

MAXIMILIAN MAIER

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RESEARCH INTEREST

Experimental

Decision Making, Behaviour Change, Moral & Altruistic Decision Making

Statistics and Methodology

Bayesian Statistics, Computational Modelling, Meta-Analysis

EDUCATION

PhD Candidate in Experimental Psychology

(Supervisors: Prof. Adam Harris & Dr. Henrik Singmann)

2021 – (Expected) 2025

University College London

Research Master Psychology (Specialization in Statistics, 8.8, Distinction)

2019 – 2021

University of Amsterdam

Thesis: *Evaluating human forecasts using Bayesian inference (awarded prize for best thesis)*

B.Sc. Psychology (1.0, distinction)

2016 – 2019

Julius-Maximilians-Universität Würzburg

Thesis: *Why do we search for information online? How Google search queries can be used to measure attitudes on aggregate level*

Abitur (1.0, distinction)

2009 – 2016

Meranier-Gymnasium, Lichtenfels

RESEARCH POSITIONS & EMPLOYMENT

Enrichment Scheme Placement

October 2024 –

The Alan Turing Institute

A nine-month placement scheme for graduate students to further their research through engagements with the data science and artificial intelligence research community at the Alan Turing Institute.

Visiting Researcher with Prof. Tom Griffiths

February – March 2024

Department of Psychology & Department of Computer Science, Princeton University

During this stay, I worked on computational modelling of moral and altruistic decision-making based on bias-variance trade-off.

Doctoral Fellow

October 2023 –

Centre for Behavioural Data Science, University College London

The Centre for Behavioural Data Science aims to bridge behavioural theory (from e.g. psychology and behavioural economics) and computational data science approaches (from e.g. statistics and computer science) to better predict and provide insights into human behaviour. As a fellow, I have given several talks at the centre's seminar series.

Visiting Researcher with Dr. Falk Lieder

March 2023

Max Planck Institute for Intelligent Systems, Tübingen

We developed a computational model of moral decision-making based on metacognitive learning and tested the predictions of the model experimentally.

Research Assistant with Prof. Eric-Jan Wagenmakers and JASP *March 2020 – July 2021*
University of Amsterdam, Department of Psychology

I was responsible for writing grants to attract new funding for the open-source statistical software JASP. In addition, I developed and implemented a new robust Bayesian meta-analysis in the presence of publication bias.

Research Internship with Prof. Denny Borsboom *March 2020 – June 2020*
University of Amsterdam, Department of Psychology

We developed a computational model to compare the quality of theories in the (social) sciences to improve theories in psychology and beyond.

Remote Research Assistant with Dr. Maya Mathur *June 2019 – October 2020*
Stanford University, Quantitative Sciences Unit

I worked as a research assistant on a project to conduct a large meta-meta-analysis across fields to assess publication bias and also took the lead on a paper in *Campbell Systematic Reviews* on selection models to adjust for publication bias.

Research Internship with Prof. Daniël Lakens *February 2019 – April 2019*
TU Eindhoven, Human Technology Interaction Group

I worked on detecting publication bias by p -curving a large existing database of published meta-analyses.

SCHOLARSHIPS, GRANTS, & AWARDS

The Alan Turing Institute Enrichment Scheme Placement Award (*£3,300*) *2024*

UCL Bogue Fellowship for research visit to Tom Griffiths' Computational Cognitive Science Lab at Princeton University (*£2 920*) *2024*

Institute for Humane Studies Publication Accelerator Grant for my work on open science practices in behavioural public policy research (*\$5 000*) *2023*

Virtual Mobility Grant for my assistance in Bayesian meta-analysis to the EU-funded consortium Determinants of Physical Activities in Settings (DE-PASS) (*€1500*) *2022*

UCL Graduate Conference Fund to present at MAER-net (Meta-Analysis in Economics Research) in Kyoto (*£600*) *2022*

Philosophy of Science Association Travel Fund for the Annual Meeting of the Philosophy of Science Association in Pittsburgh (*\$600*) *2022*

Thesis prize of the Research Master's Psychology at the University of Amsterdam for the best thesis in my cohort (*€250*) *2022*

