

Milena Musial

milena.musial@charite.de
milenamusial.com

RESEARCH EXPERIENCE

Research Group Learning & Cognition Charité Berlin, Germany Graduate researcher <i>Advisor: Florian Schlagenhauf</i>	04/2022 – today
Computational Cognitive Neuroscience Lab Harvard University, Cambridge, MA, USA Visiting scholar <i>Advisor: Samuel J. Gershman</i>	08/2024 – 09/2024
Research Group Clinical Psychology and Translational Neuroscience Charité Berlin, Germany Visiting scholar <i>Advisor: Peter Uhlhaas</i>	03/2022 – 04/2022
Research Group Machine Learning in Clinical Neuroimaging Charité Berlin, Germany Visiting scholar <i>Advisor: Kerstin Ritter</i>	01/2022 – 02/2022
Research Group Emotional Neuroscience Charité Berlin, Germany Intern & Research assistant <i>Advisor: Nina Romanczuk-Seifert</i>	10/2019 – 08/2021 08/2018 – 09/2018
Chair of Social & Economic Cognition II University of Cologne, Germany Research assistant <i>Advisor: Sascha Topolinski</i>	05/2016 – 03/2017

EDUCATION

Humboldt University Berlin, Germany PhD (Dr. rer. nat.) in Psychology <i>Supervisors: Florian Schlagenhauf, Ulrike Lüken, Martin Rolfs</i>	01/2023 – today
Bernstein Center for Computational Neuroscience Berlin, Germany PhD Student	10/2022 - today
Einstein Center for Neurosciences, Berlin, Germany PhD Fellow	10/2021 – today
Humboldt University Berlin, Germany M. Sc. in Psychology <i>Supervisors: Norbert Kathmann, Nina Romanczuk-Seifert</i>	10/2019 – 11/2021
Monash University, Clayton, Victoria, Australia Undergraduate exchange student	07/2017 – 11/2027
University of Cologne, Germany B. Sc. in Psychology <i>Supervisors: Jan Peters, Marcus Rothkirch</i>	10/2015 – 09/2019

PUBLICATIONS

- Musial, M. P. M.**, Bode, E. L., Prychynenko, D. S., Grundmann, C. C., Ebrahimi, C., Endrass, T., & Schlagenhauf, F. *Learning from Alcohol Rewards: Neural Signatures of Drug-Related Reward Prediction Errors in Alcohol Use Disorder*. [Manuscript submitted for publication]. https://doi.org/10.31234/osf.io/ec7kh_v1
- Musial, M. P. M.**, Hall-McMaster, S., Shimomura, K., Kato, A., Bode, E. L., Grundmann, C. C., Ebrahimi, C., Morita, K., Gershman, S. J., Endrass, T., & Schlagenhauf, F. *The successor representation in high-risk drinking and alcohol-related contexts*. [Manuscript submitted for publication]. https://doi.org/10.31234/osf.io/rmdqk_v2
- Reichert, D., Zech, H., Reinhard, I., Groß, R., Deeken, F., Hoffmann, S., Arntz, F., Ghadami, A., Ebrahimi, C., **Musial, M. P. M.**, Hauke, M., Rosenthal, A., Wenzel, J., Ganz, M., Kockler, T., Steffen, J., Diallo, L., Wiedenhöft, J., Spitta, G., Bahr, N., Beste, C., Strehle, J., Bach, P., Banaschewski, T., Smolka, M., Kiefer, F., Endrass, T., Deserno, L., Pilhatsch, M., Vollstädt-Klein, S., Heim, C., Schlagenhauf, F., Walter, H., Spanagel, R., Liu, S., Lenz, B., Kliegl, R., Meyer-Lindenberg, A., Tost, H., Heinz, A., Rapp, M., & Ebner-Priemer, U. *Severely affected individuals with alcohol use disorder are able to intentionally reduce alcohol consumption in everyday life*. [Manuscript submitted for publication].
- Ebrahimi, C. & **Musial, M. P. M.**, Doñamayor, N., Prychynenko, D.S., Bode, E.L., Spanagel, R., Heinz, A., Deserno, L., Smolka, M.N., Ebner-Priemer, U., Kliegl, R., Endrass, T., Reichert, M., Rapp, M., & Schlagenhauf, F. (2025). Goal-directed behavior and hippocampal activity predict real-life impact of drinking intentions in alcohol use disorder. *Translational Psychiatry*. <https://www.nature.com/articles/s41398-025-03660-5>
- Grundmann, C. C., Arndt, V. A., Ebrahimi, C., **Musial, M. P. M.**, Bode, E. L., Schlagenhauf, F., & Endrass, T. (2025). Studying human habit formation through motor sequence learning. *Cognitive, Affective, & Behavioral Neuroscience*. <https://doi.org/10.3758/s13415-025-01300-5>
- Rane, R. P. & **Musial, M. P. M.**, Beck, A., Rapp, M., Schlagenhauf, F., Banaschewski, T., Bokde, A. L. W., Paillère Martinot, M.-L., Artiges, E., Nees, F., Lemaitre, H., Hohmann, S., Schumann, G., Walter, H., Heinz, A., & Ritter, K. (2023). Uncontrolled eating and sensation-seeking partially explain the prediction of future binge drinking from adolescent brain structure. *NeuroImage: Clinical*, 40, 103520. <https://doi.org/10.1016/j.nicl.2023.103520>
- Musial, M. P. M.**, Beck, A., Rosenthal, A., Charlet, K., Bach, P., Kiefer, F., Vollstädt-Klein, S., Walter, H., Heinz, A., & Rothkirch, M. (2023). Reward Processing in Alcohol-Dependent Patients and First-Degree Relatives: Functional Brain Activity During Anticipation of Monetary Gains and Losses. *Biological Psychiatry*, 93(6), 546–557. <https://doi.org/10.1016/j.biopsych.2022.05.024>

