

# Max Welz

Postdoctoral researcher in Statistics – University of Zurich

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*Last updated: September 10, 2025*

## Research Interests

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Robust and high-dimensional statistics, machine learning in behavioral, social, and health sciences, development of statistical software.

## Affiliations

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### University of Zurich

*Postdoctoral researcher*

Working the group of Prof. Carolin Strobl

**Zurich, CH**

*Since November 2024*

### Erasmus University, Dept. of Econometrics

*PhD Candidate*

Supervisors: Prof. Patrick Groenen and Dr. Andreas Alfons

Thesis title: [Robust categorical data analysis](#)

**Rotterdam, NL**

*2020 – 2024*

### Massachusetts Institute of Technology

*Visiting PhD Student*

Invited by Prof. Victor Chernozhukov and Dr. Mert Demirer

**Cambridge, MA, USA**

*Fall 2023*

### Erasmus Medical Center, Dept. of Public Health

*Researcher*

- Master thesis on causal inference in lung cancer research
- Involvement in analyses of medical trials

**Rotterdam, NL**

*Since 2019*

### Erasmus University, Dept. of Econometrics

*Research Assistant*

Assisted Prof. Philip Hans Franses for 10 hours a week

**Rotterdam, NL**

*2018 – 2019*

## Education

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### Erasmus University

*PhD Statistics*

Date of defense: June 6, 2025

**Rotterdam, NL**

*2020 – 2024*

### Erasmus University

*MSc Econometrics*

**Rotterdam, NL**

*2017 – 2020*

### University of Mannheim

*BSc Economics (specialization in Econometrics)*

Spent Fall 2016 at the Erasmus University in Rotterdam, NL

**Mannheim, DE**

*2014 – 2017*

## Grants and Awards

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### Grants

- *Erasmus Trust Fund Grant* (€2,500)
  - Awarded to support my research visit at Massachusetts Institute of Technology in fall 2023
  - Issued by the [Erasmus Trust Fund](#)

- *Open Mind Call 2021 Health and Technology* (€19,995.70)
  - Joint with Andreas Alfons (Erasmus University) and Kevin ten Haaf (Erasmus MC);
  - Issued by the Dutch *Convergence Alliance* (acceptance rate of 22/124  $\approx$  18%)
  - Awarded for the *CITRUS* project

## Awards

- *2024 Hannan Graduate Student Travel Award* [[link](#)]
  - Issued by the *Institute of Mathematical Statistics* to attend *JSM 2024*
  - Awarded for my *job market paper* “Robust estimation and inference in categorical data”
  - One of  $\sim$ 20 recipients worldwide
- *2021 Convergence Health and Technology Open Research Award* [[link](#)]
  - Awarded for “great commitment to open research”
  - Issued by the Dutch *Convergence Alliance* and several open science initiatives
  - One of 12 recipients from various Dutch scientific institutions
- *Best PhD Student Presentation* at the Annual Meeting of the Dutch/Flemish Classification Society on October 14, 2022, in Tilburg, Netherlands

## Publications

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### Working Papers

- Welz, M., & Alfons, A. (2025). When respondents don't care anymore: Identifying the onset of careless responding [arXiv:2303.07167]. <https://doi.org/10.48550/arXiv.2303.07167> (under review)
- Welz, M., Mair, P., & Alfons, A. (2025). Robust estimation of polychoric correlation [arXiv:2407.18835]. <https://doi.org/10.48550/arXiv.2407.18835> (under review)
- Bergh, D., Gallegos Quezada, J., Moelijker, R., Tang, Y., & Welz, M. (2024). Matched samples in strategic management research: Review and recommendations. (under review).
- Welz, M. (2024). Robust estimation and inference for categorical data [arXiv:2403.11954]. <https://doi.org/10.48550/arXiv.2403.11954>
- Welz, M., Archimbaud, A., & Alfons, A. (2024). How much carelessness is too much? quantifying the impact of careless responding [PsyArXiv:8fj6p]. <https://doi.org/10.31234/osf.io/8fj6p>

### Articles in Peer-Reviewed Journals

- Welz, M., van der Aalst, C., Alfons, A., Naghi, A., Heuvelmans, M., Groen, H. J., de Jong, P. A., Aerts, J., Oudkerk, M., de Koning, H., & ten Haaf, K. (2025). A comparative analysis of heterogeneity in lung cancer screening effectiveness in two randomised controlled trials. *Nature Communications*, 16, 8060. <https://doi.org/10.1038/s41467-025-63471-6>
- Alfons, A., & Welz, M. (2024). Open science perspectives on machine learning for the identification of careless responding: A new hope or phantom menace? *Social and Personality Psychology Compass*, 18(2), e12941. <https://doi.org/10.1111/spc3.12941>. [Preprint | [GitHub](#)]
- Franses, P. H., & Welz, M. (2022a). Evaluating heterogeneous forecasts for vintages of macroeconomic variables. *Journal of Forecasting*, 41(4), 829–839. <https://doi.org/10.1002/for.2835>. [[GitHub](#)]
- Franses, P. H., & Welz, M. (2022b). Forecasting real GDP growth for Africa. *Econometrics*, 10(1). <https://doi.org/10.3390/econometrics10010003>. [[GitHub](#)]

### Published Software

- Welz, M., Alfons, A., & Mair, P. (2024). *robcat: Robust categorical data analysis* [R package version 0.0.1]. <https://CRAN.R-project.org/package=robcat>
- Welz, M., & Alfons, A. (2023). *carelessonset: Identifying the onset of careless responding* [R package version 0.0.1]. <https://github.com/mwelz/carelessonset>

