

## Ass. Prof. Dr. Uwe Mayer - CURRICULUM VITAE

### Current Affiliation:

University of Trento,  
Center for Mind/Brain Sciences (CIMEC)  
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### Research Experience

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- 2017– present**    **Assistant Professor (Principal Investigator)**  
Research and teaching position (tenure-track *RTDb* since 2021) at the University of Trento, Italy.
- 2013 – 2017**    **Postdoctoral research fellow**  
Employed by an ERC advanced grant (*PREMESOR*) to Prof. G. Vallortigara to investigate the neural basis of social behaviour in domestic chicks, University of Trento, Italy.
- 2012 – 2013**    **Postdoctoral research fellow**  
German Research Foundation (DFG) funded position in the 'Active Sense' group of Prof. J. Engelmann to investigate the neural basis of spatial orientation in the weakly electric fish (*Gnathonemus petersii*), Bielefeld University, Germany.

### Education

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- 2019**            **Habilitation**  
Italian national habilitation (ASN) to Associate Professor in Physiology (05/D1)
- 2009 – 2012**    **Dr. rer. nat. (*magna cum laude*: 0.9)**  
Doctoral thesis: 'Spatial Orientation and the Avian Hippocampus: Research in Zebra Finches.' in the 'Neuroethology' group of Prof. H-J. Bischof, Bielefeld University, Germany.
- 2006 – 2008**    **M.Sc. (Systems Biology of Brain and Behaviour)**  
Bielefeld University, Germany.
- 2003 – 2006**    **B.Sc. (Biology)**  
Bielefeld University, Germany.
- 2001 – 2002**    **Alternative civilian service (Zivildienst)**  
Von Laer Stiftung, Bielefeld, Germany.
- 1998 – 2001**    **Biological Technical Assistant (State-certified BTA)**  
CSB, Bielefeld, Germany.

### Research interests

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- Comparative cognition, evolution and behaviour
- Animal physiology and neuroanatomy
- Neural basis of social and spatial cognition

## Current working group

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- Uwe Mayer, Principal Investigator
- Anastasia Morandi Raikova, Postdoctoral fellow
- Dmitry Kobylkov, Postdoctoral fellow (co-supervision with Prof. Vallortigara, ERC grant)
- Carlos Daniel Corrales Parada, Ph.D Student (co-supervision with Prof. Dr. Chagnaud, University of Graz, Austria)
- Francesca Protti Sanchez, Ph.D. Student (co-supervision with Dr. Hannah Rowland, Max Planck Institute for Chemical Ecology, Jena, Germany)
- Francesca Pia Sellitti, Master Student
- Laura Alisa Bock, Master Student
- Benedikt Paul Fuhr, Master Student
- Jeske Enzerink, Erasmus Internship Student

## Research Methods

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- Behavioural measurements and training of animals
- Multichannel extracellular electrophysiology in anaesthetised and freely moving birds
- Mapping brain activity based on immediate early gene products
- Neuroanatomical and histological preparations
- Brain lesioning and tracing techniques
- Immunohistochemistry, in situ hybridisation, PCR, qPCR, electrophoresis, western blot etc.
- Mini-scope-based calcium imaging in freely moving domestic chicks
- Animal species: zebra finches (*Taeniopygia guttata*), domestic chicks (*Gallus gallus*), quails (*Coturnix japonica*), elephant nose fish (*Gnathonemus petersii*), mice (*Mus musculus*), anole lizards (*Anolis carolinensis*).

## Professional activities

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### Membership in societies:

- since 2006: German Neuroscience Society (NWG)
- since 2014: International Society for Neuroethology (ISN)
- since 2017: German Zoological Society (DZG)
- since 2022: Societa Italiana di Etologia (S.I.E.)

### Peer-Reviewer for:

- Nature Communications; Animal Cognition; Philosophical Transactions of The Royal Society B Biological Sciences; Journal of Comparative Neurology; Neurobiology of Learning and Memory; Neuroscience; Brain Structure and Function; Behavioural Brain Research; Brain Research; Brain Sciences; Learning & Behavior; Biochemical and Biophysical Research Communications; Neuroscience Letters; Journal of Physiology Paris; PLoS ONE; Frontiers in Physiology; Scientific Reports; iScience; Frontiers in Behavioural Neuroscience; Frontiers in Neuroanatomy; Behavioural Processes; Symmetry; PeerJ; Laterality; Journal of Experimental Zoology; Journal of Animal Science and Biotechnology; Proc Natl Acad Sci India Sect B Biol Sci.; Brazilian Journal of Medical and Biological Research.

