Max Welz

Postdoctoral researcher in Statistics – University of Zurich

✉ max.welz@uzh.ch　　🌐 https://mwelz.github.io　　⚙ [mwelz](https://github.com/mwelz)

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Research Interests

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

Affiliations

University of Zurich	**Zurich, CH**
Postdoctoral researcher	*Since November 2024*

Working the group of Prof. Carolin Strobl

Erasmus University, Dept. of Econometrics	**Rotterdam, NL**
PhD Candidate	*2020 – 2024*

Supervisors: Prof. Patrick Groenen and Dr. Andreas Alfons
Thesis title: *Robust categorical data analysis*

Massachusetts Institute of Technology	**Cambridge, MA, USA**
Visiting PhD Student	*Fall 2023*

Invited by Prof. Victor Chernozhukov and Dr. Mert Demirer

Erasmus Medical Center, Dept. of Public Health	**Rotterdam, NL**
Researcher	*Since 2019*

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

Erasmus University, Dept. of Econometrics	**Rotterdam, NL**
Research Assistant	*2018 – 2019*

Assisted Prof. Philip Hans Franses for 10 hours a week

Education

Erasmus University	**Rotterdam, NL**
PhD Statistics	*2020 – 2024*

Date of defense: June 6, 2025

Erasmus University	**Rotterdam, NL**
MSc Econometrics	*2017 – 2020*

University of Mannheim	**Mannheim, DE**
BSc Economics (specialization in Econometrics)	*2014 – 2017*

Spent Fall 2016 at the Erasmus University in Rotterdam, NL

Grants and Awards

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

Working Papers

<u>Welz</u>, 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*)

Bergh, D., Gallegos Quezada, J., Moelijker, R., Tang, Y., & <u>Welz</u>, M. (2024). Matched samples in strategic management research: Review and recommendations. (under review).

<u>Welz</u>, M. (2024). Robust estimation and inference for categorical data [arXiv:2403.11954]. https://doi.org/10.48550/arXiv.2403.11954

<u>Welz</u>, 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

<u>Welz</u>, M., Mair, P., & Alfons, A. (2025). Robust estimation of polychoric correlation [Forthcoming]. *Psychometrika*. https://doi.org/10.1017/psy.2025.10066. [Preprint | GitHub]

<u>Welz</u>, 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/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., & <u>Welz</u>, 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., & <u>Welz</u>, M. (2022b). Forecasting real GDP growth for Africa. *Econometrics*, *10*(1). https://doi.org/10.3390/econometrics10010003. [GitHub]

Published Software

<u>Welz</u>, M., Alfons, A., & Mair, P. (2024). `robcat: Robust categorical data analysis` [R package version 0.0.1]. https://CRAN.R-project.org/package=robcat

<u>Welz</u>, M., & Alfons, A. (2023). `carelessonset: Identifying the onset of careless responding` [R package version 0.0.1]. https://github.com/mwelz/carelessonset

<u>Welz</u>, 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

<u>Welz</u>, 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

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

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

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

I am a member of the following organizations:

- *Institute of Mathematical Statistics*
- *International Association for Statistical Computing*
- *Open Science Community Rotterdam*

Skills

Software: C, C++, Java, Julia, LaTeX, Matlab, Python, R, Stata, Bash, Zsh, Windows, macOS, Linux (e.g. Ubuntu, Fedora)

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

Hobbies

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

References

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