

Dr. Rasmus Bruckner

Curriculum Vitae

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Education

- 2015–2020 **Dr. rer. nat. Psychology** ('Summa cum laude'), *Freie Universität Berlin, International Max Planck Research School LIFE, Max Planck UCL Centre for Computational Psychiatry and Ageing Research, Berlin & Max Planck School of Cognition*
Supervisor: Prof. Dr. Hauke R. Heekeren
- 2012–2015 **M.Sc. Psychology**, *Humboldt-Universität, Berlin*
- 2008–2011 **B.Sc. Psychology**, *Radboud University, Nijmegen*
- 2008 **Abitur**, *Siegtal-Gymnasium, Eitorf*

Publications

Frömer, R., Nassar, M. R., Bruckner, R., Stürmer, B., Sommer, W., and Yeung, N. (2021). Response-based outcome predictions and confidence regulate feedback processing and learning. *eLife*, 10:e62825

Bruckner, R., Heekeren, H. R., and Oswald, D. (2020). Belief states and categorical-choice biases determine reward-based learning under perceptual uncertainty. *bioRxiv*

Bruckner, R., Nassar, M. R., Li, S.-C., and Eppinger, B. (2020). Differences in adaptive learning across the lifespan are driven by satisficing. *PsyArXiv*

Nassar, M. R., Bruckner, R., and Frank, M., J. (2019). Statistical context dictates the relationship between feedback-related EEG signals and learning. *eLife*, 8:e46975

Oswald, D., Schneider, S., Bruckner, R., and Horvarth, L. (2019). Power, positive predictive value, and sample size calculations for random field theory-based fMRI inference. *bioRxiv*

Oswald, D., Schneider, S., Bruckner, R., and Horvarth, L. (2018). Random field theory-based p-values: A review of the SPM implementation. *arXiv*

van den Bos, W., Bruckner, R., Nassar, M. R., Mata, R., and Eppinger, B. (2018). Computational neuroscience across the lifespan: Promises and pitfalls. *Developmental Cognitive Neuroscience*, 33:42–53

Nassar, M. R., Bruckner, R., and Eppinger, B. (2016). What do we GANE with age? [Invited peer commentary]. *Behavioral and Brain Sciences*, 39:e218

Nassar, M. R., Bruckner, R., Gold, J. I., Li, S.-C., Heekeren, H. R., and Eppinger, B. (2016). Age differences in learning emerge from an insufficient representation of uncertainty in older adults. *Nature Communications*, 7:11609

Eppinger, B. and Bruckner, R. (2015). *Towards a mechanistic understanding of age-related changes in learning and decision making: A neuro-computational approach*. New York: Academic Press

Talks

- June 2021 **Dresden, Germany**, *Technische Universität Dresden*, Prof. Shu-Chen Li
Decomposing the influences of uncertainty on learning: Normative computations, uncertainty biases, and lifespan differences
- Jan 2020 **Leipzig, Germany**, *MPI for Human Cognitive and Brain Sciences*, Dr. Roland G. Benoit
Adaptive learning under uncertainty: Computational mechanisms and lifespan differences
- Dec 2019 **Egmond aan Zee, The Netherlands**, *Symposium at the Brain and Cognition Conference of the Dutch Psychonomic Society*
Lifespan age differences in the regulation of learning in changing and uncertain environments
- Dec 2019 **Dublin, Ireland**, *Trinity College Dublin*, Prof. Tomás J. Ryan
Adaptive learning under uncertainty: Computational mechanisms and lifespan differences
- Oct 2019 **Providence, USA**, *Brown University*, Prof. Matthew R. Nassar (online)
Lifespan age differences in the regulation of learning during sequential decisions under uncertainty
- Oct 2019 **Berlin, Germany**, *Freie Universität Berlin*
Science Slam (in German): Computermodelle in den Kognitiven Neurowissenschaften
- June 2019 **Dresden, Germany**, *Symposium at "Psychologie und Gehirn" conference*
Computational mechanisms of human state-action-reward contingency learning under perceptual uncertainty
- Dec 2018 **Frankfurt, Germany**, *Goethe Universität Frankfurt*, Prof. Yee Lee Shing
Lifespan differences in the regulation of learning rates
- Sep 2018 **Tegernsee, Germany**, *MPS-UCL Symposium and advanced course on computational psychiatry and ageing research at Marbach Castle*
Computational mechanisms of human state-action-reward contingency learning under perceptual uncertainty
- Feb 2018 **Berlin, Germany**, *MPI for Human Development*, Dr. Nicolas Schuck
Learning to make economic decisions under perceptual uncertainty
- June 2017 **Providence, USA**, *Brown University*, Prof. Michael J. Frank, Dr. Matthew R. Nassar
Learning to make economic decisions under perceptual uncertainty
- Oct 2016 **Berlin, Germany**, *IMPRS Research School LIFE Academy*
Value-based decision making under perceptual uncertainty
- May 2016 **Virginia, USA**, *IMPRS Research School LIFE Academy*
Lifespan differences in the regulation of learning rates
- May 2016 **Berlin, Germany**, *Symposium at "Psychologie und Gehirn" conference*
Individual and age-related differences in the regulation of learning rates

