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RESEARCH FOCUS

- Exact and metaheuristic algorithms for real-life vehicle routing problems
- Operational integration of public transport and on-demand services

EDUCATION

2013 - 2017 Hasselt University, Ph.D. in Applied Economic Sciences
2008 - 2013 Hasselt University, Master in Business Engineering – major in Operations Management & Logistics

ACADEMIC CAREER

2018 - present Postdoctoral research fellow, Research Foundation Flanders (FWO)
2017 - 2018 Postdoctoral researcher, Hasselt University, Belgium
2013 - 2017 Ph.D. research fellow, Research Foundation Flanders (FWO)

TEACHING ACTIVITIES

Master of Business Engineering, Hasselt University:

- Advanced operations research

Master of Business Administration, Hasselt University:

- Decision making in supply chains
- Current topics in supply chain management

PUBLICATIONS

Ph.D. dissertation

- Molenbruch, Y. (2017). Optimizing operational costs and service quality in dial-a-ride systems.

Peer-reviewed publications in journals of the Social Science Citation Index (SSCI) and Science Citation Index (SCI)

- Heggen, H., Molenbruch, Y., Braekers, K., Caris, A. (2019). Intermodal container routing: integrating long-haul routing and local drayage decisions, Sustainability, 11(6), 1634.

- Molenbruch, Y., Braekers, K., Caris, A. (2017). Typology and literature review for dial-a-ride problems, Annals of Operations Research, 259 (1-2), 295-325.

- Molenbruch, Y., Braekers K., Caris A., Vanden Berghe G. (2017). Multi-directional local search for a bi-objective dial-a-ride problem in patient transportation, Computers & Operations Research, 77, 58-71.

- Molenbruch, Y., Braekers, K., Caris, A. (2017). Benefits of horizontal cooperation in dial-a-ride services, Transportation Research Part E, 107, 97-119.

- Molenbruch, Y., Braekers, K., Caris, A. (2017). Operational effects of variations in service level criteria for the dial-a-ride problem, Central European Journal of Operations Research, 25 (1), 71-90.

Publications in conference proceedings with peer review (abstract)

- Molenbruch, Y., Eisenhändler, O., Kaspi, M., Braekers, K. (2020). The electric dial-a-ride problem on a fixed circuit, 8th Annual Workshop of the EURO Working Group on Vehicle Routing and Logistics optimization (VeRoLog), Hamburg.

- Molenbruch, Y., Braekers, K., Kaspi, M., Eisenhändler, O. (2020). Demand-responsive shared mobility using electric vehicles on a fixed circuit, 34th Conference of the Belgian Operational Research Society (Orbel), Lille.

- Mertens, S., Molenbruch, Y., Braekers, K., Caris, A. (2020). Vehicle routing with stochastic demands: a case study, 34th Conference of the Belgian Operational Research Society (Orbel), Lille.

- Delbart, T., Molenbruch, Y., Braekers, K., Caris, A. (2020). Synchromodal transport with disruptions, 34th Conference of the Belgian Operational Research Society (Orbel), Lille.

- Molenbruch, Y., Braekers, K. (2019). Restoring time synchronization in response to delays in an integrated mobility system, Second International Workshop on Synchronization in Transport (SynchroTrans), Nantes.

- Molenbruch, Y., Braekers, K. (2019). Analyzing the impact of delays in an integrated mobility system, 7th INFORMS Transportation Science and Logistics Society Workshop (TSL), Vienna.

- Heggen, H., Molenbruch, Y., Caris, A., Braekers, K. (2019). Integrating drayage decisions in intermodal container routing, 7th INFORMS Transportation Science and Logistics Society Workshop (TSL), Vienna.

- Molenbruch, Y., Braekers, K. (2019). Analyzing the impact of delays in an integrated mobility system, 30th European Conference on Operational Research (EURO), Dublin.

- Mertens, S., Molenbruch, Y., Braekers, K., Caris, A. (2019). Vehicle routing with stochastic demands: first insights of a real-life case, 30th European Conference on Operational Research (EURO), Dublin.

- Molenbruch, Y., Braekers, K., Hirsch, P., Oberscheider, M. (2019). Integrating the use of dial-a-ride services in public transport, 7th Annual Workshop of the EURO Working Group on Vehicle Routing and Logistics optimization (VeRoLog), Seville.

- Heggen, H., Molenbruch, Y., Braekers, K., Caris, A. (2019). Integrating drayage and intermodal routing decisions: a real-life case study, BIVEC-GIBET Transport Research Days, Gent.

- Molenbruch, Y., Braekers, K. (2019). Applicability and delay sensitivity of an integrated mobility system, 33rd Conference of the Belgian Operational Research Society (Orbel), Hasselt.

- Heggen, H., Molenbruch, Y., Braekers, K., Caris, A. (2019). A large neighborhood search heuristic for the integrated intermodal routing problem, 33rd Conference of the Belgian Operational Research Society (Orbel), Hasselt.

- Molenbruch, Y., Braekers, K., Hirsch, P., Oberscheider, M. (2018). Integrating dial-a-ride services and public transport, 29th European Conference on Operational Research (EURO), Valencia.

- Molenbruch, Y., Braekers, K. (2018). Integrating dial-a-ride services and public transport, 32nd Conference of the Belgian Operational Research Society (Orbel), Liège.

