

Dr. Klaas Fiete Krutein

OPERATIONS RESEARCH SCIENTIST · CONVOY, INC.

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Education

University of Washington

Seattle, WA, USA

PHD INDUSTRIAL ENGINEERING

2019 - 2022

- Co-advisors: Dr. Linda Ng Boyle, Dr. Anne V. Goodchild
- Dissertation: Optimization Approaches to the Evacuation of Isolated Communities

University of Washington

Seattle, WA, USA

MS INDUSTRIAL ENGINEERING

2017 - 2019

- Advisor: Dr. Linda Ng Boyle
- Specialization: Operations Research & Data Science

FH Nordakademie - University of Applied Sciences

Elmshorn, Germany

BS INDUSTRIAL ENGINEERING & BUSINESS MANAGEMENT

2013 - 2017

- Advisor: Dr.-Ing Volker Ahrens
- Thesis: Framework for a Stock Optimization Strategy

University of Auckland

Auckland, New Zealand

CERTIFICATE OF PROFICIENCY INDUSTRIAL ENGINEERING (STUDY ABROAD)

2015

- Specialization: Operations Research

Professional Experience

- 2022 - pres. **Operations Research Scientist**, Convoy, Inc., Seattle, WA
- 2019 - 2022 **Pre-Doctoral Research Associate**, Department of Civil & Environmental Engineering, University of Washington, Seattle, WA
- 2021 **Research Scientist Intern**, Amazon, Inc., Bellevue, WA
- 2020 **Research Scientist Intern**, Amazon, Inc., Seattle, WA
- 2018 - 2019 **Research Assistant**, Department of Industrial & Systems Engineering, University of Washington, Seattle, WA
- 2018 **Material Planning Intern**, Tesla, Inc., Sparks, NV
- 2016 - 2017 **Supply Chain Business Improvement Manager**, Airbus Ops. GmbH, Hamburg, Germany
- 2013 - 2016 **Rotational Intern / Company-Sponsored Student**, Airbus Ops. GmbH, Hamburg, Germany / Toulouse, France
- 2012 **Foundational Engineering Internship**, Airbus Ops. GmbH, Hamburg, Germany

Publications

JOURNAL ARTICLES

- Dalla Chiara, G., **Krutein, K. F.**, Ranjbari, A., Goodchild, A. 2022. Providing curb availability information to delivery drivers reduces cruising for parking. *Nature Scientific Reports*, 12(19355). <https://doi.org/10.1038/s41598-022-23987-z>
- Krutein, K. F.**, Goodchild, A. 2022. The isolated community evacuation problem with mixed integer programming. *Transportation Research Part E: Logistics & Transportation Review*, 161(102710). <https://doi.org/10.1016/j.tre.2022.102710>
- Krutein, K. F.**, McGowan, J., Goodchild, A. 2022. Evacuating isolated islands with marine resources: A Bowen Island case study. *International Journal of Disaster Risk Reduction*, 72(102865). <https://doi.org/10.1016/j.ijdr.2022.102865>
- Dalla Chiara, G., **Krutein, K. F.**, Ranjbari, A., Goodchild, A. 2021. Commercial vehicle driver behaviors and decision making: Lessons learned from urban ridealongs. *Transportation Research Record: Journal of the Transportation Research Board*. 2675: 608-619. <https://doi.org/10.1177/03611981211003575>

CONFERENCE PROCEEDINGS

- Krutein, K. F.**, Goodchild, A., Boyle, L. 2023. A meta-heuristic solution approach to isolated evacuation problems. *To appear in: Proceedings of the Winter Simulation Conference 2022*
- Krutein, K. F.**, Boyle, L. 2019. Systematic approach for the design of flight simulator studies. *Proceedings of the Human Factors and Ergonomics Society Annual Meeting*, 63: 833-837. <https://doi.org/10.1177/1071181319631524>

IN REVIEW

- Krutein, K. F.**, Goodchild, A., Boyle, L. 2023. Robust and rolling horizon optimization approaches for handling uncertainty in the isolated community evacuation problem during emergency response.
- Krutein, K. F.**, Dalla Chiara, G., Dimitrov, T., Goodchild, A. 2023. Improving commercial vehicle routing through the consideration of cruising for parking.