CONFERENCE ABSTRACTS

- Ebrahimi, C., **Musial, M.**, Doñamayor, N., Prychynenko, D., Spanagel, R., Heinz, A., Deserno, L., Smolka, M., Ebner-Priemer, U., Kliegl, R., Endrass, T., Reichert, M., Rapp, M., & Schlagenhauf, F. (2024). *Einfluss zielgerichteter Verhaltenskontrolle und Trinkintentionen bei Abhängigkeitserkrankungen*. s-0044-1790483. <https://doi.org/10.1055/s-0044-1790483>
- Schmitz, C., Adolph, H., Frank, M., Seeger, E., **Musial, M.**, Spangemacher, M., Koslowski, M., Mertens, L. J., Schlagenhauf, F., & Gründer, G. (2024). Neural effects of psilocybin-treatment in patients with treatment-resistant depression. *Neuroscience Applied*, 3, 105028.

PRESENTATIONS & TALKS

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| Computational Psychiatry Conference, Tübingen, Germany | 2025 |
| The successor representation in high-risk drinking and alcohol-related contexts | |
| Poster presentation | |
| Collaborative Research Center 265 Retreat, Weimar, Germany | 2025 |
| The successor representation in high-risk drinking | |
| Invited talk | |

Congress of the German Association for Psychiatry, Psychotherapy and Psychosomatics, Berlin, Germany	2024
Effects of psilocybin-assisted therapy on neural signatures of cognitive flexibility in treatment-resistant depression	
Poster presentation	
Computational Psychiatry Conference, Minneapolis, MI, USA	2024
Learning from primary alcohol versus non-alcohol rewards: Alterations in Alcohol Use Disorder?	
Poster presentation	
Computational Psychiatry Conference, Minneapolis, MI, USA	2024
Regaining control over alcohol intake: Goal-directed behavior and hippocampal activity predict real-life implementation of drinking intentions in alcohol use disorder	
Poster presentation	
Collaborative Research Center 265 Research Update, Berlin, Germany	2024
Habitual versus goal-directed decision-making	
Invited talk	
SfN Neuroscience, Washington D.C., USA	2023
Regaining control over alcohol intake: Goal-directed behavior and hippocampal activity predict real-life implementation of drinking intentions in alcohol use disorder	
Poster presentation	
Berlin Neuroscience Meeting, Berlin, Germany	2022
Einstein Center for Neuroscience Open Innovation in Science Award Pitch	
Invited talk	

ONGOING PREREGISTERED PROJECTS

- Musial, M. P. M.**, Scholz, V., Heinz, A., Schlagenhauf, F., Daw, N., Deserno, L., Haney, M., Evans, S. M., Bedi, G. (2025, August 5). Habitual vs. goal-directed strategies as drivers of drug-related choices in cannabis use disorder. <https://doi.org/10.17605/OSF.IO/W6ES8>
- Musial, M. P. M.**, General, K., Bode, E. L., Grundmann, C., Ebrahimi, C., Endrass, T., & Schlagenhauf, F. (2025, April 2). Anticipating Alcohol: Neural Correlates in Individuals with Alcohol Use Disorder. doi.org/10.17605/OSF.IO/VB5SA
- Musial, M. P. M.**, Bickhardt, T., Adolphi, H., Spangemacher, M., Mertens, L. J., Gründer, G., Koslowski, M., Schmitz, C., & Schlagenhauf, F. (2024, November 7). Effects of psilocybin-assisted therapy on neural signatures of cognitive flexibility in treatment-resistant depression. doi.org/10.17605/OSF.IO/EG5KQ
- Bickhardt, T., **Musial, M. P. M.**, Adolphi, H., Spangemacher, M., Mertens, L. J., Gründer, G., Schlagenhauf, F., Schmitz, C., & Koslowski, M. (2024, November 7). The influence of psilocybin-assisted therapy on self-referential processing in patients with treatment-resistant depression. doi.org/10.17605/OSF.IO/QKP3D

WORKSHOPS AND SUMMER SCHOOLS

Brains, Minds, & Machines Summer Course	2025
Marine Biological Laboratory, Woods Hole, MA, USA	
Dynamic Systems Reconstruction Workshop	2025
Theoretical Neuroscience Lab, Central Institute for Mental Health, Mannheim, Germany	
Computational Psychiatry Course	2023
Translational Neuromodeling Unit, University & ETH Zurich, Switzerland	

FELLOWSHIPS & AWARDS

Bernstein Center for Computational Neuroscience Travel Stipend 3,000 €	2024
Berlin Institute of Health Null Results Award 1,000 €	2023
Einstein Center for Neurosciences PhD Fellowship 64,050 €	2021-2024

TEACHING & SERVICE

Courses

M28: Insights into the practice of empirical neuroscientific-psychiatric research Charité Berlin, Germany	Summer 2025 Summer 2024
Served as a lecturer in a course for medical students	

Mentoring

M. Sc. Project by Karla General	2024 – 2025
Lab Rotation Project by Claire Sturgill	2024
M. D. Project by Till Bickhardt	2023 – today

Reviewer activities

European Journal of Addiction	2023
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SKILLS

Coding

R, MATLAB, Python, Stan, PsychToolbox, Presentation, HTML/JS/CSS (basic), Bash (basic), version control using Git

Data Collection

MRI (advanced user), Jatos, Prolific, RedCap

Languages

German (native), English (fluent), French (advanced)