Admitted to the Forethought Fellowship for Global Priorities Research, a fellowship for promising ECRs contributing to global priorities research with a focus on the well-being of future generations (*£10 000*) *2022 – 2023*

Research Grant from the Forethought Foundation for Global Priorities Research to hire a research assistant (*£25 000*) *2022*

Ph.D. scholarship from Longview Philanthropy (*£91 600*) *2021*

Study abroad grant and study fee coverage for the Research Master's Psychology awarded by "Studienstiftung des Deutschen Volkes" *2019 – 2021*

Scholarship from "Studienstiftung des Deutschen Volkes", a German sponsorship organisation for highly talented students *2019 – 2021*

Travel grant from “Forschung vor Ort” for research visit to Daniël Lakens’ Lab at TU Eindhoven 2019

Scholarship from “Max-Weber Program”, a Bavarian sponsorship organization for highly talented students 2016 – 2021

BIBLIOMETRICS & REPRESENTATIVE PUBLICATIONS

Bibliometrics: h-index: 12, 809 citations, i10-index: 14; see Google Scholar profile

Maier, M.*, Cheung, V.*, & Lieder, F. (Under review). Metacognitive learning from consequences of past choices shapes moral decision-making. <https://doi.org/10.31234/osf.io/gjf3h>

Maier, M., Harris A.J.L, Kellen D. & Singmann H. Introducing the Extinction Gambling Task (2024). *Proceedings of the Annual Meeting of the Cognitive Science Society*, 46. <https://escholarship.org/uc/item/4qk2v6s2>.

Maier, M.*, Bartoš, F.*, Stanley, T. D., Shanks, D. R., Harris, A. J., & Wagenmakers, E. J. (2022). No evidence for nudging after adjusting for publication bias. *Proceedings of the National Academy of Sciences*, 119(31), e2200300119. <https://doi.org/10.1073/pnas.2200300119>

Maier, M.*, Bartoš, F.*, & Wagenmakers, E.-J. (2023). Robust Bayesian Meta-Analysis: Addressing publication bias with model-averaging. *Psychological Methods*. 28(1), 107-122. <https://doi.org/10.1037/met0000405>.

INVITED LECTURES & WORKSHOPS

Metacognitive moral learning and decision-making 2024
Psychology Departmental Seminar, The University of Hong Kong

Investigating risky choices using the Extinction Gambling Task 2024
School of Mathematics, University of Leeds

Introducing the Extinction Gambling Task 2024
Computational Cognitive Science Lab, Princeton University

Metacognitive learning shapes reliance on moral rules vs. cost-benefit reasoning 2024
Crockett Lab, Princeton University

Learning from consequences shapes reliance on moral rules vs. cost-benefit reasoning 2023
Centre for Behavioural Science Data, UCL

Addressing publication bias 2023
ReproducibiliTea Journal Club, UCL

Introducing the Extinction Gambling Task 2023
Centre for Behavioural Science Data, UCL

Metacognitive learning shapes moral decision making 2023
Max Planck Institute for Intelligent Systems, Tübingen

Robust Bayesian Meta-Analysis: Addressing publication bias with model-averaging (with Applications in Experimental Psychology) 2022
Experimental Psychology Seminar, UCL

Robust Bayesian Meta-Analysis of research on nudging 2022
UIUC Quantitative Psychology Brownbag

Introduction and validation of the short antinatalism scale 2021
Online Experimental Philosophy Workshop

Introduction to Bayesian approach to statistical analysis – From estimation to model-averaging <i>Workshop given to the Consortium on Determinants of Physical Activities in Settings (DE-PASS)</i>	2021
We want good theories. But when do we have a good theory? <i>TU Eindhoven</i>	2020
An Introduction to Open Science <i>College for Politics, Psychology, Law and Economics (PPLE), University of Amsterdam</i>	2020
Preregistration and preprints – What, why and how? <i>Faculty of Behavioral and Movement Sciences, University of Amsterdam</i>	2020
Google search queries as a data source for psychology <i>Projects and Methods for Social Psychology, University of Würzburg</i>	2019

