

# Dr. Klaas Fiete Krutein

OPERATIONS RESEARCH SCIENTIST · CONVOY, INC.

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## Education

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### 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

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- 2022 - pres. **Operations Research Scientist**, Convoy, Inc., Seattle, WA
- 2019 - 2022 **Pre-Doctoral Research Associate**, Dept. of Civil & Environmental Eng., 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

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### 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*, T2(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. 2022 Winter Simulation Conference (WSC), Singapore, 2002-2012. <https://doi.org/10.1109/WSC57314.2022.10015470>

**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*, Seattle, 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	<b>Best Practical Implications Paper Award</b> , Transportation Research Board	
2019	<b>Airbus Doctoral Research Fellowship</b> , Airbus Operations GmbH	EUR 50,000
2018	<b>Tuition Waiver Award</b> , The Graduate School at the University of Washington	USD 36,000
2018	<b>Annual Fellowship for Graduate Studies Abroad</b> , German Academic Exchange Service (DAAD)	EUR 30,000
2018	<b>Scholarship for Internship Abroad (USA)</b> , Foundation of German Business	EUR 1,000
2017	<b>Tuition Waiver Award</b> , The Graduate School at the University of Washington	USD 36,000
2017	<b>Annual Fellowship for Graduate Studies Abroad</b> , German Academic Exchange Service (DAAD)	EUR 30,000
2017	<b>Graduate Fellowship for Outstanding Students</b> , Foundation of German Business	EUR 25,000
2017	<b>Airbus Graduate School Fellowship</b> , Airbus Operations GmbH	
2017	<b>Award for Outstanding Bachelor Thesis</b> , FH Nordakademie	
2015	<b>International Exchange Fellowship</b> , Ranke-Heinemann Institute	NZD 1,200
2015	<b>ISOM Honour Roll for Outstanding Academic Achievement</b> , University of Auckland	
2015	<b>Award for Studies Abroad (New Zealand)</b> , Foundation of German Business	EUR 10,000
2015	<b>Award for Internship Abroad (France)</b> , Foundation of German Business	EUR 1,000
2014	<b>Undergraduate Fellowship for Outstanding Students</b> , Foundation of German Business	EUR 38,000

## Presentations

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\* *presenting author*

### 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

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

## Outreach & Professional Development

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### SERVICE AND OUTREACH

2020 - 2022	<b>INFORMS Student Chapter at the University of Washington</b> , Vice President	Seattle, WA
2019 - 2020	<b>HFES Student Chapter at the University of Washington</b> , Treasurer	Seattle, WA
2014 - 2017	<b>International Student Exchange Unit at Nordakademie</b> , President	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