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# MARTIN SCHNUERCH

Postdoctoral Researcher  
DFG Research Training Group "Statistical Modeling in Psychology" (SMiP)  
School of Social Sciences  
University of Mannheim

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## ACADEMIC POSITIONS

<b>Interim Professor (<i>Vertretungsprofessor</i>)</b> Quantitative Research Methods   <i>Heidelberg University</i>	<b>2022</b>
<b>Postdoctoral Researcher</b> Research Methods & Psychological Assessment RTG Statistical Modeling in Psychology   <i>University of Mannheim</i>	<b>since 2020</b>
<b>Visiting Scholar</b> Structure in Perception & Cognition   <i>University of California, Irvine</i>	<b>2020 / 2024</b>
<b>Visiting Scholar</b> Cognition & Perception   <i>University of Tübingen</i>	<b>2019</b>
<b>Doctoral Researcher</b> Cognition & Individual Differences   <i>University of Mannheim</i>	<b>2017 – 2020</b>

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## EDUCATION

<b>Ph.D. (Dr. rer. soc.) in Psychology</b> Grade: summa cum laude   <i>University of Mannheim</i>	<b>2017 – 2020</b>
<b>Exchange Semester</b> <i>University of Oslo, Norway</i>	<b>2016</b>
<b>M.Sc. in Cognitive and Clinical Psychology</b> Grade: 1.0 (with honors)   <i>University of Mannheim</i>	<b>2014 – 2017</b>
<b>B.Sc. in Psychology</b> Grade: 1.1 (with honors)   <i>University of Mannheim</i>	<b>2011 – 2014</b>

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- Substantive Focus**
- Individual differences in cognition
  - Judgment and decision making
  - Memory and social cognition
- Methodological Focus**
- Statistical and computational modeling of behavior
  - Bayesian hierarchical modeling / Model comparison
  - Sequential testing