CONFERENCE PRESENTATIONS

Investigating risky choices using the Extinction Gambling Task <i>Annual Meeting of the Society for Mathematical Psychology, Tilburg</i>	2024
Introducing the Extinction Gambling Task <i>Annual Meeting of the Cognitive Science Society, Rotterdam</i>	2024
Introducing the Extinction Gambling Task <i>International Conference on Thinking, Milan</i>	2024
Evaluating the effectiveness of nudges in academia and public policy <i>Conference on Subjective Probability, Utility, and Decision-Making (SPUDM), Vienna</i>	2023
Robust Bayesian Meta-Regression: Publication bias adjusted moderator analysis <i>Annual Meeting of the Society for Research Synthesis Methodology, Paris</i>	2023
Comparing theories with the Ising Model of Explanatory Coherence <i>Annual Meeting of the Philosophy of Science Society, Pittsburgh</i>	2022
Comparing publication Bias in economics, medicine, and psychology <i>Annual conference of the Meta-Analysis in Economics Research Network (MAER-NET), Kyoto</i>	2022
Tracking the footprint of publication bias across science <i>Annual conference of the Meta-Analysis in Economics Research Network (MAER-NET), Piraeus</i>	2021
RoBMA (Robust Bayesian Meta-Analysis): Bayesian model-averaging over selection models and PET-PEESE <i>Meeting of the International Society for Bayesian Analysis (ISBA), online</i>	2021
Comparing theories with the Ising Model of Explanatory Coherence <i>International Workshop on Theory (Re)Construction in the Empirical Social and Behavioral Sciences, online, https://tinyurl.com/yyv62mwq</i>	2020
Bayesian benefits for meta-analysis in the presence of publication bias <i>International Meeting of the Psychometric Society, online, https://youtu.be/KFt9YraOykM</i>	2020

POSTERS

Maier, M., Kellen, D., Harris, A.J.L., & Singmann, H. (2023). Risky choices with potentially ‘fatal’ outcomes: Introducing the Extinction Gambling Task. Poster presented at the Psychology and Language Sciences PhD Conference, UCL.

Maier, M., Kellen, D., Harris, A.J.L., & Singmann, H. (2023). Risky choices with potentially ‘fatal’ outcomes: Introducing the Extinction Gambling Task. Poster presented at the Annual JAGS Workshop: Bayesian Modeling for Cognitive Science, University of Amsterdam.

Maier, M., Kellen, D., Harris, A.J.L., & Singmann, H. (2023). Risky choices with potentially ‘fatal’ outcomes: Introducing the Extinction Gambling Task. Poster presented at the International Conference for Mathematical Psychology, University of Amsterdam.

Maier, M. (2022) Are cognitive biases adaptive to reduce variance in judgement? Poster presented at the Sixth European Summer School on Computational and Mathematical Modelling of Cognition.

Maier, M., Cheung, V., & Lieder F. (2023). Learning from consequences shapes reliance on rules vs. cost-benefit reasoning. Poster presented at the Summer Institute for Bounded Rationality.

Maier, M., Van Dongen, N., Denny, B. (2020). Ising Model of Explanatory Coherence (2020). Poster Presented at the Research Master Psychology Poster Conference, University of Amsterdam.

TEACHING & INSTITUTIONAL CITIZENSHIP

Teaching Assistant for “Statistics, Data Analysis, and Modelling” 2021 –
University College London, Department of Experimental Psychology

In this Master’s level statistics course, students learn about advanced data analytical techniques in R. As a teaching assistant, I answered students’ questions during tutorials, helped with the programming assignments in R, and assisted with administrative duties. I also marked students’ final assignments.

Statistical Consultation 2023 – 2024
University College London, Department of Experimental Psychology

Together with my supervisor Dr. Singmann, we created a statistics help desk to support researchers at UCL Department of Experimental Psychology with their statistical analyses. We offer two one-hour consultation slots per week and advise on a variety of topics related to experimental design and data analysis.

Supervision of Student Projects 2021 – 2024
University College London, Department of Experimental Psychology

- 2023 – 2024: B.Sc. Project developing a new Bayesian-frequentist hybrid p -value together with Dr. Henrik Singmann.
- 2022 – 2023: M.Sc project evaluating the influence of joint versus separate evaluation on effectiveness focus in charitable decision making together with Prof. Adam Harris.
- 2021 – 2022: Two undergraduate student projects on temporal unpacking in the domains of both existential risks and consumer choice together with Prof. Adam Harris.

