Geroliminis. *Reward Strategy in a Large-scale Urban Crowd-shipping System*
- Simona Mancini, Margaretha Gansterer and Chefi Triki. *Touting occasional drivers for mid-haul delivery*

TD2. (Room 6) Bike deliveries and bike sharing. Chair: Diego Cattaruzza

- Christian Håkon Torsten Inngjerdingen, Simen Aksland Møller, Steffen J.S. Bakker, Henrik Andersson and Mohamed Ben Ahmed. *Incorporating Neighborhood Interactions in Bike Sharing Rebalancing*
- Felix Spühler, Dirk Mattfeld and Mike Hewitt. *Integration of Rider Preferences into the Route Planning of Bicycle Courier Services*
- Diego Cattaruzza, Yanlu Zhao, Ningxuan Kang and Roberto Roberti. *Synchronized Deliveries with a Bike and a Self-Driving Robot*

TD3. (Room 5) Hub location. Chair: Nicolás Zerega

- Gita Taherkhani, Mojtaba Hosseini and Sibel Alumur. *Sustainable hub location under uncertainty*
- Esteban Ogazón, Ana María Anaya-Arenas and Angel Ruiz. *The hub line location problem with time-definite deliveries*
- Nicolás Zerega and Elena Fernández. *2-Index formulation for Multiple Allocation Hub Location Problems*

Thursday 23 May. 9:30-11:00

ThA1. (Room 1) Stochastic Vehicle Routing Problems I. Chair: Jean-François Côté

- Ymro Hoogendoorn and Remy Spliet. *An evaluation of common modeling choices for the vehicle routing problem with stochastic demands*
- Jean-François Côté, Lucas Parada, Robin Legault and Michel Gendreau. *The disaggregated integer L-shaped method for the stochastic vehicle routing problem*

ThA2. (Room 6) Electric Vehicles. Chair: Guy Desaulniers

- Magnus Stålhane, Gaute Messel Nafstad and Guy Desaulniers. *Branch-Price-and-Cut for the Electric Vehicle Routing Problem with Multiple Recharging Technologies and Nonlinear Recharging Functions*
- Jorge E. Mendoza, Lingxiao Wu, Asma Mdimagh, Yossiri Adulyasak and Jean-Francois Cordeau. *Tractor electrification and charging infrastructure deployment on a container port: a Benders decomposition approach*
- Guy Desaulniers, Daniel Yamin and Jorge E. Mendoza. *The electric vehicle routing and overnight charging scheduling problem on a multigraph*

ThA3. (Room 5) Train and multimodal transportation. Chair: Wenjing Guo

- Ricardo Garcia-Rodenas, Esteve Codina, Luis Cadarso, Maria Luz Lopez-Garcia and José Ángel Martín-Baos. *An optimal control model for determining freight rail transport access costs*
- Louis Fourcade, Stéphane Dauzère-Pérès and Juliette Pouzet. *Integrated Optimization of Train Path Assignment and Rolling Stock Planning in Rail Freight Transportation*
- Wenjing Guo, Teodor Gabriel Crainic, Michel Gendreau, Wenfeng Li and Walter Rei. *Dynamic shipment-to-service matching for interurban transportation systems with multimodal networks*

Thursday 23 May. 11:00-11:30 COFFEE BREAK

Thursday 23 May. 11:30-13:00

ThB1. (Room 1) Stochastic Vehicle Routing Problems II. Chair: Michel Gendreau

- Ali Kermani, Jean-François Cordeau and Raf Jans. *The Impact of Service Levels in Stochastic Production Routing with Adaptive Routing*
- Alessandro Gobbi, Daniele Manerba and Francesca Vocaturo. *Vehicle Routing Problem with Divisible Deliveries and Pickups under Demand Uncertainty*
- Michel Gendreau, Alline Zanette, Jorge E. Mendoza and Walter Rei. *A two-stage stochastic programming model with recourse for a Production Routing Problem with uncertain availability of vehicles*