## PUBLICATIONS

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- Elsemüller, L., **Schnuerch, M.**, Bürkner, P.-C., & Radev, S. T. (in press). A deep learning method for comparing Bayesian hierarchical models. *Psychological Methods*.
- Schnuerch, M.**, Heck, D. W., & Erdfelder, E. (2024). Waldian  $t$  tests: Sequential Bayesian  $t$  tests with controlled error probabilities. *Psychological Methods*, *24*, 99-116. <https://doi.org/10.1037/met0000492>
- Hoogeveen, S., Sarafoglou, A., Aczel, B., Aditya, Y., Alayan, A. J., Allen, P. J., Altay, S., Alzahawi, S., Amir, Y., Anthony, F.-V., Kwame Appiah, O., Atkinson, Q. D., Baimel, A., Balkaya-Ince, M., Balsamo, M., Banker, S., Bartoš, F., ... **Schnuerch, M.** ... Wagenmakers, E.-J. (2023). A many-analysts approach to the relation between religiosity and well-being. *Religion, Brain & Behavior*, *13*, 237-283. <https://doi.org/10.1080/2153599X.2022.2070255>
- Rouder, J. N., **Schnuerch, M.**, Haaf, J. M., & Morey, R. D. (2023). Principles of model specification in ANOVA designs. *Computational Brain & Behavior*, *6*, 50-63. <https://doi.org/10.1007/s42113-022-00132-7>
- Schnuerch, M.**, & Erdfelder, E. (2023). Building the study. In A. L. Nichols & J. E. Edlund (Eds.), *The Cambridge handbook of research methods and statistics for the social and behavioral sciences* (pp. 103-124). Cambridge University Press.
- van Doorn, J., Haaf, J. M., Stefan, A. M., Wagenmakers, E. -J., Cox, G. E., Davis-Stober, C. P., Heathcote, A., Heck, D. W., Kalish, M., Kellen, D., Matzke, D., Morey, R. D., Nicenboim, B., van Ravenzwaaij, D., Rouder, J. N., Schad, D. J., Shiffrin, R. M., ... **Schnuerch, M.** ... Aust, F. (2023). Bayes factors for mixed models: A discussion. *Computational Brain & Behavior*, *6*, 140-158. <https://doi.org/10.1007/s42113-022-00160-3>
- Reiber, F., **Schnuerch, M.**, & Ulrich, R. (2022). Improving the efficiency of surveys with randomized response models: A sequential approach based on curtailed sampling. *Psychological Methods*, *27*, 198-211. <https://doi.org/10.1037/met0000353>
- Schnuerch, M.**, Haaf, J. M., Sarafoglou, A., & Rouder, J. N. (2022). Meaningful comparisons with ordinal-scale items. *Collabra: Psychology*, *8*, 38594. <https://doi.org/10.1525/col-labra.38594>
- Erdfelder, E., & **Schnuerch, M.** (2021). On the efficiency of the independent segments procedure: A direct comparison with sequential probability ratio tests. *Psychological Methods*, *26*, 501-506. <https://doi.org/10.1037/met0000492>
- Nadarevic, L., **Schnuerch, M.**, & Stegemann, M. J. (2021). Judging fast and slow: The truth effect does not increase under time-pressure conditions. *Judgment and Decision Making*, *16*, 1234-1266. <https://doi.org/10.1017/S193029750000841X>
- Schnuerch, M.**, Nadarevic, L., & Rouder, J. N. (2021). The truth revisited: Bayesian analysis of individual differences in the truth effect. *Psychonomic Bulletin & Review*, *28*, 750-765. <https://doi.org/10.3758/s13423-020-01814-8>
- Pensel, M. C., **Schnuerch, M.**, Elger, C. E., & Surges, R. (2020). Predictors of focal to bilateral tonic-clonic seizures during long-term video-EEG-monitoring. *Epilepsia*, *61*, 489-497. <https://doi.org/10.1111/epi.16454>
- Schnuerch, M.** (2020). *Improving statistical practice in psychological research: Sequential tests of composite hypotheses* (Doctoral dissertation). University of Mannheim, Mannheim.
- Schnuerch, M.**, & Erdfelder, E. (2020). Controlling decision errors with minimal costs: The sequential probability ratio  $t$  test. *Psychological Methods*, *25*, 206-226. <https://doi.org/10.1037/met0000234>
- Schnuerch, M.**, Erdfelder, E., & Heck, D. W. (2020). Sequential hypothesis tests for multinomial processing tree models. *Journal of Mathematical Psychology*, *95*, 102326. <https://doi.org/10.1016/j.jmp.2020.102326>

Brandt, M., Zaiser, A.-K., & **Schnuerch, M.** (2019). Homogeneity of item material boosts the list length effect in recognition memory: A global matching perspective. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, *45*, 834-850. <https://doi.org/10.1037/xlm0000594>

Schnuerch, R., **Schnuerch, M.**, & Gibbons, H. (2015). Assessing and correcting for regression toward the mean in deviance-induced social conformity. *Frontiers in Psychology*, *6*, 669. <https://doi.org/10.3389/fpsyg.2015.00669>

#### SUBMITTED & IN PREPARATION

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Erdfelder, E., Quevedo Pütter, J., & **Schnuerch, M.** (2023). On aggregation invariance of multinomial processing tree models. *Manuscript submitted for publication.*

Schmidt, B., Böhmer, J., **Schnuerch, M.**, Michelmann, S., & Koch, T. (2023). Post-hypnotic suggestion improves confidence and speed of memory access with long-lasting effects. *Manuscript submitted for publication.*

Schumacher, L., **Schnuerch, M.**, Voss, A., & Radev, S. T. (2023). Validation and comparison of non-stationary diffusion decision models. *Manuscript submitted for publication.*

Steinhilber, M., **Schnuerch, M.**, & Schubert, A.-L. (2023). Sequential analysis of variance: Increasing efficiency in hypothesis testing. *Manuscript submitted for publication.*

**Schnuerch, M.** (2024). A sequential hypothesis testing framework for randomized response models. *Manuscript in preparation.*

#### INVITED TALKS

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**Schnuerch, M.** (June 2022). *Two kinds of truthers: Qualitative individual differences in the truth effect.* Invited talk at the Experimental Psychology and Self-Regulation Lab (Jan Rummel), Heidelberg University, Germany.