Second Year Undergraduate Seminar on Teamwork Jan 2024
University College London, Department of Experimental Psychology

The aim of the session was for students to identify how they can facilitate effective team works. I moderated a discussion about teamwork and a scenario-based activity where students needed to formalise a social contract for their next teamwork project.

Teaching Assistant for “Good Research Practices” November 2020 – January 2020
University of Amsterdam, Department of Psychology

In this course, students learn about the replication crisis and steps they can take in their research to reach more reliable conclusions. As a teaching assistant, I gave a lecture on the Student Initiative for Open Science, marked students’ essays and assisted with administrative duties.

SOFTWARE

Maier, M., & Lakens, D. (2021). JustifyAlpha [R package]. <https://cran.r-project.org/web/packages/JustifyAlpha/index.html>

Bartoš, F., & Maier, M. (2020). RoBMA: An R Package for Robust Bayesian Meta-Analyses [R package]. <https://CRAN.R-project.org/package=RoBMA>

Maier, M. (2020) Estimating the Ising Model of Explanatory Coherence [R package]. <https://github.com/MaxMaier42/IMEC>

Maier, M. Justify Alpha by Optimizing Learning [Shiny App]. <https://maxmaier.shinyapps.io/OptimizeAlpha>

SKILLS & TRAINING COURSES

Programming Skills: R (advanced), probabilistic program in JAGS (intermediate) and STAN (advanced)

Bayesian Modelling for Cognitive Science *July, 2023*
JAGS workshop at the University of Amsterdam

Summer Institute on Bounded Rationality *June, 2023*
Max-Planck Institute for Human Development, Berlin

Computational and Mathematical Modelling of Cognition *July, 2022*
European Summer School in Szklarska Poreba, Poland

UCL Arena for PGTAs: Teaching Associate Programme *June, 2022*
One week training for teachers at UCL to prepare for the application as Associate Fellow of the Higher Education Academy.

KNOWLEDGE EXCHANGE

BBC News: Does ‘nudge theory’ work after all?

The Economist: Evidence for behavioural interventions looks increasingly shaky

Financial Times: Harvard fraud claims fuel doubts over science of behaviour

Atlantico: Changer les comportements par le nudge? Une illusion [Changing Behaviours with Nudging? – An Illusion]

Psychology Today: Do Nudges Work?

PROFESSIONAL MEMBERSHIPS & OTHER ACTIVITIES

Ad hoc reviews for Journal of Personality and Social Psychology, Advances in Methods and Practices in Psychological Science, Collabra Psychology, JEP:General, Peer Community Registered Reports, Research Synthesis Methods, Royal Society Open Science, Plos One, & Multivariate Behavior Research Methods

Member of the Association for Psychological Science *2024 –*

Member of the Cognitive Science Society *2024 –*

Member of the Society for Mathematical Psychology *2023 –*

Member of the Society for Research Synthesis Methods *2023 –*

Member of the Student Initiative for Open Science (SIOS), an initiative that tries to spread adoption of open science practices among students *2019 – 2021*

PUBLICATIONS & IN PRESS

Maier, M., Harris A.J.L, Kellen D. Singmann H. Introducing the Extinction Gambling Task (2024). *Proceedings of the Annual Meeting of the Cognitive Science Society*, 46. <https://escholarship.org/uc/item/4qk2v6s2>.

Stanley, T. D., Doucouliagos, H., **Maier, M.**, & Bartoš, F. (2024). Correcting bias in the meta-analysis of correlations. *Psychological Methods*. Advance online publication. <https://doi.org/10.1037/met0000662>

Kolovelonis, A., Sympas, I., Marcuzzi, A. ... **Maier, M.**, ... & Ling, F.C.M. DE-PASS Best Evidence Statement (BEST): Determinants of adolescents' device-based physical activity and sedentary behaviour in settings: A systematic review and meta-analysis (2024). *BMC Public Health*, 24, 1706. <https://doi.org/10.1186/s12889-024-19136-y>

Maier, M.*, Bartoš, F.*, Raihani, N., Shanks, D.R., Stanley, T.D., Wagenmakers, E.-J., & Harris, A.J.L. (2024). Exploring open science practices in behavioural public policy research. *Royal Society Open Science*, 11. <http://doi.org/10.1098/rsos.231486>.

