# Rickard K.A. Karlsson

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**Research Interests:** Causal Inference, Machine Learning, Statistics

## Education

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| Expected 2025 | **Ph.D. Computer Science** at Delft University of Technology, the Netherlands. <br> **Dissertation topic:** Causal machine learning <br> **Advisors:** Jesse H. Krijthe & Marcel Reinders |
| 2021 | **M.Sc. Engineering Mathematics** at Chalmers University of Technology, Sweden. <br> **Thesis:** Learning using Privileged Time-Series <br> **Advisor:** Fredrik D. Johansson <br> **Exchange:** Delft University of Technology during spring semester 2020 |
| 2019 | **B.Sc. Engineering Physics** at Chalmers University of Technology, Sweden. <br> **Thesis:** Event reconstruction of gamma-rays using neural networks <br> **Advisor:** Andreas M. Heinz |

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## Work Experience

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| 07/2020–12/2020 | **Apro Translation AB** – Gothenburg, Sweden. <br> *Software Developer Consultant* <br> Responsible for developing software to automate order confirmation and other time-consuming computer tasks at the company. Delivered a working proof-of-concept as end product. |
| 07/2020–09/2020 | **Delft University of Technology** – Delft, the Netherlands. <br> *Research Assistant* <br> Worked on black-box optimization using surrogate models. Resulted in two research papers, one of them with me as first-author. |
| 06/2019–08/2019 | **NASA Goddard Space Flight Center** – Greenbelt, Maryland, USA. <br> *Data Analyst Intern* <br> Developed data visualization software for very-long-baseline interferometry (VLBI) data, with both a graphical and terminal-based interface. |

## Teaching Experience

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| 2022 – | Machine Learning 1 (MSc level) at TU Delft. <br> *Teaching assistant*. |
| 2022 – | Machine Learning 2 (MSc level) at TU Delft. <br> *Teaching assistant & practice leader*. |
| 2020 | Computational Methods in Bioinformatics (MSc level) at Chalmers Univ. of Tech. <br> *Teaching assistant*. |

## Supervisions

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| 2022 | *Stelios Avgousti, Christof Goedhart, Hendy Liang, David van der Maas, Noyan Toksoy* <br> Thesis topic (BSc level): Predicting Outcomes in Dota 2 using Causal Inference |
| 2022 | *Zenan Guan, Jeroen Hoefland, Jochem van Lith, Anxian Liu* <br> Thesis topic (BSc level): Out-Of-Domain Generalization with Invariant Predictors |

## Awards & Scholarships

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| 2021 | 1st place on the GECCO 2021 Industrial Challenge (limited evaluation track). |
| 2020 | Recipient of the Royal & Hvitfeldtska Foundation scholarship for my academic performances. |
| 2018 | Awarded for best experimental work in physics among more than 110 physics students. |
| 2017 | Recipient of the Adlerbetska Foundation scholarship for my academic performances during the first year of my bachelors studies. |

## Extracurriculars and volunteering

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| 2022 – present | Co-organizer in Effective Altruism Delft |
| 2020 – 2021 | Co-organizer in university chapter of Engineers Without Borders Sweden |
| 2018 – 2019 | Board member at Cremona Chalmers AB (university bookshop) |
| 2018 – 2019 | President of Chalmers Engineering Student Internship Program (CESIP) |

# Languages & Tools

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| Languages | Swedish (native), English (fluent), Polish (intermediate), Dutch (basic) |
| Programming | Python, R, C, Java, PyTorch, Git, Docker, Kubernetes |

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# Publications

Full list of publications also available on Google Scholar (link).

### Conference

2022   Karlsson, R., Willbo, M., Hussain, Z. M., Krishnan, R. G., Sontag, D., and Johansson, F. D. Using time-series privileged information for provably efficient learning of prediction models. In *International Conference on Artificial Intelligence and Statistics* (2022), PMLR, pp. 5459–5484

2020   Karlsson, R., Bliek, L., Verwer, S., and Weerdt, M. d. Continuous surrogate-based optimization algorithms are well-suited for expensive discrete problems. In *Benelux Conference on Artificial Intelligence* (2020), Springer, pp. 48–63

### Preprint

2022   Karlsson, R., and Krijthe, J. H. Combining observational datasets from multiple environments to detect hidden confounding. *arXiv preprint arXiv:2205.13935* (2022)

2021   Bliek, L., Guijt, A., Karlsson, R., Verwer, S., and de Weerdt, M. Expobench: Benchmarking surrogate-based optimisation algorithms on expensive black-box functions. *arXiv preprint arXiv:2106.04618* (2021)

### Extended Abstract / Short Papers

2022   Bliek, L., Guijt, A., and Karlsson, R. Hospital simulation model optimisation with a random relu expansion surrogate model. In *Proceedings of the Genetic and Evolutionary Computation Conference Companion* (2021), pp. 13–14

### Theses

2021   *Learning using Privileged Time-Series*, Chalmers University of Technology.

2019   *Event reconstruction of gamma-rays using neural networks*, Chalmers University of Technology.

*[CV last updated on November 30, 2022]*

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