

Maximilian M. Rabe

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Education

- since 5/2018 **Cognitive Science (PhD)** at Universität Potsdam, Germany. Thesis project: *Computational Modeling of Eye Movement Control and Sentence Processing*. Supervisors: Ralf Engbert & Shravan Vasishth
- 9/2016-4/2018 **Psychology (M.Sc.)**, concentration *Cognition and Brain Science* at the University of Victoria, Canada. Thesis project: *Generalized Linear Mixed Modeling of Signal Detection Theory*. Supervisors: D. Stephen Lindsay & Michael E. J. Masson
- 10/2012-4/2016 **Psychology (B.Sc.)** at Universität Potsdam, Germany. Thesis project: *Mixed-Model Analysis of Trial History in Naming Experiments*. Supervisors: Reinhold Kliegl (Universität Potsdam) & Michael E. J. Masson (University of Victoria)
- 1/2015-4/2015 **Psychology (visiting student)** at the University of Victoria, BC, Canada
- 8/2014-12/2014 **Psychology (visiting student)** at the University of Mississippi, MS, USA
- 10/2011-9/2012 **Philosophy-Neuroscience-Cognition** at the Otto-von-Guericke Universität, Magdeburg, Germany, without degree
- 8/2002-6/2009 **High-school diploma** at Carl Bechstein Gymnasium, Erkner, Germany

Awards

- 9/2017-8/2018 **Graduate Fellowship**, University of Victoria, CA\$ 15,000
- 9/2016-4/2018 **Graduate Study Scholarship**, German Academic Exchange Service (DAAD)
- 1/2015-4/2015 **PROMOS Scholarship**, German Academic Exchange Service, € 1,200

Research Experience

- since 1/2018 **Doctoral research associate**, Universität Potsdam, Project B03 (*Modelling the interaction between eye-movement control and parsing processes*) of CRC 1287 (*Limits of Variability in Language*) with S. Vasishth und R. Engbert
- Bayesian computational modeling of eye movements in reading
- 1/2015-4/2015 **Research internship**, University of Victoria, Psychology Department with D. Stephen Lindsay and Michael E. J. Masson
- 6/2014-8/2016 **Research assistant**, Universität Potsdam, Department of Psychology under supervision of Reinhold Kliegl
- Statistical analysis using linear mixed-effects models in R
 - Implementation of psycholinguistic experiments in Python

Research Grants

10/2018-9/2020 North-German HPC Alliance (HLRN), worth approx. € 60,000

Teaching Experience

1/2017-4/2017 **Teaching assistant**, University of Victoria
Introduction to Mind and Brain, Instructor: Prof. Adam Krawitz

10/2015-8/2016 **Teaching assistant/Laboratory assistant**, Universität Potsdam
Empirical Research Project, Instructor: Prof. Reinhold Kliegl

10/2015-3/2016 **Teaching/Laboratory assistant**, Universität Potsdam
Hands-on introduction to scientific work, Instructor: Dr. Doris Philip

Reviewing

11/2018 DAAD Study Scholarship for North America, 2019/20

2017-2019 APS Student Research Award

Volunteering and Service

since 11/2018 **Student Representative**, Senate commission on research and junior scientists, *Universität Potsdam*

since 10/2018 **Campus Representative**, APS Student Caucus

6/2015-8/2016 **Director of Communication**, Psychology Students Union, *Universität Potsdam*

- Webmaster of the course union website
- Programming and administration of online a departmental course-election system for graduate students

Skills

Programming C, Java, HTML, JavaScript, PHP, Python
 Experimental programming (PsychoPy 2, ePrime 2.0, OpenSesame)

HPC MPI, OpenMP, Torque, MOAB, SLURM

Data management Statistical and computational modeling in R and SPSS
 Database management (MySQL, PostgreSQL)

Languages German (native), English (fluent), French, Spanish, Italian, Dutch, Danish

