

CURRICULUM VITAE

Dr rer nat. habil. Achim Schilling
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EDUCATION AND CAREER

Since 06.2025	Group Leader of the “Neuro-AI and BCI” group , (Link AG Neuro AI BCI) Mannheim Center for Neuromodulation and Neuroprosthetics (MCNN), University Hospital Mannheim, Ruprecht-Karls-University Heidelberg
09.2024-05.2025	PostDoc , Cognitive Computational Neuroscience Group (CCN), Chair of Computer Science 5, Friedrich-Alexander University Erlangen-Nürnberg
01.2023-07.2025	Habilitation (addition of habil., title: Dr. rer. nat. habil.) in „Artificial Intelligence in Biomedical Engineering” at the Faculty of Engineering of the Friedrich-Alexander-University Erlangen-Nürnberg, Topic: Auditory Perception, Plasticity, and Cognition in Biological and Artificial Neural Networks
09.2021-08.2024	PostDoc , Neuroscience Lab, University Hospital Erlangen (own DFG-project on Zwicker tone und tinnitus)
10.2020-08.2021	PostDoc , Laboratoire Neurosciences Sensorielles et Cognitives (Arnaud J. Norena), Aix-Marseille University, Marseille, France
11.2017-09.2020	PostDoc , Neuroscience Lab, University Hospital Erlangen
01.2014-11.2017	PhD (neuroscience, Dr. rer. nat., magna cum laude), Neuroscience Lab, University Hospital Erlangen
10.2011-11.2013	Master (physics, with distinction , grade: 1,16), Friedrich-Alexander-University Erlangen-Nürnberg
10.2008-08.2011	Bachelor (physics, grade: 1,58), Friedrich-Alexander-University Erlangen- Nürnberg
09.1999-07.2008	High School Diploma (grade: 1,4), Otto-Hahn Gymnasium Marktredwitz

THIRD PARTY FUNDS

As Principal Investigator

DFG „Zwickerton und Tinnitus“ (Zwicker tone and tinnitus, 2020), **409,750€**,
<https://gepris.dfg.de/gepris/projekt/451810794>

ELAN Zwicker tone (2018), approx. **37,000€**

NVIDIA Machine Learning and Sleep (2018), approx. **1200€**

As Collaborator

DFG „Die Mikrostruktur kortikaler Aktivität im Schlaf: Entwicklung eines
objektivierten, automatischen Verfahrens zur Schlafstadienbestimmung“ (The
microstructure of cortical activity during sleep: development of an objectified,

automatic method for sleep stage determination, 2021),
<https://gepris.dfg.de/gepris/projekt/455908056>

PUBLICATION METRICS

Citations	2215 (google scholar, 05.08.2025)
h-index	27
i10-index	47

AWARDS AND FELLOWSHIPS

2023	Best Paper Award of the International Joint Conference on Neural Networks (IJCNN) out of more than 1000 accepted publications (senior author)
2023	Best Student Paper Award of the International Conference on Bio-Engineering for Smart Technologies (BioSMART, co-author, first author is our PhD student)
2012	Travel Fellowship of the Else-und-Willhelm Heraeus Stiftung

CONFERENCES AND MEETINGS

Talks

2024	Author-Specific Linguistic Patterns Unveiled: A Deep Learning Study on Word Class Distributions (conference talk , IJCNN, Rome, Italy)
2023	Word class representations spontaneously emerge in a deep neural network trained on next word prediction (conference talk , ICMLA, Jacksonville Florida, USA)
2023	Towards a unified theory of auditory (phantom) perception (invited talk , ARO Midwinter Meeting, Orlando, USA)
2022	Self-Supervised AI Approach to Decode Local Field Potentials (invited talk , Reichenbach Lab, University Erlangen-Nürnberg)
2022	Auditory phantom perception in brains, minds, and machines (invited talk , Karl. J. Friston Lab, University College London)
2019	Artificial Deep Neural Networks as a Tool to Understand Biological Neural Networks (invited talk , Freigeist-Kick-Off Meeting, Erlangen)
2019	The gap-pre-pulse inhibition of the acoustic startle reflex: statistics, criticism and future applications (conference talk , TRI, Taipeh, Taiwan)
2019	Introduction to Artificial Neural Networks (keynote lecture , Tin-Act, EU program)
2019	An Introduction to Animal Audiometry (keynote lecture , Tin-Act, EU program)
2017	Objektivierung von CPAP anhand einer neuartigen Clusteranalyse (Objectification of CPAP using a novel cluster analysis, DGSM-Meeting, Münster)

Posters (selection)

Cognitive Computational Neuroscience Meeting (CCN 2024, MIT, Boston)

Embodied and Situated Language Processing (ESLP 2024, Berlin)
 Cognitive Neuroscience Society Meeting (San Francisco 2019, 2017)
 Society for Neuroscience (San Diego 2016, Washington 2017)
 German Neuroscience Society (NWG, Göttingen 2015)

