Dr. Rasmus Bruckner

Curriculum Vitae

Freie Universität Berlin
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Current Positions

2020–present   **Post-Doctoral Researcher**, *Freie Universität Berlin*, Berlin, Learning Lab.
Affiliated with Neural Dynamics of Visual Cognition Lab; PI: Prof. Dr. Radoslaw M. Cichy

2022–present   **Affiliated Researcher**, *Max Planck Institute for Human Development*, Berlin, Max Planck Research Group NeuroCode; PI: Dr. Nicolas Schuck.

2021–present   **Affiliated Researcher**, *Trinity College Dublin*, Dublin, Ryan Lab;
PI: Prof. Dr. Tomás Ryan.

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 zu Berlin*, Berlin

2008–2011   **B.Sc. Psychology**, *Radboud University*, Nijmegen

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Publications

Yao, Y.-W., Song, K.-R., Schuck, N. W., Li, X., Zhang, J.-T., Heekeren, H. R., and Bruckner, R. (2022). The dorsomedial prefrontal cortex represents subjective value across effort-based and risky decision-making. *PsyArXiv*. Link

Bruckner, R., Heekeren, H. R., and Nassar, M. R. (2022). Understanding learning through uncertainty and bias. *PsyArXiv*. Link

Pupillo, F., Ortiz-Tudela, J., Bruckner, R., and Shing, Y. L. (2022). The effect of prediction error on episodic memory encoding is modulated by the outcome of the predictions. *PsyArXiv*. Link

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. Link

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

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

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. Link

Ostwald, 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*. Link

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

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. Link

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

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. Link

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. Link

Talks

April 2022   **Frankfurt, Germany**, *Goethe-Universität Frankfurt*, POEM Workshop
Forgetting as a Form of Learning

June 2021   **Dresden, Germany**, *Technische Universität Dresden*, Prof. Shu-Chen Li (online)
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

2020–2023	**Decision Neuroscience**, *Psychology M.Sc. and Cognitive Neuroscience M.Sc. Seminar, FU Berlin* Theory, methods, clinical applications Research communication and poster design
2021–2023	**Empirisch-Experimentelles Praktikum**, *Psychology B.Sc. Seminar, FU Berlin* Hands-on research training
2022–2023	**Grundlagen und Methoden der Allgemeinen Psychologie**, *Psychology B.Sc. Seminar, FU Berlin* Theories and methods of general psychology
2022	**General Psychology**, *Psychology B.Sc. Lecture, FU Berlin* One guest lecture on decision making
2020–2021	**Learning and Decision Making**, *Psychology B.Sc. Seminar, FU Berlin* Theory, methods, clinical applications

Mentoring and Co-Supervision

Ph.D. Students

2021-present	**Muhammad Hashim Satti**, *Max Planck School of Cognition* Project: Learning under threat and uncertainty
2020-present	**Prashanti Ganesh**, *Berlin School of Mind and Brain* Project: Interaction between perceptual and reward uncertainty in economic decisions

Lab-Rotation

2021 **Max Hinrichs**, *Max Planck School of Cognition*

Bachelor and Master Students

Lennart Wittkuhn (TU Dresden, 2017), Julia Pilarski (FU Berlin 2020/21), Bärbel Aschenberg (FU Berlin 2022), Zoe Kaiser (FU Berlin, 2022), Amanda Meira Lins (FU Berlin, 2023), Charlotte Fahnert (FU Berlin, 2023)

Professional Service

Ph.D. Committes

Felix Molter (FU Berlin, 2022), Lennart Wittkuhn (MPIB Berlin, 2022), Stefan Appelhoff (MPIB Berlin, 2022), Lou Haux (MPIB Berlin, 2022), Yuan-Wei Yao (FU Berlin, 2022), Christoph Koch (MPIB Berlin, 2023)

Organization

2015–2020 **CCNB Seminar Series**, *Organization of the CCNB seminar series at FU Berlin*

2019 **CCNB 10-Year Anniversary**, *Organization of the CCNB two-day 10-year anniversary*

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*

Research Experience and Visits

July–Sep 2022 **Brown University**, *Prof. Matthew R. Nassar*
Visiting researcher

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

Ad-Hoc Reviewing

Journal Cognition, Journal of Experimental Psychology: Learning, Memory, and Cognition, Journal of Cognition, PLoS Computational Biology

Hobbies

Finance   I am interested in stock markets

Sports   Running and cycling; previously, I practiced Kung-Fu and gymnastics

References

Prof. Dr. Hauke R. Heekeren, *Ph.D. Supervisor*,
President Universität Hamburg
Präsidium, Mittelweg 177, 20148 Hamburg, Germany
praesident@uni-hamburg.de

Prof. Dr. Matthew R. Nassar, *Collaborator*,
PI Learning, Memory, and Decision Lab,
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