IN PREP

- Candogan, O., **Krutein, K. F.**, Meigs, E. Market equilibria for time-based contracts in dynamic freight market places.
- Goulianou, N., **Krutein, K. F.**, Goodchild, A. Long-term planning for mixed ICE and EV fleets in the urban freight context.

Awards, Fellowships, & Grants

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|-------------|---|------------|
| 2021 | Best Practical Implications Paper Award , Transportation Research Board: Standing Committee on Urban Freight Transportation | |
| 2019 - 2022 | Airbus Doctoral Research Fellowship , Airbus Operations GmbH | EUR 50,000 |
| 2018 | Tuition Waiver Award , The Graduate School at the University of Washington | USD 36,000 |
| 2018 | Award for Professional Exchange - USA , Foundation of German Business (Stiftung der Deutschen Wirtschaft) | EUR 1,000 |
| 2017 - 2019 | Graduate International Academic Fellowship , Deutscher Akademischer Austauschdienst (German Academic Exchange Service) | EUR 60,000 |
| 2017 - 2019 | Airbus Graduate School Fellowship (Airbus-Absolventen-Förderung) , Airbus Operations GmbH | |
| 2017 | Tuition Waiver Award , The Graduate School at the University of Washington | USD 36,000 |
| 2017 | Award for Outstanding Bachelor Thesis , FH Nordakademie | |
| 2015 | International Exchange Fellowship , Ranke-Heinemann Institute | NZD 1,200 |
| 2015 | ISOM Honour Roll for Outstanding Academic Achievement , University of Auckland - Department of Information Systems and Operations Management | |
| 2015 | Award for Academic Exchange - New Zealand , Foundation of German Business (Stiftung der Deutschen Wirtschaft) | EUR 10,000 |
| 2015 | Award for Professional Exchange - France , Foundation of German Business (Stiftung der Deutschen Wirtschaft) | EUR 1,000 |
| 2014 - 2019 | Academic Fellowship for High Potentials , Foundation of German Business (Stiftung der Deutschen Wirtschaft) | EUR 63,000 |

Presentations

* *presenting author*; + *mentored graduate student*

INVITED TALKS

- Krutein, K. F.***, Boyle, L., Goodchild, A. 2022. *A Meta-Heuristic Solution Approach to Isolated Evacuation Problems*. Invited Talk: 2022 Winter Simulation Conference, Singapore.
- Krutein, K. F.*** 2022. *Optimization Modeling Approaches to Evacuations of Isolated Communities*. Invited Talk: Pacific Northwest Transportation Consortium (PacTrans) Doctoral Webinar Series, Seattle, WA.

- Krutein, K. F.***, Boyle, L., Goodchild, A. 2022. *The Isolated Community Evacuation Problem for Response Purposes*. Invited Talk: Institute for Operations Research and the Management Sciences (INFORMS) Annual Meeting, Indianapolis, IN.
- Krutein, K. F.*** 2022. *Graduate Commencement Address*. Invited Talk: Graduation Ceremony of the Department of Industrial & Systems Engineering at the University of Washington, Seattle, WA.
- Krutein, K. F.*** 2022. *Optimization Modeling Approaches to Evacuations of Isolated Communities*. Dissertation Defense: University of Washington, Seattle, WA.
- Krutein, K. F.*** 2022. *Curb Usage of Commercial Vehicles*. Invited talk: City of Bellevue Curb Use Panel, Bellevue, WA.
- Krutein, K. F.***, Goodchild, A. 2021. *Efficient Solution Approaches to the Isolated Community Evacuation Problem*. Invited talk: Institute for Operations Research and the Management Sciences (INFORMS) Annual Meeting, Anaheim, CA.
- Krutein, K. F.***, Goodchild, A. 2020. *A Formulation and Solution Procedure for Optimal Evacuation Planning and Routing for Isolated Communities (ICEP)*. Invited talk: Institute for Operations Research and the Management Sciences (INFORMS) Annual Meeting, Arlington, VA.

