

Gabriel Wallin, PhD

Email: g.wallin@lancaster.ac.uk

<https://www.lancaster.ac.uk/math/people/gabriel-wallin>

Personal website: <http://gabrieltwallin.github.io>

LinkedIn: [linkedin.com/in/gabrielwallin/](https://www.linkedin.com/in/gabrielwallin/)



ACADEMIC POSITIONS

Lancaster University

Lecturer (Assistant Professor), Department of Mathematics and Statistics.

Lancaster, UK
2023–Current

The London School of Economics and Political Science

Research Fellow, Department of Statistics.

London, UK
2021–2023

Université Côte d’Azur & Inria

Postdoctoral Researcher, Department of Mathematics.

Nice, France
2020–2021

EDUCATION

Umeå University

P.h.D. in Statistics.

Umeå, Sweden
2015–2020

The London School of Economics and Political Science

Visiting Research Student in Statistics.

London, UK
2019

Umeå University

M.Sc. in Statistics.

Umeå, Sweden
2014–2015

Umeå University

B.Sc. in Statistics

Umeå, Sweden
2011–2014

RESEARCH INTERESTS

- **Latent Variable Modeling**

Item response theory, exploratory factor analysis, latent class analysis.

- **Statistical machine learning algorithms in psychometrics**

Proximal algorithms, gradient-based algorithms, statistical learning with sparsity.

- **Assessment development and analysis**

Test score equating, differential item functioning, outlier detection, causal modeling in education.

PUBLICATIONS IN PEER-REVIEWED JOURNALS

1. **Wallin, G.**, Chen, Y., Moustaki, I. (2024). DIF Analysis with Unknown Groups and Anchor Items *Psychometrika*, <https://doi.org/10.1007/s11336-024-09948-7>
2. **Wallin, G.** & Wiberg, M. (2023). Model Misspecification and Robustness of Observed-Score Test Equating Using Propensity Scores. *Journal of Educational and Behavioral Statistics*. <https://doi.org/10.3102/10769986231161575>
3. Liu, X., **Wallin, G.**, Chen, Y., Moustaki, I. (2023). Rotation to Sparse Loadings using L^p Losses and Related Inference Problems. *Psychometrika*, 88(2), 527-553.
4. **Wallin, G.** & Wiberg, M. (2021). How Important is the Choice of Bandwidth in Kernel Equating? *Applied Psychological Measurement*, 45, 518-535.
5. Altıntaş, Ö. & **Wallin, G.** (2021). Equality of Admission Tests Using Kernel Equating Under the Non-Equivalent Groups With Covariates Design. (2021). *International Journal of Assessment Tools in Education*, 8, 729-743.
6. **Wallin, G.** & Wiberg, M. (2019). Kernel Equating Using Propensity Scores for Nonequivalent Groups. *Journal of Educational and Behavioral Statistics*, 44, 390-414.