Teaching

- 2020–2021 **Decision Neuroscience**, *Psychology M.Sc. seminar, FU Berlin*
Cognitive, neural, and computational processes underlying decision making
Cognitive neuroscience methods and clinical applications
- 2020–2021 **Learning and Decision Making**, *Psychology B.Sc. seminar, FU Berlin*
Cognitive, neural, and computational processes underlying learning and decision making

Prior Research Experience

- Aug–Oct 2014 **Brown University**, *Prof. Michael J. Frank, Dr. Matthew R. Nassar*
Training in computational modeling
Development of an EEG paradigm (see publications, Nassar et al. eLife)
Supported by DAAD Promos grant
- 2013–2015 **Technische Universität Dresden**, *Prof. Shu-Chen Li, Prof. Ben Eppinger*
Data analysis and data collection
Establishment of new EEG laboratory
- 2011–2012 **Max Planck Institute for Human Development**, *Prof. Shu-Chen Li, Prof. Ben Eppinger*
Research assistant with focus on data collection and analysis
- 2010–2011 **Donders Institute Nijmegen**, *Prof. Markus Ullsperger*
Research assistant with focus on programming and EEG data collection

Training

- 2015–2018 **Mathematics and statistics classes**, *FU Berlin (e.g., Linear algebra, Real analysis)*
- 2016 **University Medical Center Hamburg-Eppendorf**, *SPM workshop*
Prof. Christian Büchel
- 2015 **Radboud University Summerschool**, *Neurocomputational approaches to decision making*
Prof. Roshan Cools, Prof. Ivan Toni
- 2015 **University of Amsterdam Summerschool**, *Model-based neuroscience*
Prof. Birte Forstmann
- 2015 **SRNDNA Conference Miami**, *Reinforcement learning workshop*
Prof. Yael Niv, Prof. Nathaniel Daw
- 2009–2011 **Radboud Honours Academy**, *Selective research internship and additional seminars*
Prof. Harold Bekkering, Sasha Ondobaka
- 2009 **Radboud Excellence Program**, *Selective research internship*
Dr. Sabine Hunnius

Service

- 2015–present **CCNB Seminar Series**, *Organization of the CCNB seminar series at FU Berlin*
With Timo T. Schmidt
- 2019 **CCNB 10-Year Anniversary**, *Organization of the CCNB 10-year anniversary*
With Timo T. Schmidt & Hauke R. Heekeren
- 2019–2020 **MPS Cognition 0-year student**, *Support of the organization team and the first cohort of the graduate school*
- 2015–2016 **LIFE fellow speaker**, *Fellow speaker of the International Max Planck Research School on the Life Course*
With Swantje Müller

Programming Languages

- Python** Statistics, Machine Learning, PsychoPy, STAN
- Matlab** Statistics, SPM, Psychtoolbox
- R** Statistics, STAN
- Latex** Typesetting
- JavaScript** jsPsych, web applications

Languages

- German** Native language
- English** Fluent
- Dutch** Fluent

Ad-Hoc Reviewing

- Journal** PLoS Computational Biology

Hobbies

- Finance** I am interested in stock markets
- Sports** Running, cycling, and gym; previously, I practiced Kung-Fu and gymnastics