ThB2. (Room 6) Charging infrastructure. Chair: Tommaso Schettini

- Carlo Filippi, Gianfranco Guastaroba, Lorenzo Peirano and M. Grazia Speranza. *Incorporating time-dependent demand patterns in the optimal location of capacitated charging stations*
- Tommaso Schettini, Fausto Errico, Jorge E. Mendoza and Carolina Osorio. *Optimizing Electric Vehicle Charger Locations for Ride-hailing Services through Discrete Simulation-based Optimization*

ThB3. (Room 5) Capacity Issues. Chair: Shu Zhang

- Maxime Bouscary, Alexandra Li, Mazen Danaf, Aron Brenner and Saurabh Amin. *Integrated Load Bundling and Pricing for Decarbonized Freight Operations*
- Shu Zhang, Zhiwei Zhang and Justin Goodson. *Dynamic Capacity Management for Crowdsourced Delivery*

Thursday 23 May. 13:00-15:00 LUNCH

Thursday 23 May. 15:00-16:30

ThC1. (Room 1) Routing under Uncertainty. Chair: Antoine Legrain

- Alice Raffaele, Demetrio Laganà and Roberto Roberti. *Robust Policies for a Multi-Stage Assignment Problem under Demand Uncertainty*
- Ginger Ke, Jiahong Zhao and Jianfeng Chen. *A data-driven location-routing optimization for sustainable medical waste management*
- Öykü Naz Attila, Antoine Legrain and Quentin Cappart. *Hub Transportation Problem with Chance Constrained Due Dates*

ThC2. (Room 6) Picker Routing in Warehouses I. Chair: Catherine Lorenz

- Charlotte Köhler, Ann Campbell and Jan Fabian Ehmke. *Order Picking for E-Grocery*
- Pablo Torrealba, Dominique Feillet, Maxime Ogier and Frédéric Semet. *A column generation approach to solve the Joint Order Batching and Picker Routing Problem with picker congestion*
- Catherine Lorenz, Alena Otto and Michel Gendreau. *Reoptimization in Picker-to-Parts Warehouses in E-Commerce: Asymptotic Analysis*

ThC3. (Room 5) Location-routing. Chair: Walter Rei

- Guillaume Massonnet and Juliette Medina. *Data-driven distributionally robust approach for the joint chance-constrained location routing problem with uncertain demands*
- Alexander Rave and Pirmin Fontaine. *The location routing problem with load-dependent travel times for cargo bikes*
- Walter Rei, Teodor Crainic, David Escobar-Vargas and Stein W. Wallace. *The Two-Echelon Multicommodity Location-Routing Problem with Stochastic and Correlated Demands*

Thursday 23 May. 16:30-17:00 COFFEE BREAK

Thursday 23 May. 17:00-18:00

ThD1. (Room 1) Intermodal transportation. Chair: Nabil Absi

- Chenghao Wang, Ioana C. Bilegan, Walter Rei and David Duvivier. *Addressing water level uncertainty for inland waterway transportation: a partially joint chance-constrained programming approach*
- Diana Abi-Nader, Nabil Absi, Dominique Feillet, Thierry Garaix and Taki Eddine Korabi. *An Efficient Large Neighborhood Search for the Daily Drayage Problem with Synchronization*

ThD2. (Room 6) Picker Routing in Warehouses II. Chair: Stefan Irnich

- Thibault Prunet, Nabil Absi, Valeria Borodin and Diego Cattaruzza. *Efficient Move Evaluation and Neighborhood Exploration for Integrated Order Picking Planning Problems in Picker-to-Parts Warehouses*
- Stefan Irnich and Kathrin Heßler. *Exact Solution of the Single Picker Routing Problem with Scattered Storage*

