Dr. Timo Oess

Personal Information

Born in Germany, July 29, 1989

email oess.timo@gmail.com

website https://oesst.github.io/

Academic Career

2023-present — Universität Ulm, Ulm

PostDoctoral Researcher

Cognitive Psychology/Neuroinformatics
Postdoctoral fellow in the group of Prof. Dr. Marc Ernst working on auditory motion perception and computational models for perception, learning and control.

2021-2023 — Universität Freiburg, Freiburg

Akademischer Rat

Neurobiology and Neurotechnology
Postdoctoral fellow in the group of Prof. Dr. Carsten Mehring working on computational models (recurrent neural networks) for motor control.

2017-2021 — Universität Ulm, Ulm

Doctoral Student

Cognitive Psychology/Neuroinformatics
Dissertation: ”From sound waves to locations : computational models for sound source localization in the early auditory pathway”.
(magna cum laude)
Supervisors: Prof. Dr. Marc Ernst & Prof. Dr. Heiko Neumann

2015-2016 — Junior Specialist, UCI, Irvine, USA

Research Internship

Junior research assistant at the cognitive anteater robotics laboratory (CARL) with the supervision of Prof. Dr. Jeff Krichmar

2014-2016 — Technische Universität München, Munich

Master of Science

Robotics, Cognition, Intelligence (M.Sc.)
Focus on robotics and computational neuroscience.
Passed with distinction.

November ’14 — Warsaw University of Technology, Warsaw

Athens Program

One week intensive course on knowledge systems and their representations.

2012-2013 Norwegian University of Science and Technology, Trondheim

Exchange Semester

Focus on machine learning, artificial intelligence and neuroscience.

2010-2013 Universität Ulm, Ulm

Bachelor of Science

Computer Science (B. Sc)
Passed with distinction.
Secondary subject in medicine

PUBLICATIONS

2023

Journal D. Schmid, **T. Oess** and H. Neumann,
Listen to the Brain–Auditory Sound Source Localization in Neuromorphic Computing Architectures, Sensors 2023, 23(9), 4451.
https://doi.org/10.3390/s23094451

2021

News Article **T. Oess** and H. Neumann,
"Brain-inspired Visual-Auditory Integration Yielding Near Optimal Performance – Modelling and Neuromorphic Algorithms, ECRIM News article, Special topic on "Brain-Inspired Computing"

2020

Journal **T. Oess**, M.O. Ernst, and H. Neumann,
Computational principles of neural adaptation for binaural signal integration, PLOS Computational Biology 16(7): e1008020.
https://doi.org/10.1371/journal.pcbi.1008020

Journal **T. Oess**, M. Löhr, D. Schmid, Marc O. Ernst and H. Neumann,
From near-optimal Bayesian Integration to Neuromorphic Hardware: A neural network model of multisensory integration, Frontiers in Neurorobotics, https://doi.org/10.3389/fnbot.2020.00029

Conference Proceeding **T. Oess**, M. Löhr, C. Jarvers, D. Schmid, and H. Neumann,
A Bio-Inspired Model of Sound Source Localization on Neuromorphic Hardware, 2nd IEEE International Conference on Artificial Intelligence Circuits and Systems, Genoa, Italy, Marc 23-25 2020.
https://doi.org/10.1109/AICAS48895.2020.9073935

2019

Conference Proceeding **T. Oess**, M.O. Ernst, and H. Neumann,
Computational investigation of visually guided learning of spatially aligned auditory maps in the colliculus, ISAAR'19, Auditory Learning in Biological and Artificial Systems, Nyborg, Denmark, August 21-23 2019.
https://proceedings.isaar.eu/index.php/isaarproc/article/view/2019-18

2017

Journal **T. Oess**, J. Krichmar, and F. Röhrbein (2017),
A Computational Model for Spatial Navigation Based on Reference Frames in the Hippocampus, Retrosplenial Cortex and Posterior Parietal Cortex, Frontiers in Neurorobotics.
https://doi.org/10.3389/fnbot.2017.00004

2013

Conference Proceeding

M. Oubbati, **T. Oess**, C. Fischer, and G. Palm (2013). *Multiobjective Reinforcement Learning Using Actor-Critic Framework and Reservoir Computing*, Workshop in: Reinforcement Learning with Generalized Feedback: Beyond Numeric Rewards.

SCHOLARSHIPS

Philipp-Matthäus-Hahn scholarship for talented students.

DAAD scholarship for international research internships.

PROFESSIONAL EXPERIENCE

Aug'16-May'17 Co-Founder Foxim, COLOGNE

Foxim

Co-founder and lead developer at Foxim. Foxim is a startup that develops intelligent chatbots for automated costumer service using artificial intelligence.

Aug-Dec '14 Student Assistant, TUM, MUNICH

Technische Universität München

Assistance work in the Human Brain Project with the supervision of Dr. Florian Röhrbein at the Department of Robotics and Embedded Systems.

Jan-Feb '14 Internship, ALBSTADTWERKE, Albstadt

Albstadtwerke

Developing a costumer related data base at the department of information technology.

2012 - 2013 Student Research Assistant, UNIVERSITÄT ULM

Universität Ulm

Working at the Department of Embedded Systems/Real-Time Systems

Mar-Apr '12 Internship, ALBSTADTWERKE, Albstadt

Albstadtwerke

Developing a software for regional power and water supply control at the department of information technology.

EXTRA CURRICULAR ACTIVITIES

2012-2013

Member of the open source campus group UlmAPI

2011-2013

Tutor for students in their first semester at the department of computer science. Support for students at the beginning of their studies.

Apr-Aug ’12

Tutor for the course *Hardware Systems*. Teaching students required methods for solving exercises and correcting their solutions.

OTHER INFORMATION

EDP Skills

Python · Pytorch · Matlab · JavaScript · Tensorflow · C/C++ · Java · HTML · CSS · Latex

Languages

GERMAN · Mothertongue

ENGLISH · Proficient, TOEFL iBT (105 points) B2

FRENCH · Beginner, A2

Personal Interests

Outdoor activities (Climbing, hiking) · Winter sports (snowboarding) · Traveling (in particular Asia, USA) · Global politics, different cultures

January 8, 2024