SKILLS

Programming	Python: KERAS/Tensorflow (AI-applications), PyQt (graphical user interfaces), MNE (EEG-, MEG-Evaluation) MatLab C++: for Arduino microcontroller
Scientific Methods	Human: EEG, MEG, intracranial EEG (evaluation), audiometry Animal models: in-vivo electrophysiology (anesthetized, awake), brainstem audiometry, behavioral measurements, Felasa B (more than 3 Jahre practical experience) Computational: artificial intelligence, computational modelling Electronics: design of electronic circuits
Additional skills	Certificates in rhetoric and communication, scientific writing, project management, team management and motivation

ACADEMIC ACTIVITIES

Reviewer	Journals: Nature Human Behaviour, Journal of Neurophysiology, European Journal of Neuroscience, Brain and Behavior, Hearing Research, Journal of Neuroscience Methods, Frontiers in Aging Neuroscience, Frontiers in Neuroscience Conferences: International Joint Conference on Neural Networks 2024 (IJCNN, iEEE), International Conference on Machine Learning and Applications 2023 (ICMLA, iEEE)
Topic Editor	“Auditory Perception and Phantom Perception in Brains, Minds and Machines” (Frontiers)
Co-Organization	TinAct-Meeting in Erlangen (EU project meeting on tinnitus research, 2019)
Session Chair	IJCNN 2025, Session: “Interpretable and Explainable AI II”
Scientific network	USA: Prof. Fan-Gang Zeng (University of Irvine, California), Dr. André Erpenbeck (University of Georgia, Athen, Georgia) UK: Prof. Karl J. Friston (University College London), Dr. William Sedley (Newcastle University), Dr. Roland Schaette (University College London) France: Prof. Arnaud J. Norena (Aix-Marseille University, Marseille), Dr. Vinay Parameshwarappa (Aix-Marseille University, Marseille) Germany: Prof. Rosario Tomasello (FU Berlin), Prof. Max Happel (Medical School Berlin), Dr. Marcus Jeschke (University Göttingen), Prof. Andreas Maier (Friedrich-Alexander-University Erlangen), Prof. Tobias Reichenbach (Friedrich-Alexander-University Erlangen) (all scientific collaborations are documented in joint publications)

TEACHING AND DIDACTICS

Committee work	Member of the study commission "medical engineering" of the Friedrich-Alexander University Erlangen-Nürnberg
Advanced Training	Certificate in University Teaching of the Bavarian Universities (Advanced Level, "Zertifikat Hochschullehre der Bayerischen Universitäten", 131 work units)
Lecture	„Cognitive Neuroscience for AI Developers” (English, 4 SWS, 3 semesters)
Seminars	“Stimulate, Measure, Evaluate, Share, Neurolinguistic Explorations” (English, 2SWS, 1 semester) “Language in Brains, Minds, and Machines” (English, 2SWS, 1 semester) “Neuroscience Inspired Artificial Intelligence” (English, 2SWS, 2 semesters)
Practical Courses	Medical course of study: EEG and brainstem audiometry (1 SWS, 5 semesters) Integrated Life Science course of study: photovoltaics and Stirling engine (1 semester each)
Tutor in physics	mechanics (2 semesters) electrodynamics (2 semesters) nuclear and particle physics (1 semester)
(Co-)Supervision	PhD, Dr. med., Dr. med. dent., MSc, BSc theses
Mentorship	For doctoral students within the linguistics graduate college in Erlangen

LANGUAGES

German	native
English	fluent
French	basic (Delf B1)

IN MEDIA AND SCIENCE COMMUNICATION

Television

21.08.24	Alles über Tinnitus (Everything about tinnitus) https://www.ardmediathek.de/video/alpha-gespraech/alpha-thema-gespraech-alles-ueber-tinnitus/ard-alpha/Y3JpZDovL2JyLmRlL2Jyb2FkY2FzdFNjaGVkdWxlU2xvdC80MTE2ODQyNzU4MTNfRjIwMjNXTzAxOTA2NUUw
08.07.24	Neues aus der Tinnitusforschung (News from tinnitus research) https://www.ardmediathek.de/video/nachtlinie/neues-aus-der-tinnitusforschung/br/Y3JpZDovL2JyLmRlL2Jyb2FkY2FzdFNjaGVkdWxlU2xvdC80MDM5OTgxOTM4MTNfRjIwMjNXTzAwNjQ3OEUw

Online, newspaper, popular science articles, and Youtube (selection)

03.09.24	FAU scientist gain major insights into how the brain works https://bernstein-network.de/en/newsroom/news/20240903/
30.03.24	Tinnitus im Ansatz bekämpfen (Tackling Tinnitus from the Start)