PEER-REVIEWED BOOK CHAPTERS

1. González, J. & **Wallin, G.** (2021). An Illustration on the Quantile-Based Calculation of the Standard Error of Equating in Kernel Equating. In Wiberg, M., Molenaar, D., González, J., Böckenholt, U. & Kim, J-S. (Eds.) (2021). *Quantitative Psychology: The 85th Annual Meeting of the Psychometric Society, virtual, 2021*. New York: Springer.
2. **Wallin, G.** & Wiberg, M. (2021). Equating Nonequivalent Groups using Propensity Scores – Model Misspecification and Sensitivity Analysis. In Wiberg, M., Molenaar, D., González, J., Böckenholt, U. & Kim, J-S. (Eds.) (2021). *Quantitative Psychology: The 85th Annual Meeting of the Psychometric Society, virtual, 2021*. New York: Springer.
3. **Wallin, G.** (2020). Extensions of the Kernel Method of Test Score Equating. *Statistical Studies*, 55. *PhD thesis*. URL: <https://umu.diva-portal.org/smash/get/diva2:1378833/FULLTEXT01.pdf>.
4. **Wallin, G.** & Wiberg, M. (2020). Model Selection for Presmoothing of Bivariate Score Distributions in Kernel Equating. In Wiberg, M., Molenaar, D., González, J., Böckenholt, U. & Kim, J-S. (Eds.) (2020). *Quantitative Psychology: The 84th Annual Meeting of the Psychometric Society, Santiago, Chile, 2019*. New York: Springer.
5. **Wallin, G.**, Häggström, J. & Wiberg, M. (2018). How to select the bandwidth in kernel equating - An evaluation of five different methods. In Wiberg, M., Culpepper, S., Janssen, R., González, J., & Molenaar, D. (Eds.) (2018). *Quantitative Psychology: The 82nd Annual Meeting of the Psychometric Society, Zurich, Switzerland, 2017*. New York: Springer.
6. **Wallin, G.** & Wiberg, M. (2017). Non-equivalent groups with covariates design using propensity scores for kernel equating. In L. A. van der Ark, M. Wiberg, S. A. Culpepper, J. A. Douglas, & W.-C Wang (Eds.) (2017), *Quantitative psychology – 81st annual meeting of the psychometric society, Asheville, North Carolina, 2016*. New York: Springer.

PROFESSIONAL ACTIVITIES

- **Journal Reviewer**
Annals of Applied Statistics
The American Statistician
Psychometrika
British Journal of Mathematical and Statistical Psychology
Applied Psychological Measurement
TEST
Educational and Psychological Measurement
Discover Education
- **Member of the Young Statisticians section** 2024–
Royal Statistical Society.
- **Member of the planning committee** 2023–
International Meeting of the Psychometric Society 2024. Prague, Czech Republic.
- **Member of the website committee** 2023–
Psychometric Society.
- **Conference Reviewer** 2023
National Council on Measurement in Education, Annual Meeting. Chicago, United States.
- **Travel Award Reviewer** 2022
International Meeting of the Psychometric Society
- **Local Organizing Committee Member** 2022
Institute of Mathematical Statistics (IMS), Annual Meeting. London, UK.
- **Member of the jury for best poster presentation** 2022
International Meeting of the Psychometric Society
- **Conference Chair** 2020–2023
International Meeting of the Psychometric Society
National Council on Measurement in Education
Institute of Mathematical Statistics (IMS), Annual Meeting
- **Board Member** 2018–2020
Umeå School of Business, Economics and Statistics
The Graduate Student Association at the Faculty of Social Sciences at Umeå University
- **Committee member** 2018–2019
The Graduate Student Committee of the Psychometric Society

GRANTS AND SCHOLARSHIPS

- Research Award. Umeå School of Business, Economics and Statistics. 10,000 SEK 2022
- International Postdoc. Swedish Research Council. 3,150,000 SEK 2021
- Research Scholarship. Faculty of Social Science, Umeå University. 40,000 SEK 2019
- Research Scholarship. Kempe Foundation. 25,000 SEK 2018
- Research Scholarship. Umeå School of Business, Economics and Statistics. 40,000 SEK 2018
- Travel Grant. Wallenberg Foundation. 4,200 SEK 2018
- Travel Grant. Kempe Foundation. 5,000 SEK 2017
- Research Scholarship. The Student union at Umeå University. 8,500 SEK 2017
- Travel Grant. Wallenberg Foundation. 8,000 SEK 2017
- Travel Grant. Faculty of Social Sciences at Umeå University. 8,000 SEK 2016
- Research Scholarship. The Student union at Umeå University. 10,000 SEK 2016

AWARDS AND NOMINATIONS

- **Recipient of the Umeå School of Business, Economics and Statistics Research Award** 2022
Umeå University
- **Recipient of the LSE Class Teacher Award** 2022
London School of Economics and Political Science