Bartoš, F.*, **Maier, M.***, Wagenmakers, E.-J., Nippold, F., Doucouliagos, H., Ioannidis, J.P.A., Otte, W.M., Sladekova, M., Deressa, T.K., Bruns, S.B, Fanelli, D., Stanley, D.D. (2024) Footprint of publication selection bias on meta-analyses in medicine, environmental sciences, psychology, and economics. *Research Synthesis Methods*, 5(3), 500-511. <https://doi.org/10.1002/jrsm.1703>.

Paruzel-Czachura, M., **Maier, M.**, Warmuz, R., Wilks, M., & Caviola, L. (2024). Children value animals more than adults do – A conceptual replication and extension. *Social Psychology Bulletin*. Advance online publication. <https://doi.org/10.1177/01461672231219391>.

Maier, M.* Wong, Y.*, Feldman, G.* (2023). Revisiting and rethinking the identifiable victim effect: Replication and extension of Small, Loewenstein, and Slovic (2007). *Collabra: Psychology*, 9(1). <https://doi.org/10.1525/collabra.90203>.

Maier, M. & van Dongen, N., Borsboom, D. (2023). Comparing theories with the Ising model of explanatory coherence. *Psychological Methods*. Advance online publication. <https://doi.org/10.1037/met0000543>.

Maier, M., Cheung, V., & Lieder, F. (2023). A reinforcement-learning meta-control architecture based on the dual-process theory of moral decision-making. *NeurIPS Workshop: AI meets Moral Philosophy and Moral Psychology*. <https://doi.org/10.31234/osf.io/j6fhk>.

Bartoš, F.*, **Maier, M.***, Shanks, D.R., Stanley, T.D., Sladekova, M., & Wagenmakers, E.J. (2022). Meta-analyses in psychology often overestimate evidence for and size of effects. *Royal Society Open Science*, 10 (230224). <https://doi.org/10.1098/rsos.230224>.

Bartoš, F., **Maier, M.**, & Wagenmakers, E.-J.(2023). Robust Bayesian meta-analysis: Model-averaging across complementary publication bias adjustment methods. *Research Synthesis Methods*, 14, 99-116 <https://doi-org.libproxy.ucl.ac.uk/10.1002/jrsm.1594>. (Top 10% most cited paper in RSM)

Stanley, TD, Ioannidis, J.P.A., **Maier, M.**, Doucouliagos, H., Otte, W.M., & Bartoš, F. (2023) Unrestricted weighted least squares represent medical research better than random effects in 67,308 Cochrane meta-analyses. *Journal of Clinical Epidemiology*, 157. <https://doi.org/10.1016/j.jclinepi.2023.03.004>. (Editor's Choice, May 2023, <https://tinyurl.com/2cs2yp57>)

Schoenegger, P.*, **Maier, M.***, & Bastos, R.* (2023) Introduction and validation of the Short Antinatalism Scale. *Psychological Test Adaptation and Development*, 4(1). <https://doi.org/10.1027/>

2698-1866/a000036,

Hoogeveen, S., Sarafoglou, A., Aczel, B., Aditya, Y., Alayan, A.J., Allen, P.J., ...**Maier, M.**, ... & Nilsson, G. (2023). A many-analysts approach to the relation between religiosity and well-being. *Religion, Brain & Behavior*, *3*, 237-283. <https://doi.org/10.1080/2153599X.2022.2070255>.

Maier, M.*, Bartoš, F.*, & Wagenmakers, E.-J. (2023). Robust Bayesian Meta-Analysis: Addressing publication bias with model-averaging. *Psychological Methods*, *28*(1), 107-122. <https://doi.org/10.1037/met0000405>.

Maier, M., Caviola, L., Schubert, S., & Harris, A.J.L. (2023). Investigating (Sequential) Unit Asking – An Unsuccessful Quest for Scope Sensitivity in WTD Judgements. *Journal of Behavioural Decision Making*, *36*(4), e2335. <https://doi-org.libproxy.ucl.ac.uk/10.1002/bdm.2335>.