- <https://www.spektrum.de/news/hoerschaeden-tinnitus-im-ansatz-bekaempfen/2204799>
- 02.02.24** **Tinnitus Models**
<https://www.youtube.com/watch?app=desktop&v=Sc2nmdnFkY8>
- 18.01.24** **Erklärung für Tinnitus? Erlanger Forscher zeigen, warum Gehirn Phantomgeräusche wahrnimmt und ein Rauschsignal dagegen hilft**
(Explanation for Tinnitus? Erlangen researcher show why the brain perceives phantom sounds and why a noise signal helps to counteract them)
<https://deutsch.medscape.com/artikelansicht/4913319>
- 06.11.23** **Wie Tinnitus im Gehirn entsteht** (How tinnitus arises in the brain)
https://www.focus.de/wissen/natur/wie-tinnitus-im-gehirn-entsteht_id_240361156.html
- 03.11.23** **Neue Erkenntnisse zur Entstehung von Tinnitus** (New findings in the development of tinnitus)
<https://www.hno-klinik.uk-erlangen.de/aktuelles/nachrichten/detail/neue-erkenntnisse-zur-entstehung-von-tinnitus/>
- 14.08.2023** **Infranken.de: Erlanger Forschern gelingt Durchbruch: Neue Erkenntnis könnte gleich 3 KI-Probleme lösen** (Erlangen researchers make breakthrough: New finding could solve 3 AI problems at once, based on article below),
<https://www.infranken.de/lk/erlangenhoechstadt/erlanger-forschern-gelingt-durchbruch-neue-erkenntnis-koennte-gleich-3-ki-probleme-loesen-art-5747727>
- 14.08.2023** **FAU-News: Wie die Hirnforschung der Künstlichen Intelligenz auf die Sprünge hilft** (How brain research is giving artificial intelligence a leg up),
<https://www.fau.de/2023/08/news/wissenschaft/wie-die-hirnforschung-der-kuenstlichen-intelligenz-auf-die-spruenge-hilft/>
- 25.07.2023** **UK Erlangen News (und medizinische Fakultät): Ausgezeichnete Arbeit zwischen KI und Hirnforschung** (Awarded work between AI and brain research, Best Paper Award auf der IJCNN),
<https://www.med.fau.de/2023/07/25/ausgezeichnete-arbeit-zwischen-ki-und-hirnforschung/>
- 03.03.2023** **UK Erlangen News (und medizinische Fakultät): Doktorandin für innovative Forschung ausgezeichnet** (Doctoral student awarded for innovative research, Best Student Paper Award for our PhD student),
<https://www.med.fau.de/2023/07/03/doktorandin-fuer-innovative-forschung-ausgezeichnet/>
- 28.10.2022** **Fränkischer Tag: Wie fränkische Forscher den Tinnitus ausknipsen** (How Franconian researchers switch off tinnitus),
<https://www.fraenkischertag.de/lokales/hoechstadt-herzogenaurach/gesundheit/tinnitus-forscher-von-der-uniklinik-erlangen-wollen-patienten-mehr-lebensqualitaet-ermoeglichen-art-196265>
- 02.2022** **Apothekenzeitschrift Kopf fit (Februar 2022): Endlich Ruhe im Kopf** (Silence in the head at last)
- 06.12.2021** **FAU Science News: Unser Gehirn ist eine 20-Watt-Serverfarm** (Our brain is a 20-watt server farm, also in InFranken.de, die Linde (online)),
<https://www.fau.de/2021/12/news/wissenschaft/unser-gehirn-ist-eine-20-wattserverfarm>
- 09.10.2021** **Mittelbayrische Zeitung (online): Da pfeift's im Ohr** (There's a whistle in your ear, also in FAU Science News, MarktSpiegel (online), idw (online)),
<https://www.fau.de/2021/10/news/wissenschaft/da-pfeifts-im-ohr>

07.10.2020

FAU Science News: Bücher hören für die Wissenschaft (Listening to books for science, also in idw online), <https://www.fau.de/2020/09/news/buecher-hoeren-fuer-die-wissenschaft/>

THESES

Habilitation	Auditory Perception, Plasticity, and Cognition in Biological and Artificial Neural Networks
Dr. rer. nat. (PhD)	On the estimation of sensory and perceptual thresholds: theoretical limitations and practical implications
Master	A novel live imaging spinning disk device for measuring cell adhesion strength on magnesium substrates
Bachelor	Dynamics of adhesion complexes of living cells (Dynamik des Bindungsverhaltens des Adhäsionsapparates lebender Zellen)

MEMBERSHIPS

DHV	Deutscher Hochschulverband (German University Association)
DPG	Deutsche Physikalische Gesellschaft (German Physical Society)
NWG	Deutsche Neurowissenschaftliche Gesellschaft (German Neuroscience Society)

REFERENCES

Prof. Dr. H. Schulze	Experimental neuroscience (University Hospital Erlangen, Germany), holger.schulze@uk-erlangen.de
Prof. Dr. Max Happel	Neuroscience (Medical School Berlin), max.happel@medicalschooll-berlin.de
PD. Dr. P. Krauss	Neurolinguistics, cognitive neuroscience, (University Hospital Erlangen and University Erlangen-Nürnberg, Germany), patrick.krauss@fau.de