CONFERENCE TALKS AND INVITED PRESENTATIONS

- Statistics Seminar** Lancaster University
Invited talk: DIF Analysis with Unknown Groups and Anchor Items. 2023
- International Meeting of the Psychometric Society** Maryland, USA
Contributed talk: DIF Analysis with Unknown Groups and Anchor Items. 2023
- European Congress of Methodology** Ghent, Belgium
Contributed talk: Local Equating of Test Scores using Propensity Scores. 2023
- Nordic Conference in Mathematical Statistics** Gothenburg, Sweden
Contributed talk: Rotation to Sparse Loadings using L^p Losses and Related Inference Problems. 2023
- Annual Meeting of the National Council on Measurement in Education** Chicago, USA
Contributed talk: A General Item Response Theory Framework for Latent DIF Detection. 2023
- Social Statistics Research Seminar** London, LSE
Invited talk: Fairness and Interpretability in Educational Testing and Psychological Surveys. 2022
- Computational Psychometrics Research Seminar** Prague, Czech Republic
Invited talk: A Flexible IRT Framework For Latent DIF Detection. 2022
- International Meeting of the Psychometric Society** Bologna, Italy
Contributed talk: On Multivariate Outlier Detection. 2022
- Cramér Society Research Seminar** Sweden (Virtual)
Invited talk: Two-way outlier detection for item response data. 2022
- Social Statistics Research Seminar** London, LSE
Invited talk: Test score equating of nonequivalent groups using propensity scores. 2022
- International Meeting of the Psychometric Society** Virtual
Contributed talk: Simultaneous Clustering of Test-takers and Items for Item Response Data. 2021
- Computational Psychometrics Research Seminar** Prague, Czech Republic (Virtual)
Invited talk: Equating non-equivalent test groups using covariates. 2021
- International Meeting of the Psychometric Society** Virtual
Contributed talk: Equating non-equivalent groups using propensity scores. 2020
- MAASAI Research Seminar** Nice, France
Invited talk: Comparability of nonequivalent test groups in large-scale assessments. 2020
- International Meeting of the Psychometric Society** Santiago, Chile
Invited talk: Presmoothing method and model selection in kernel equating. 2019

Frontier Research in Educational Measurement Contributed talk: Revisiting the Bahadur representation of sample quantiles for equating.	Oslo, Norway 2018
International Meeting of the Psychometric Society Contributed talk: Optimal bandwidth selection in kernel equating for different test types.	Zürich, Switzerland 2017
Annual Meeting of the National Council on Measurement in Education Contributed talk: Bandwidth selection in kernel equating.	San Antonio, USA 2017
The Winter Conference in Statistics Contributed talk: Selecting bandwidths in kernel equating with different tests and test distributions.	Åre, Sweden 2017
International Meeting of the Psychometric Society Contributed talk: Propensity scores in kernel equating for non-equivalent groups.	Asheville, USA 2016

TEACHING

- **Lecturer** at Lancaster University 2023–
MATH404: Statistical Learning
- **Lecturer and Teaching Assistant** at The London School of Economics and Political Science 2021-2024
MY455/MY555: Multivariate Analysis and Measurement (Lecturer)
ST201: Statistical Models and Data Analysis (TA)
ST205: Sample Surveys and Experiments (TA)
ST109: Elementary Statistical Theory I (TA)
- **Lecturer and Course Responsible** at Umeå University 2018
Sampling: Design and Analysis
- **Lecturer** at Umeå University 2017–2019
Probability and Statistical Inference
- **Lecturer** at Umeå University 2017–2019
Basic Statistics
- **Teaching Assistant** at Umeå University 2017
Statistics for Journalists
- **Teaching Assistant** at Umeå University 2014–2017
Basic Statistics

PEDAGOGICAL COURSES

- **Teaching in higher education** at Umeå University
3 ECTS (2 weeks)
- **Learning in higher education** at Umeå University
4.5 ECTS (3 weeks)
- **Didactics for university teachers** at Umeå University
3 ECTS (2 weeks)