Mirko Thalmann, Ph.D.

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Work History

2024/02 – current   **Postdoc,** Helmholtz Institute for Human-Centered AI, Munich, Germany.
Leading research projects with the aim of understanding the adaptivity of mental representations, and the generality of learning and decision processes.
Supervising PhD students and Master students.

2021/08 – 2024/01   **Postdoc,** Max Planck Institute for Biological Cybernetics, Tuebingen, Germany.
Conducting a research project to understand the adaptivity of mental representations as a main researcher: study design, study execution, communication & presentation, publication. Co-supervising PhD students and Master students.

2018/04 – 2021/06   **Senior / Data Scientist,** BonusCard.ch AG, Zurich, Switzerland.
Developing, evaluating, and putting machine-learning models into productive end-to-end pipelines.
Conducting statistical analyses (e.g., survival models, regression models) and visualizing results for business stakeholders.
Developing an SQL-based framework for scheduling model runs in different languages (SQL, python, and R), storing results in centralized location, and supervising models with a logging and monitoring system.

2014/03 – 2018/01   **PhD in Cognitive & Mathematical Psychology,** Cognitive Psychology Unit, University of Zurich, Zurich, Switzerland.
Title: "Chunking & Rehearsal in Working Memory: A Matter of Central Attention?".
Formulating hypotheses within statistical and/or computational models.
Designing and programming experiments.
Testing models on data and deriving conclusions.
Written and oral communication of ideas and results.
Lecturing seminar "Debates in Cognitive Psychology".

2021/08 – 2024/01   **Doc.Mobility Research Stay,** School of Psychology, UNSW, Sydney, Australia.
Writing a grant proposal successfully (Grant received from Swiss National Science Foundation).
Building a computational model predicting three different types of response data at once (recognition accuracies and RTs & recall on circular scale).
Fitting the model and computing model predictions.

Education & Professional Training

09/2021 – 02/2022   **Mathematics for Machine Learning** with DeepLearning.AI at coursera.org.

11/2020 – 03/2021   **Deep Learning Specialization** with DeepLearning.AI at coursera.org.

04/2017 – 02/2021   **Books/Self-Taught:** Statistical Rethinking, R4DS, Advanced R, Python Crash Course, Python Data Science Handbook.

07/2016   **Scientific Programming with python**, Physics Institute, University of Zurich.

06/2015   **Comput. Modeling of Cognition**, Two-week workshop, Laufen, Germany.

01/2014   **MSc Psychology**, Major: Cognitive Psychology and Neuropsychology, Minor: Law, University of Zurich.

Skills

Languages	🔖	German*****, English****, French***, Italian**, Spanish*.
Coding	🔖	R, python, SQL, LaTeX, git, matlab, SPSS
Misc.	🔖	Alpinism, Salsa, Cooking, Movies, Taekwondo (first Dan), Boxing

Ad-Hoc Review Activity

Cognitive Research: Principles and Implications, Cortex, Memory & Cognition, Open Mind

References

Eric Schulz	🔖	**Helmholtz Institute for Human-Centered AI,** Munich, Germany.
Klaus Oberauer	🔖	**Cognitive Psychology Unit, University of Zurich,** Switzerland.
Evie Vergauwe	🔖	**Working Memory, Cognition, & Development, Univ. of Geneva,** Switzerland.
Chris Donkin	🔖	**Comp. Modeling in Psychology, Ludwigs Max. University,** Munich, Germany.

Research Publications

1. A. K. Jagadish, J. Coda-Forno, M. Thalmann, E. Schulz, and M. Binz, *Ecologically rational meta-learned inference explains human category learning,* arXiv:2402.01821 [cs], Feb. 2024. 🔗 DOI: `10.48550/arXiv.2402.01821`. (visited on 05/23/2024).

2. T. A. Schäfer, M. Thalmann, E. Schulz, C. F. Doeller, and S. Theves, *The hippocampus supports interpolation into new states during category abstraction,* en, May 2024. 🔗 DOI: `10.1101/2024.05.14.594185`. (visited on 07/18/2024).