Grossman, I., Rotella, A. ... **Maier, M.** ..., & The Forecasting Collaborative (2023). Insights into accuracy of social scientists' forecasts of societal change. *Nature Human Behaviour*, *7*, 484-501. <https://doi.org/10.1038/s41562-022-01517-1>.

Maier, M.*, Bartoš, F.*, Stanley, T.D., Shanks, D.R., Harris, A.J.L., & Wagenmakers, E.-J. (2022). No evidence for nudging after adjusting for publication bias. *Proceedings of the National Academy of Sciences*, *119*(31), e2200300119.

Khudair, M., Marcuzzi, A., Ng, K., Tempest, G.D., Bartoš, F., Peric, R., ... **Maier, M.**, ... & Ling, F.C.M. (2022). DE-PASS Best Evidence Statement (BEST): Modifiable determinants of physical activity and sedentary behaviour in children and adolescents aged 5–19 years – a protocol for systematic review and meta-analysis. *BMJ Open*, *12*(9), e059202.

Bartoš, F.*, **Maier, M.***, Wagenmakers, E.-J., Doucouliagos, H., Stanely, T.D. (2022). Adjusting for publication bias in JASP – selection models and robust Bayesian meta-analysis. *Advances in Methods and Practices in Psychological Science* *5*(3), 1-19. <https://doi.org/10.31234/osf.io/75bqn>.

Maier, M. & VanderWeele, T., Mathur, M. (2022). Using selection models to assess sensitivity to publication bias: A tutorial and call for more routine use. *Campbell Systematic Reviews*, *18*(3), e1256. <https://doi.org/10.1002/c12.1256>. (Top 10% most cited paper in Campbell Systematic Reviews)

Maier, M. & Lakens, D. (2022). Justify your alpha: A primer on two practical approaches. *Advances in Methods and Practices in Psychological Science*, *5*(2). <https://doi.org/10.1177/25152459221080396>.

Bartoš, F.*, & **Maier, M.*** (2020). Power or alpha? The better way of decreasing the false discovery rate. *Meta-Psychology*, *6*. <https://doi.org/10.15626/MP.2020.2460>.

*authors contributed equally

MANUSCRIPTS UNDER REVIEW & PREPRINTS

Maier, M.*, Cheung, V.*, & Lieder, F. (Under review). Metacognitive learning from consequences of past choices shapes moral decision-making. <https://doi.org/10.31234/osf.io/gjf3h>

Cheung, V.*, **Maier, M.***, & Lieder, F. (Under review). Understanding decision mechanisms in (moral) dilemmas: Introducing scales to measure reliance on rules, cost-benefit reasoning, intuition, & deliberation. <https://doi.org/10.31234/osf.io/zfmp9>

Cheung, V.*, **Maier, M.***, & Lieder, F. (Under review). Large language models amplify human biases in moral decision-making. <https://doi.org/10.31234/osf.io/aj46b>

Bartoš, F.*, **Maier, M.***, Stanley, T. D., & Wagenmakers, E.J (Under review). Robust Bayesian meta-regression – Model-averaged moderation analysis in the presence of publication bias. <https://doi.org/10.31234/osf.io/98xb5>.

Maier, M.*, Bartoš, F.*, Quintana, D.S., Dablander, F., van den Bergh, D., Marsman, M., Wagenmakers, E.-J. (Under review). Model-averaged Bayesian t-tests. <https://doi.org/10.31234/osf.io/d5zwc>.

Bartoš, F.*, **Maier, M.***, Stanley, T.D., & Wagenmakers, E.-J. (2022). Adjusting for publication bias reveals mixed evidence for the impact of cash transfers on subjective well-being and mental health. <https://doi.org/10.31234/osf.io/d9vcg>.

Maier, M., Bartoš, F., Oh, M., Wagenmakers, E.-J., Shanks, D.R., & Harris, A. J. L. (2022). Publication bias in research on construal level theory. <https://doi.org/10.31234/osf.io/r8nyu>.

*authors contributed equally