- Braekers, K., Molenbruch, Y. (2017). Insights on the integration of local search in a large neighborhood search heuristic for the dial-a-ride problem, 21st Conference of the International Federation of Operational Research Societies (IFORS), Quebec.

- Molenbruch, Y., Braekers, K., Caris, A. (2017). Quality-oriented scheduling procedures for dial-a-ride problems, 6th Annual Workshop of the EURO Working Group on Vehicle Routing and Logistics optimization (VeRoLog), Amsterdam.

- Molenbruch, Y., Braekers, K., Caris, A. (2016). Horizontal cooperation in dial-a-ride services, 28th European Conference on Operational Research (EURO), Poznan.

- Molenbruch, Y., Braekers, K., Caris, A. (2016). Horizontal cooperation in dial-a-ride services, 5th Annual Workshop of the EURO Working Group on Vehicle Routing and Logistics optimization (VeRoLog), Nantes.

- Molenbruch, Y., Braekers, K., Caris, A. (2016). Horizontal cooperation in dial-a-ride services, 30th Conference of the Belgian Operational Research Society (Orbel), Louvain-la-Neuve.

- Molenbruch, Y., Braekers, K., Caris, A. (2015). Solving a bi-objective dial-a-ride problem using multi-directional local search and an exact scheduling procedure, 4th Annual Workshop of the EURO Working Group on Vehicle Routing and Logistics optimization (VeRoLog), Vienna.

- Molenbruch, Y., Braekers, K., Caris, A. (2015). A multi-directional local search metaheuristic for a bi-objective dial-a-ride problem, 6th International Workshop on Freight Transportation and Logistics (Odysseus), Ajaccio.

- Molenbruch, Y., Braekers, K., Caris, A. (2015). Solving a bi-objective dial-a-ride problem using multi-directional local search, 29th Conference of the Belgian Operational Research Society (Orbel), Antwerpen.

- Molenbruch, Y., Braekers, K., Caris, A. (2014). Operational effects of service level variations for the dial-a-ride problem, 3rd Annual Workshop of the EURO Working Group on Vehicle Routing and Logistics optimization (VeRoLog), Oslo.

- Molenbruch, Y., Braekers, K., Caris, A. (2014). Operational effects of variations in service level criteria for the dial-a-ride problem, 28th Conference of the Belgian Operational Research Society (Orbel), Mons.

Books

- Boutsen, P., Molenbruch, Y., Ria, D., Vanhoenshoven, F. (2019). Transport met PIT: Vereenvoudig digitalisatie door procesgericht denken, Jacobus & Corneel.

SUPERVISIONS

Ph.D. students

- Delbart, T. (2019-present). Digital twin for synchromodal transport (FWO cSBO project), member of the Ph.D. commission.

- Mertens, S. (2018-present). Data-driven logistics (FWO SBO project), member of the Ph.D. commission.

Master dissertations

- Delaet, A. (2020). Locatiekeuze voor de logistieke activiteiten van een Limburgs transportbedrijf, supervisor.

- Theunissen, A. (2020). Organisatie van deelfietssystemen in een stedelijke context, supervisor.

- Witkowski, P. (2020). Operationele impact en sturing van tijdsvoorkeuren in e-commerce, supervisor.

- Cetinkaya, H., (2020). Vergelijking van faciliteitenlocatiestrategieën, supervisor.

- Briesen, E., (2020). Op zoek naar meer duurzame levermethodes voor online bestellingen, co-supervisor.

- Haesevoets, S. (2019). Impact van variabele reistijden op de robuustheid van dial-a-ride diensten, supervisor.

- Stienaers L. (2019). Procesanalyse met het oog op innovaties in de transportsector, supervisor.

- Luys, J. (2019). Procesanalyse met het oog op innovaties in de transportsector, supervisor.

- Lambrechts, L. (2016). Horizontale samenwerking tussen dial-a-ride dienstverleners door gezamenlijke rittenplanning, co-supervisor.

Bachelor dissertations

- Clerx, P., Robert, L., Smolders, M. (2020). Synchronisatie van personen- en goederenstromen in een stedelijke context, supervisor.

- Boden, T., Plevoets, A., Van den Eynde, J. (2020). Synchronisatie van personen- en goederenstromen in een stedelijke context, supervisor.

- Aerts, L., De Wreede, E., Mellaerts, I. (2019). Operationele optimalisatie van ridesharing systemen, supervisor.

- De Cock, J., Janssens, S., Lejeune, G. (2019). Operationele optimalisatie van ridesharing systemen, supervisor.

- Jacquemin, M., Vanoppen, M., Witters, M. (2018). Leveringsstrategieën voor B2C e-commerce in een stedelijke context, co-supervisor.

- Devos, M., Mentens, C., Wintermans, L. (2017). Effect van meerdere gebruikerstypes op de operationele kosten en het door de gebruikers ervaren kwaliteitsniveau van dial-a-ride vervoersdiensten, co-supervisor.

PEER REVIEWER

- Transportation Research Part B – Methodological
- Transportation Research Part C – Transport Policy
- Transportation Research Part E – Logistics and Transportation Review
- Computers and Operations Research
- European Journal of Operational Research

RESEARCH STAYS

- University of Natural Resources and Life Sciences, Vienna. Institute of Production and Logistics (September 2017): research collaboration with prof. dr. Patrick Hirsch.