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

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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, journal of cognition

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)

2024/08/14	**Mindful Science,** Tuebingen, GER. Title: From Science to Industry – And All The Way Back. *Or*: Finetuning Your Importance Weights
	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, CH. 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, CH. 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?