ThD3. (Room 5) Arc routing. Chair: Isaac Plana

- Teresa Corberán, Isaac Plana and José María Sanchis. *The Min Max Multi–Trip drone Location Arc Routing Problem*
- Isaac Plana, Teresa Corberán and José María Sanchis. *A branch-and-price algorithm for the Min-Max Multi-trip Location Arc Routing Problem*

Friday 24 May. 10:00-11:30

FA1. (Room 1) Online and real-time problems I. Chair: Elahe Amiri

- Jorge Mortes Alcaraz, Martin Cousineau, Fabien Lehuédé, Jorge E. Mendoza and Maria I. Restrepo. *Algorithms for solving the On-Demand Bus Routing Problem with Bus Stops Assignment*
- Elahe Amiri, Antoine Legrain and Issmaïl El Hallaoui. *Anytime optimization approach for online dial-a-ride problem*

FA2. (Room 6) Distribution network planning. Chair: Lucas Baussay

- Mario Guajardo and Christian Braathen. *Assessing the Impact of Driver Overtime in the Transportation of Flowers through a Retail Network*
- Francois Lamothe and Sandra Ulrich Ngueveu. *Cost assignment in delivery systems*
- Lucas Baussay, Audrey Cerqueus, Mike Hewitt, Fabien Lehuédé and Juliette Medina. *Selecting Delivery Patterns in a Two-Echelon Distribution Problem with Load Balancing*

FA3. (Room 5) Electric Bus Scheduling. Chair: Yue Su

- Xenia Haslinger, Elisabeth Gaar and Sophie N. Parragh. *Solving practical single- and multi-depot electric bus scheduling problems*
- Malte Billen, Jörg Kalcsics, Sergio Garcia, Goncalo Dos Reis and Adrian Grütter. *A Column-Generation Algorithm for the Intercity Electric Bus Scheduling Problem*
- Yue Su, Sophie Parragh, Jakob Puchinger and Nicolas Dupin. *The Bi-objective Electric Autonomous Dial-A-Ride Problem*

Friday 24 May. 11:30-12:00 COFFEE BREAK

Friday 24 May. 12:00-13:30

FB1. (Room 1) Online and real-time problems II. Chair: Katrin Waßmuth

- Maximiliano Cubillos, Justin Goodson, Ola Jabali and Elena Tappia. *A Rollout Algorithm for Truck Scheduling Using Estimated Time of Arrival*
- Gustavo Hurovich, Lucas Veelenturf and Niels Agatz. *Real-Time Routing Cost Predictions for Time Slot Management*
- Katrin Waßmuth, Niels Agatz and Moritz Fleischmann. *An evaluation model for time window templates in online grocery delivery*

FB2. (Room 6) Packing and Consolidation. Chair: Pirmin Fontaine

- Cosku Can Orhan, Stein W. Wallace, Julio Cesar Goez and Mario Guajardo. *A routing-based policy framework for assessing freight consolidation effects on small city livability: The case of Bergen, Norway*
- Davide Croci, Ola Jabali, Federico Malucelli and Joe Naoum-Sawaya. *A Tetris-based Beam Search algorithm for the Distributor's Pallet Loading Problem*
- Pirmin Fontaine. *The Stochastic 3D Bin Selection Problem: Branch-and-Repair for Multi-stage Stochastic Programs*

FB3. (Room 5) Supply Chain Issues. Chair: Javier Faulin

- Jonathan Lozano-Oviedo, Cristián E. Cortés, Pablo A. Rey, Pablo Maya-Duque and Juan G. Villegas. *Multi-objective optimization model for a sustainable closed-loop supply chain of the returnable packaging sector considering Extended Producer Responsibility*
- Javier Faulin, Luis Cadarso and Adrián Serrano-Hernández. *Strategic Decision-Making in Biorefinery Siting: A Stochastic Optimization Approach Considering Price and Biomass Uncertainties in Navarre, Spain*

Friday 24 May. 13:30-15:30 LUNCH

Friday 24 May. 15:30-16:30 CLOSING SESSION