Office & Layout Microsoft Office, OpenOffice/Libre Office, (La)TeX, HTML, CSS

Publications

- Engbert, R., Rabe, M. M., Kliegl, R., & Reich, S. (2020). Sequential data assimilation of the SEIR model for COVID-19. *medRxiv*. doi: 10.1101/2020.04.13.20063768
- Rabe, M. M., Vasishth, S., Hohenstein, S., Kliegl, R., & Schad, D. J. (2020). *hypr*: An R package for hypothesis-driven contrast coding. *The Journal of Open Source Software*, 5(48), 2134. doi: 10.21105/joss.02134
- Rabe, M. M., Chandra, J., Krügel, A., Seelig, S. A., Vasishth, S., & Engbert, R. (2019). *A Bayesian approach to dynamical modeling of eye-movement control in reading of normal, mirrored, and scrambled texts*. Submitted manuscript. doi: 10.31234/osf.io/nw2pb
- Seelig, S. A., Rabe, M. M., Malem-Shinitzki, N., Risse, S., Reich, S., & Engbert, R. (2020). Bayesian parameter estimation for the SWIFT model of eye-movement control during reading. *Journal of Mathematical Psychology*, 95. doi: 10.1016/j.jmp.2019.102313
- Masson, M. E. J., Rabe, M. M., & Kliegl, R. (2017). Modulation of additive and interactive effects by trial history revisited. *Memory & Cognition*, 45, 480–492. doi: 10.3758/s13421-016-0666-z

Software

- Rabe, M. M., Kliegl, R., & Schad, D. J. (2019). *designr: Balanced factorial designs with crossed random and fixed factors* [R package]. Retrieved from <https://github.com/mmrabe/designr>.
- Rabe, M. M., Schad, D. J., Vasishth, S., & Kliegl, R. (2019). *hypr: Hypothesis matrix translation* [R package]. Retrieved from <https://github.com/mmrabe/hypr>.

Presentations

- Rabe, M. M. (November 2019). *Eye-movement control during reading: Bayesian parameter inference of the dynamical SWIFT model*. Invited talk presented at University of Victoria, BC, Canada.
- Rabe, M. M., Chandra, J., Krügel, A., Seelig, S. A., & Engbert, R. (November 2019). *Bayesian inference of dynamical cognitive and oculomotor processes in the SWIFT model of reading*. Poster presented at Psychonomic Society 60th Annual Meeting, Montréal, QC, Canada.
- Seelig, S. A., Rabe, M. M., Malem-Shinitzki, N., Reich, S., & Engbert, R. (September 2019). *Bayesian parameter estimation for the SWIFT model of eye-movement control during reading*. Poster presented at Cognitive Computational Neuroscience (CCN) 2019, Berlin, Germany.
- Rabe, M. M., Chandra, J., Krügel, A., Seelig, S. A., & Engbert, R. (August 2019). *Bayesian inference of the SWIFT model: Reading mirrored, scrambled, and normal texts*. Poster presented at European Conference on Eye Movements (ECEM) 2019, Alicante, Spain.
- Rabe, M. M., Kliegl, R., & Lindsay, D. S. (November 2017). *A generalized linear mixed model approach to signal selection theory in recognition memory experiments*. Poster presentation at the Psychonomic Society 58th Annual Meeting, Vancouver, BC, Canada.
- Rabe, M. M., Kliegl, R., & Lindsay, D. S. (March 2017). *Generalized linear mixed model of signal detection theory*. Poster presentation at NOWCAM, Burnaby, BC, Canada.
- Fallow, K. M., Rabe, M. M., & Lindsay, D. S. (November 2015). *Recognition memory response bias for paintings, words, and faces*. Poster presented at Psychonomic Society 56th Annual Meeting, Chicago, IL, USA.

Professional Memberships

Psychonomic Society, Association for Psychological Science (APS), EuroScience, Potsdam
Graduate School (PoGS), Society for the Improvement of Psychological Science (SIPS)
