

# Marcel Binz

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## RESEARCH INTERESTS

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Meta-Learning; Bounded Rationality; Machine Learning; Reinforcement Learning; Deep Learning; Bayesian Inference; Information Theory; Cognitive Science; Decision-Making; Exploration

## CURRENT POSITION

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**Max Planck Institute for Biological Cybernetics, Tübingen** 2021 - present  
*Postdoctoral Researcher (Computational Principles of Intelligence, Dr. Schulz)*

## EDUCATION

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**Philipps-Universität Marburg** 2018 - 2021  
*Doctoral Candidate (Theoretical Neuroscience, Prof. Endres)*

**KTH Royal Institute of Technology, Stockholm** 2015 - 2018  
*MSc. Machine Learning*

**Eberhard Karls Universität Tübingen** 2012 - 2015  
*BSc. Cognitive Science*

## EXPERIENCE

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**Harvard University** 09/2019 - 12/2019  
*Research Visit (Computational Cognitive Neuroscience, Prof. Gershman)*

**Facebook Inc.** 06/2016 - 12/2016  
*Research Internship*

**Eberhard Karls Universität Tübingen** 04/2015 - 08/2015  
*Research Assistant (Cognitive Modelling, Prof. Butz)*

## TEACHING

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**Bayesian Statistics and Machine Learning, Philipps-Universität Marburg** 2020  
*Lecturer, 3 Lectures, Deep Learning*

**Theoretical Neuroscience, Philipps-Universität Marburg** 2019, 2020  
*Lecturer, 3 Lectures, Reinforcement Learning*

**Deep Learning in Data Science, KTH Royal Institute of Technology** 2017  
*Teaching Assistant*

## AWARDS

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**German Academic Exchange Service (DAAD) Scholarship**  
*Funding for a three month research visit at Harvard University.*

**DMV-Abiturpreis**  
*Award for excellent performance in high school mathematics.*

## EuroCogSci 2019 Best Poster Award

*Immunization Against Data in Resource-Constrained Observers*

## AAAI Video Competition 2015: People's Choice Award

*Mario Lives! An Adaptive Learning Approach for Generating a Living and Conversing Mario Agent*

## PREPRINTS

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**Binz, M.**, Gershman, S.J., Schulz, E. and Endres, D., 2020. Heuristics From Bounded Meta-Learned Inference.

## PUBLICATIONS

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**Binz, M.** and Endres, D., 2019. Where Do Heuristics Come From?. In CogSci (pp. 1402-1408).

## ABSTRACTS

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**Binz, M.** and Endres, D., 2019. Emulating Human Developmental Stages with Bayesian Neural Networks. In CogSci.

**Binz, M.** and Endres, D., 2019. Immunization Against Data in Resource-Constrained Observers. In EuroCogSci.

Butz, M.V., Simoncic, M., **Binz, M.**, Einig, J., Ehrenfeld, S. and Schrodt, F., 2016. Is it Living? Insights from Modeling Event-Oriented, Self-Motivated, Acting, Learning and Conversing Game Agents. In CogSci.

**Binz, M.**, Otte, S. and Zell, A., 2015. On the applicability of recurrent neural networks for pattern recognition in electroencephalography signals. In Workshop New Challenges in Neural Computation (Vol. 2015, p. 85).

## TALKS

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**Max Planck Institute for Biological Cybernetics Tübingen** 04/2020  
*RLDM Colloquium*

**Eberhard Karls Universität Tübingen** 01/2020  
*1st GK Doctoral Symposium on Cognitive Science*

**Harvard University** 10/2019  
*Computational Cognitive Neuroscience Lab Meeting*

**Ruhr-Universität Bochum** 09/2019  
*Institute of Neuroinformatics Colloquium*

**Max Planck Institute for Human Development** 06/2019  
*Summer Institute on Bounded Rationality*

**KFZ Marburg** 05/2019  
*Science Slam*

## SUPERVISION

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**Gwen Hirsch, Philipps-Universität Marburg, Master Thesis** 2020  
*Comparing Meta-Learners with Human Performance in a Continual Learning Framework*

**Hauke Niehaus, Philipps-Universität Marburg, Master Thesis** 2019  
*Simulating Decision-Making Deficits in a Deep Meta-Reinforcement-Learning Agent*