**Schnuerch, M.** (May 2022). *On means and polarization: Bayesian comparison of response distributions with Likert items.* Invited talk at the Psychological Methods Lab (Tobias Koch), Friedrich Schiller University Jena, Germany.

**Schnuerch, M.** (January 2021). *Beyond true and false - Modeling individual differences in the truth effect.* Invited talk at the Diagnostics and Individual Differences Lab (Jochen Musch), Heinrich Heine University Düsseldorf, Germany.

**Schnuerch, M.** (June 2020). *Sequential hypothesis tests in MPT models.* Invited talk at the Social Psychology and Methodology Lab (Karl Christoph Klauer), University of Freiburg, Germany.

**Schnuerch, M.** (November 2019). *Gender differences in casual sex: Application of a sequential randomized response analysis.* Invited talk at the Perception and Cognition Lab (Rolf Ulrich), University of Tübingen, Germany.

**Schnuerch, M.** (December 2018). *A sequential randomized response technique.* Invited talk at the Perception and Cognition Lab (Rolf Ulrich), University of Tübingen, Germany.

#### CONFERENCE CONTRIBUTIONS

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**Schnuerch, M.**, & Schnuerch, R. (2023). *What lies beneath: A diffusion-model account of the cognitive cost of lying.* Poster presented at the 64th Annual Meeting of the Psychonomic Society, San Francisco, USA.

**Schnuerch, M.**, Zajdler, S., & Schumacher, L. (2023). *Fading memory, waning attention: Modeling output interference with a dynamic diffusion model.* Talk presented at the 56th Annual Meeting of the Society for Mathematical Psychology, Amsterdam, Netherlands.

**Schnuerch, M.** (2023). *The truth about lies: A diffusion-model account of the cognitive cost of lying.* Talk presented at the SMiP Spring Retreat, Buchenbach, Germany.