CONTRIBUTED PRESENTATIONS

- Krutein, K. F.**, Dalla Chiara, G., Dimitrov, T.*+, Goodchild, A. 2022. *Improving Commercial Vehicle Routing with Parking Information*. Talk: Institute for Operations Research and the Management Sciences (INFORMS) Annual Meeting, Indianapolis, IN.
- Krutein, K. F.***, Dalla Chiara, G., Dimitrov, T.*+, Goodchild, A. 2022. *Improving Commercial Vehicle Routing with Parking Information*. Talk: TRISTAN XI Triennial Symposium on Transportation Analysis, Balaclava, Mauritius.
- Krutein, K. F.***, Dalla Chiara, G., Dimitrov, T.*+, Goodchild, A. 2022. *Improving Commercial Vehicle Routing with Parking Information*. Talk: METRANS International Conference on Urban Freight, Long Beach, CA.
- Dalla Chiara, G.*, **Krutein, K. F.**, Goodchild, A. 2022 *Can real-time parking occupancy information improve urban delivery efficiency?*. Talk: METRANS International Conference on Urban Freight, Long Beach, CA.
- Krutein, K. F.***, Dalla Chiara, G., Ranjbari, A., Goodchild, A. 2021. *Lesson Learned from Urban Delivery Vehicle Ridealongs*. Talk: 4th Volvo Research and Educational Foundations (VREF) Conference on Urban Freight, Gothenburg, Sweden.
- Krutein, K. F.***, Goodchild, A. 2021. *The Isolated Community Evacuation Problem with Two-Stage Stochastic Mixed Integer Programming*. Talk: Annual Meeting of Transportation Research Board (TRB), Washington, DC.
- Dalla Chiara, G.*, **Krutein, K. F.**, Ranjbari, A., Goodchild, A. 2021. *Commercial Vehicle Driver Behaviors and Decision Making: Lessons Learned from Urban Ridealongs*. Talk: Annual Meeting of Transportation Research Board (TRB), Washington, DC.
- Krutein, K. F.***, Goodchild, A. 2020. *What kind of information and data do we need to design an optimized evacuation plan?*. Workshop: Table Top Simulation for Evacuation of Bowen Island with First Responders.
- Krutein, K. F.***, Goodchild, A. 2020. *An optimal evacuation plan for marine evacuation planning using stochastic mixed-integer programming*. Workshop: Strategic Planning for Coastal Community Resilience to Marine Transportation Disruption (SIREN).
- Krutein, K. F.***, Boyle, L. 2019. *Systematic approach to design flight simulator studies to assess pilot workload*. Talk: Human Factors and Ergonomics Society's (HFES) 2019 International Annual Meeting, Seattle, WA.
- Krutein, K. F.***, Hwang, S., Boyle, L., Robinson, T., Utsugi, M. 2019. *Identifying Scenarios Related to High Pilot Workload*. Talk: 2nd Joint Center for Aerospace Technology Innovation (JCATI) Symposium, Seattle, WA.

Mentoring

- 2021 - 2022 **Todor Dimitrov**, Research Volunteer, University of Washington
- 2019 - 2020 **Yuan Wang**, Research Assistant, University of Washington

Outreach & Professional Development

SERVICE AND OUTREACH

2020 - 2022 **INFORMS Student Chapter at the University of Washington**, Vice President
2019 - 2020 **HFES Student Chapter at the University of Washington**, Treasurer
2014 - 2017 **International Student Exchange Unit at Nordakademie**, President

Seattle, WA
Seattle, WA
Elmshorn,
Germany

PEER REVIEW

Transportation Research Board
Transportation Research Part A: Policy and Practice
Research in Transportation & Business Management
Open Transportation Journal

SESSION ORGANIZATION AND MODERATION

METRANS International Conference on Urban Freight

PROFESSIONAL MEMBERSHIPS

INFORMS Logistics & Transportation Society