

Gabriel Wallin, PhD

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The London School of Economics and Political Science
London, UK



ACADEMIC POSITIONS

Lancaster University

Incoming Assistant Professor (tenure-track), Dept. 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

PhD. 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.** & 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>
2. 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..
3. **Wallin, G.** & Wiberg, M. (2021). How Important is the Choice of Bandwidth in Kernel Equating? *Applied Psychological Measurement*, 45, 518-535.
4. 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.
5. **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.

SUBMITTED PAPERS

1. **Wallin, G.**, Chen, Y., Moustaki, I. (2023). DIF Analysis with Unknown Groups and Anchor Items. Under review. Submitted to *Psychometrika*.
2. **Wallin, G.**, Wiberg, M. (2023). Smoothing of Bivariate Test Score Distributions - Model Selection Targeting Test Score Equating. Under review. Submitted to *Multivariate Behavioral Research*.

PROFESSIONAL ACTIVITIES

- **Journal Reviewer**
Annals of Applied Statistics
British Journal of Mathematical and Statistical Psychology
Applied Psychological Measurement
TEST
Educational and Psychological Measurement
Discover Education
- **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

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

TEACHING

- **Lecturer and Teaching Assistant** at The London School of Economics and Political Science

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)

2021–2024
- **Lecturer and Course Responsible** at Umeå University

Sampling: Design and Analysis

2018
- **Lecturer** at Umeå University

Probability and Statistical Inference

2017–2019
- **Lecturer** at Umeå University

Basic Statistics

2017–2019
- **Teaching Assistant** at Umeå University

Statistics for Journalists

2017
- **Teaching Assistant** at Umeå University

Basic Statistics

2014–2017

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)