Welz, M., ten Haaf, K., & Alfons, A. (2023). *predmod: Predictive modeling for heterogeneous treatment effects in medicine* [R package version 0.0.1]. <https://github.com/mwelz/predmod>

Welz, M., Alfons, A., Demirer, M., & Chernozhukov, V. (2022). *GenericML: Generic machine learning inference* [R package version 0.2.2]. <https://CRAN.R-project.org/package=GenericML>

## Academic Events

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### Selective Workshops

- Alfred Galichon's 'math+econ+code' masterclass on optimal transport and economic applications, January 23–27, 2023 (online)

### Conference Presentations

- International Workshop on Psychometric Computing (Psychoco), February 29–March 1, 2024, Rotterdam, Netherlands
- CMStatistics, December 16–18, 2023, Berlin, Germany (invited)
- Society for the Improvement of Psychological Science, June 22–24, 2023, Padova, Italy
- International Workshop on Psychometric Computing (Psychoco), June 8–9, 2023, Zurich, Switzerland
- International Conference on Robust Statistics, May 23–26, 2023, Toulouse, France
- CMStatistics, December 16–19, 2022, London, UK (invited)
- Conference of the Dutch/Flemish Classification Society, October 14, 2022, Tilburg, Netherlands
- International Conference on Robust Statistics, July 5–8, 2022, Waterloo, ON, Canada
- Society for the Improvement of Psychological Science, June 27–29, 2022, Victoria, BC, Canada
- useR! 2022, June 20–23, 2022 (online, also session chair)
- International Conference on Robust Statistics, September 21–24, 2021, Vienna, Austria (also session chair)

### Seminar Presentations

- Brown Bag PhD Seminar, March 13, 2024, EUR
- Econometric Institute Internal Seminar, December 12, 2023, Erasmus University Rotterdam (EUR)
- MIT Econometrics Lunch Seminar, October 12, 2023
- Econometric Institute Internal Seminar, April 25, 2023, EUR
- Seminar at the *Department of Methodology and Statistics*, April 4, 2023, Tilburg University (invited)
- Brown Bag PhD Seminar, March 22, 2023, EUR
- Research Group Statistics, March 21, 2023, EUR
- Social AI Seminar, June 16, 2022, EUR
- Tinbergen Institute PhD Seminar, October 21, 2021, University of Amsterdam (online)
- Econometric Institute Internal Seminar, October 5, 2021, EUR (online)
- Research Group Statistics, June 22, 2021, EUR (online)
- Econometric Institute Internal Seminar, July 21, 2020, EUR (online)

### Miscellaneous Presentations and Outreach

- Lecture to econometrics undergraduate students about econometrics in the health sciences. Invited by the econometrics study association at Erasmus University ([FAECTOR](#)). March 15, 2023.
- Various Presentations in the reading group "*High-dimensional statistics*" at the Department of Econometrics at Erasmus University as core member. Since February 2023.
- Various Presentations in the reading group "[Mathematical Statistics](#)" at the math department of TU Delft. Since November 2021.

## Organization Service

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### Local Organization Committee

- [Data Science, Statistics & Visualization and European Conference on Data Analytics 2021](#) (joint conference). July 7–9, 2021. Erasmus University Rotterdam, NL (online)
- [Data Science, Statistics & Visualization 2020](#). July 29–31, 2020. Duke University, USA (online)

### Misellaneous organization service

- Co-organizer of a reading group on high-dimensional statistics at the econometrics department at Erasmus University; spring 2023. Together with Chen Zhou, Alberto Quaini, Nick Koning, and Xiaomeng Zhang.

## Teaching

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### Erasmus University Rotterdam

- [FEM3100: Machine Learning](#) (2022; 4 ECTS; graduate). Role: Lecturer.
- [FEB23020: Seminar in Machine Learning](#) (2022–24; 12 ECTS; undergraduate). Role: Lecturer.
- [FEB23012: Seminar in Econometrics](#) (2020–21; 12 ECTS; undergraduate). Role: Lecturer.
- [FEB22015X: Academic Skills \(Econometrics\)](#) (2020–21; 4 ECTS; undergraduate). Role: Lecturer.
- [FEB21018X: Introduction to Statistics](#) (2020; 6 ECTS; undergraduate). Role: Tech support for online teaching.
- [FEB2003X: Introduction to Multivariate Statistics](#) (2019; 4 ECTS; undergraduate). Role: Teaching assistant.
- Thesis supervision:
  - 26 student theses for *BSc Econometrics* (12 as main supervisor)
  - 10 student theses for *MSc Econometrics* (3 as main supervisor)

More information such as teaching evaluations can be found on my [teaching webpage](#).

## Scientific Organizations

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I am a member of the following organizations:

- [Institute of Mathematical Statistics](#)
- [International Association for Statistical Computing](#)
- [Open Science Community Rotterdam](#)

## Skills

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**Software:** C, C++, Java, Julia, L<sup>A</sup>T<sub>E</sub>X, Matlab, Python, R, Stata, Bash, Zsh, Windows, macOS, Linux (e.g. Ubuntu, Fedora)

**Human languages:** German (native), English (fluent), Dutch (fluent), French (intermediate)

## Hobbies

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Long-distance running (marathon + trail), cycling, chess, skiing, reading (nonfiction), cooking.

## References

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