- Erdfelder, E., Quevedo Pütter, J., & **Schnuerch, M.** (2022). *Multinomial processing tree models of cognition: Aggregation invariance properties*. Talk presented at the 63rd Annual Meeting of the Psychonomic Society, Boston, USA.
- Else Müller, L., **Schnuerch, M.**, Bürkner, P.-C., & Radev, S. T. (2022). *Comparing Bayesian hierarchical models of cognition via deep learning*. Talk presented at the 2022 European Mathematical Psychology Group Meeting, Rovereto, Italy.
- Fischer, J., **Schnuerch, M.**, & Schreiner, M. (2022). *Multinomial processing tree modeling of feature binding in long-term memory*. Poster presented at the 64th Conference of Experimental Psychologists (Virtual).
- Reiber, F., & **Schnuerch, M.** (2022). *An empirical demonstration of the sequential maximum likelihood ratio test in a randomized response survey*. Talk presented at the 52nd Congress of the German Psychological Society, Hildesheim, Germany.
- Schnuerch, M.**, Haaf, J. M., Sarafoglou, A., & Rouder, J. N. (2022). *Meaningful comparisons with ordinal-scale items*. Talk presented at the 64th Conference of Experimental Psychologists (Virtual).
- Schnuerch, M.**, & Hilbig, B. E. (2022). *Sequential analysis of cheating paradigms*. Talk presented at the 52nd Congress of the German Psychological Society, Hildesheim, Germany.
- Steinhilber, M., **Schnuerch, M.**, & Schubert, A.-L. (2022). *Reliable scientific software development in R using the sprtt package as an example*. Talk presented at UseR! 2022: The R User Conference (Virtual).
- Reiber, F., **Schnuerch, M.**, & Ulrich, R. (2021). *Efficient sampling using Randomized Response Techniques Part I: Curtailed Sampling*. Talk presented at the 63rd Conference of Experimental Psychologists (Virtual).
- Rouder, J. N., Haaf, J. M., & **Schnuerch, M.** (2021). *Realistic and useful model specification for within-subject ANOVA designs*. Talk presented at the 62nd Annual Meeting of the Psychonomic Society (Virtual).
- Schnuerch, M.**, Heck, D. W., & Erdfelder, E. (2021). *Waldian t tests: Controlling error probabilities in sequential Bayesian t tests*. Talk presented at the 15th Conference of the Section Methods and Evaluation in the German Psychological Society (Virtual).
- Schnuerch, M.**, Nadarevic, L., & Rouder, J. N. (2021). *Qualitative individual differences in the truth effect*. Poster presented at the 62nd Annual Meeting of the Psychonomic Society (Virtual).
- Schnuerch, M.**, Reiber, F., & Ulrich, R. (2021). *Efficient sampling using Randomized Response Techniques Part II: Sequential Probability Ratio Tests*. Talk presented at the 63rd Conference of Experimental Psychologists (Virtual).
- Schnuerch, M.** (2020). *Everybody truths - Or do they? Modeling individual differences in the truth effect*. Talk presented at the SMiP Summer Retreat (Virtual).
- Schnuerch, M.** (2019). *Efficient hypothesis testing with the sequential probability ratio t test*. Talk presented at the 8th Workshop for Doctoral Students in Experimental Psychology (A-Dok), Mannheim, Germany.
- Schnuerch, M.** (2019). *Efficiently testing sensitive attributes: A sequential randomized response technique*. Talk presented at the 61st Conference of Experimental Psychologists, London, UK.
- Schnuerch, M.** (2019). *Sequential hypothesis tests for multinomial processing tree models*. Talk presented at the 34th IOPS Summer Conference, Utrecht, Netherlands.
- Schnuerch, M.**, & Erdfelder, E. (2019). *Efficient hypothesis tests in multinomial processing tree models: A sequential probability ratio test for the randomized response technique*. Talk presented at the 2019 European Mathematical Group Meeting, Heidelberg, Germany.
- Schnuerch, M.** (2018). *Sequential analysis of surveys with randomized response models*. Talk presented at the SMiP Summer Retreat, Buchenbach, Germany.
- Schnuerch, M.** (2018). *Sequential statistical methods in psychology*. Talk presented at the SMiP Winter Retreat, St. Martin, Germany.
- Schnuerch, M.**, & Erdfelder, E. (2018). *Controlling statistical decision errors with minimal costs: Relative efficiency of sequential probability ratio tests vs. Bayesian t-tests*. Talk presented at the 60th Conference of Experimental Psychologists, Marburg, Germany.
- Schnuerch, M.**, Heck, D. W., & Erdfelder, E. (2018). *Waldian t tests: A sequential Bayes factor design for accepting and rejecting the null hypothesis with controlled error probabilities*. Talk presented at the 2018 European Mathematical Psychology Group Meeting, Genoa, Italy.

## SOFTWARE

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- Schnuerch, M.** (2021). *Easy application of Waldian t tests* [Shiny App]. <https://martinschnuerch.shinyapps.io/Waldian-t-Tests/>
- Schnuerch, M., & Rouder, J. N.** (2021). *Bayes factors for ordinal scales* [Shiny App]. <https://martinschnuerch.shinyapps.io/likertBF/>
- Steinhilber, M., **Schnuerch, M.**, & Schubert, A.-L. (2021). *sprtt: Sequential probability ratio tests toolkit* [R package]. CRAN. <https://cran.r-project.org/package=sprtt>
- Reiber, F., Izydorczyk, D., & **Schnuerch, M.** (2020). *Curtailed RRT made easy* [Shiny App]. <https://fabiolareiber.shinyapps.io/CurtailedRRT/>

## GRANTS & SCHOLARSHIPS

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- 3-Year Research Grant** **2024**  
Baden-Württemberg Foundation "Eliteprogramm" | € 145,000
- Ph.D. Scholarship (declined)** **2017**  
Graduate School of Economic and Social Sciences, Mannheim | € 14,400
- Undergraduate and Graduate Scholarship** **2012 – 2017**  
German Academic Scholarship Foundation | € 15,900

## AWARDS

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- Teaching Award for Best Lecture in Psychology** **2023**  
*University of Mannheim, academic year 2022/2023*
- Best Presentation Award** **2019**  
*Conference of the Interuniversity Graduate School of Psychometrics and Sociometrics*
- Otto Selz Award for Best Bachelor Thesis in Psychology** **2015**  
*University of Mannheim*

