TIMO OESS

PERSONAL INFORMATION

Born in Germany, July 29, 1989

email oess.timo@gmail.com

website https://oesst.github.io/

ACADEMIC CAREER

2021-present Universität Freiburg, Freiburg

Akademischer Rat

Neurobiology and Neurotechnology
Postdoctoral fellow working on computational models for motor control using dynamical system theory´, recurrent neural networks and reinforcement learning.
Supervised by Prof. Dr. Carsten Mehring.

2017-2021 Universität Ulm, Ulm

Doctoral Student

Cognitive Psychology/Neuroinformatics
Focus on computational models for sound source localization and its implementation on a neuromorphic harware robotic platform.
Dissertation: "From sound waves to locations : computational models for sound source localization in the early auditory pathway".
(magna cum laude)
Supervised by 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) developing a biologically-inspired model for navigation.
Supervised by Prof. Dr. Jeffrey Krichmar.

2014-2016 Technische Universität München, Munich

Master of Science

Robotics, Cognition, Intelligence (M.Sc.)
Focus on robotics and computational neuroscience.
Passed with distinction.
Supervised by Prof. Dr. Florian Röhrbein

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.
Medicine as a minor subject

COURSES & SUMMER SCHOOLS

May '22 Bertinoro, Italy

FENS Summer School

FENS Summer School on 'Artificial and natural computations for sensory perception: what is the link?'. One week hands-on projects on machine learning methods for perceptual neuroscience.

November '19 Schloss Reisensburg, Günzburg

Deep Learning Hackathon

Intensive course on deep learning models for classification, generation (Autoencoders) and reinforcement learning.

November '14 Warsaw University of Technology, Warsaw

Athens Program

One week intensive course on knowledge systems and their representations.

SCHOLARSHIPS

Philipp-Matthäus-Hahn scholarship for talented students.

DAAD scholarship for international research internships.

Wissenschaftliche Gesellschaft Freiburg scholarship for attending summer school.

PATENTS

Pending patent application for spatial audio in headphones. See https://www.technologie-lizenz-buero.com/technology-offers/21-056tlb.

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

Languages

GERMAN · Mothertongue

ENGLISH · Proficient, TOEFL iBT (105 points) B2

FRENCH · Beginner

Personal Interests Outdoor activities (climbing, hiking, wintersports) · Carpentry · 3D modellinge and printing · Global politics, different cultures

PUBLICATIONS

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.

August 10, 2022