3. M. Thalmann, T. A. J. Schäfer, S. Theves, C. F. Doeller, and E. Schulz, "Task imprinting: Another mechanism of representational change?" *Cognitive Psychology*, vol. 152, p. 101 670, Aug. 2024, ISSN: 0010-0285. 🔗 DOI: `10.1016/j.cogpsych.2024.101670`. (visited on 07/17/2024).

4. M. Thalmann and E. Schulz, *The Generalization Artist - Or: How Can We Characterize Human Generalization?* en-us, Jun. 2024. 🔗 DOI: `10.31234/osf.io/k6ect`. (visited on 07/11/2024).

5. S. Wu, M. Thalmann, and E. Schulz, "Motif Learning Facilitates Sequence Memorization and Generalization," en-us, Dec. 2023, Publisher: OSF. 🔗 URL: `https://osf.io/2a49z` (visited on 12/20/2023).

6. M. Thalmann, A. S. Souza, and K. Oberauer, "How does chunking help working memory?" *Journal of Experimental Psychology: Learning, Memory, and Cognition*, vol. 45, no. 1, pp. 37–55, 2019, Place: US Publisher: American Psychological Association, ISSN: 1939-1285(Electronic),0278-7393(Print). 🔗 DOI: `10.1037/xlm0000578`.

7. M. Thalmann, A. S. Souza, and K. Oberauer, "Revisiting the attentional demands of rehearsal in working-memory tasks," en, *Journal of Memory and Language*, vol. 105, pp. 1–18, Apr. 2019, ISSN: 0749-596X. 🔗 DOI: `10.1016/j.jml.2018.10.005`. (visited on 06/28/2021).

8. A. S. Souza, M. Thalmann, and K. Oberauer, "The precision of spatial selection into the focus of attention in working memory," en, *Psychonomic Bulletin & Review*, vol. 25, no. 6, pp. 2281–2288, Dec. 2018, ISSN: 1531-5320. 🔗 DOI: `10.3758/s13423-018-1471-4`. (visited on 02/22/2021).

9. M. Thalmann, M. Niklaus, and K. Oberauer, "Estimating Bayes Factors for Linear Models with Random Slopes on Continuous Predictors," *PsyArXiv*, Oct. 2017. 🔗 DOI: `10.17605/OSF.IO/4XQVR`. (visited on 11/19/2017).

10 M. Thalmann and K. Oberauer, "Domain-specific interference between storage and processing in complex span is driven by cognitive and motor operations," en, *Quarterly Journal of Experimental Psychology*, vol. 70, no. 1, pp. 109–126, Jan. 2017, ISSN: 1747-0218, 1747-0226. 🔗 DOI: 10.1080/17470218.2015.1125935. (visited on 02/26/2021).

Talks (Selected)

2024/07/21	🔖 **Annual Meeting of the Society for Mathematical Psychology,** Tilburg, NL. Title: Are Exploration Strategies Suitable for Individual Differences Research?
2024/06/29	🔖 **ASIC,** Molveno, IT. Title: Are Exploration Strategies Suitable for Individual Differences Research?
2024/04/18	🔖 **University of Geneva, Cognitive Development Chair, Faculty of Psychology and Educational Sciences** Geneva, Switzerland. Masters Seminar. Title: From Science to Industry – And All The Way Back. Or: Finetuning your Importance Weights
	🔖 **University of Geneva, Cognitive Development Chair, Faculty of Psychology and Educational Sciences** Geneva, Switzerland. Title: Are Exploration Strategies Suitable for Individual Differences Research?
2023/08/31	🔖 **UCL, Department of Experimental Psychology,** London, UK. Title: How to (not) measure exploration strategies in a few-armed bandit task?
2023/07/04	🔖 **ASIC,** Kranjska Gora, SLO. Title: How to (not) measure exploration strategies in a two-armed bandit task
2022/06/21	🔖 **ASIC,** Chamonix, FR. Title: Are Mental Representations Shaped by Task-Specific Goals?