## UNIVERSITY SERVICE

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- Postdoctoral Representative in the Study Commission** **since 2023**  
School of Social Sciences | *University of Mannheim*
- Organizer of a Conference for Doctoral Students** **2019**  
Section General Psychology | *German Psychological Society*
- Ph.D. Candidate Spokesperson** **2018 – 2019**  
*RTG Statistical Modeling in Psychology*
- Member of the Psychology Student Council** **2011 – 2016**  
School of Social Sciences | *University of Mannheim*

## AD-HOC REVIEWING

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Behavior Research Methods; British Journal of Mathematical and Statistical Psychology; Collabra: Psychology; Frontiers in Psychology; Journal of Experimental Psychology: General; Journal of Experimental Psychology: Learning, Memory, and Cognition; Judgment and Decision Making; Memory & Cognition; Methodology; PLOS ONE; Psychological Methods; Psychometrika; Psychonomic Bulletin & Review; SAGE Open; The Quantitative Methods for Psychology

**LECTURES**

Design and analysis of empirical studies Bachelor   <i>University of Mannheim</i>	2022 / 2023
Quantitative research methods: Inferential statistics Bachelor   <i>Heidelberg University</i>	2022
Research design Bachelor   <i>Heidelberg University</i>	2022

**SEMINARS**

Advanced data analysis in R Master   <i>Heidelberg University</i>	2022
Research colloquium Bachelor/Master   <i>Heidelberg University</i>	2022
Bayesian modeling of individual differences Master   <i>University of Mannheim</i>	2021
Introduction to R: Basics & applications Master   <i>Philipps University of Marburg</i>	2020 / 2021
Honest answers to critical questions Bachelor   <i>University of Mannheim</i>	2019
Quantitative methods tutorial Bachelor   <i>University of Mannheim</i>	2013 – 2016

**GRADUATE WORKSHOPS**

Sequential hypothesis testing: Introduction & application <i>University of Zurich</i>	2023
Evidence, errors, & beliefs: The statistical inference maze <i>RTG Statistical Modeling in Psychology</i>	2020 / 2023
Introduction to Bayesian modeling <i>RTG Statistical Modeling in Psychology</i>	2021 / 2022
Research organization and useful software <i>RTG Statistical Modeling in Psychology</i>	2020 – 2022
Advanced topics in R <i>RTG Statistical Modeling in Psychology</i>	2020 / 2021
Introduction to R: Basics & advanced <i>RTG Statistical Modeling in Psychology</i>	2018 – 2021

STUDENT  
SUPERVISION

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**DOCTORAL STUDENTS (1)**

Selina Zajdler from 03 / 2024  
*Modeling qualitative individual differences in the truth effect*

**MASTER STUDENTS (10)**

Steffen Ernst, Franziska Leipold, Roberto Scatorchia, Selina Zajdler 2023

Chiara Alissa Hiller, Sophie Jost, Simon Steiger 2022

Lasse Elsemüller, John Fischer, Meike Steinhilber 2021

**BACHELOR STUDENTS (5)**

Tanja Mörstedt, Eva Pöhlmann 2024

Thilo Bergner 2023

Selina Zajdler 2021

Louisa Dreßler 2020

PROFESSIONAL  
MEMBERSHIPS

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**Society for Mathematical Psychology** since 2023

**Psychonomic Society** since 2021

**Society for the Improvement of Psychological Science** since 2021

**German Psychological Society (DGPs)** since 2018

REFERENCES

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**Prof. Dr. Edgar Erdfelder**

Cognitive Psychology | *University of Mannheim*  
erdfelder@uni-mannheim.de

**Prof. Julia M. Haaf, Ph.D.**

Psychological Methods | *University of Amsterdam*  
j.m.haaf@uva.nl

**Prof. Dr. Daniel W. Heck**

Psychological Methods | *Philipps University of Marburg*  
dheck@uni-marburg.de

**Prof. Dr. Thorsten Meiser**

Research Methods & Psychological Assessment | *University of Mannheim*  
t.meiser@uni-mannheim.de

**Prof. Jeffrey N. Rouder, Ph.D.**

Structure in Perception and Cognition | *University of California, Irvine*  
jrouder@uci.edu