### Editorial activity

- Since 2019: Frontiers in Behavioural Neuroscience: editorial board member in the section Learning and Memory
- Since 2020: Frontier in Physiology: editorial board member in the section in the section Avian Physiology

### Selected talks:

- 2023 Institute of Biology, University of Graz, **Graz, Austria**
- 2022 Societa Italiana di Etologia Conference, University of **Padova, Italy**
- 2022 Avian Cognitive Neuroscience Conference, Ruhr University, **Bochum, Germany**
- 2022 Biologisches Kolloquium, University of Graz, **Graz, Austria**
- 2021 Sound Communication and Behaviour Group, University of Southern Denmark, **Odense, Denmark**.
- 2019 RIN Conference on Animal Navigation, **London, United Kingdom**.
- 2018 TUM School of Life Sciences Weihenstephan, Technical University **Munich, Germany**.
- 2017 Biopsychology Department (Prof. Güntürkün Lab), Ruhr University **Bochum, Germany**.
- 2017 International Conference of Neuroscience, Akdeniz University, **Antalya, Turkey**.
- 2017 Annual Meeting of the German Zoological Society (DZG), **Bielefeld, Germany**.
- 2015 Mini-Symposium on Laterality, CIMeC, **Rovereto, Italy**.
- 2011 Neuroethology Symposium at the German Zoological Society (DZG) Meeting, **Saarbrücken, Germany**.

### Bibliometrics (ORCID: 0000-0001-6841-0282)

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- **Google Scholar H index: 18**, total citations: 918; **Scopus H index: 15**, total citations 620. I have published 30 **peer-reviewed articles** (24 research articles, 5 literature reviews and 1 book chapter). Nine of these articles are as first author, 4 as a shared first author, 8 as the last author and 2 as a joint last author.

### Publications (peer-reviewed journals)

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30. Morandi-Raikova A, **Mayer U** (2022). Avian Hippocampus and Spatial Cognition: Research in Domestic Chicks. *Frontiers in Psychology* 13, 1-3 DOI: 10.3389/fpsyg.2022.1005726
29. Kobylkov D, **Mayer U**, Zanon M, Vallortigara G (2022). Number neurons in the nidopallium of young domestic chicks. *Proceedings of the National Academy of Sciences* 119 (32) e2201039119. DOI: 10.1073/pnas.220103911
28. Morandi-Raikova A, **Mayer U** (2022). Active exploration of an environment drives the activation of the anterior hippocampus of domestic chicks. *Journal of Experimental Biology* jeb.244190. DOI:0.1242/jeb.244190
27. Protti-Sanchez F, Corrales-Parada CD, **Mayer U\***, Rowland H\* (2022). Activation of nucleus taeniae of the amygdala by palatable umami taste in domestic chicks (*Gallus gallus*). *Frontiers in Physiology* 13, 897931. DOI: 10.3389/fphys.2022.897931 \**Joint last authorship*
26. Costalunga G, Kobylkov D, Rosa-Salva O, Vallortigara G, **Mayer U** (2022). Light-incubation effects on lateralization of single unit responses in the visual Wulst of domestic chicks. *Brain Structure and Function* 227, 497-513. DOI:10.1007/s00429-021-02259-y
25. Morandi-Raikova A, Danieli K, Lorenzi E, Rosa-Salva O, **Mayer U** (2021). Anatomical asymmetries in the tectofugal pathway of dark-incubated domestic chicks: rightwards lateralization of parvalbumin neurons in the entopallium. *Laterality* 26:1-2, 163-185. DOI: 10.1080/1357650X.2021.1873357
24. Rosa-Salva O, **Mayer U**, Versace E, Hebert M, Lemaire BS, Vallortigara G (2021). Sensitive periods for social development: interactions between innate and learned mechanism (*Gallus gallus*). *Cognition*. DOI: 10.1016/j.cognition.2020.104552

23. Morandi-Raikova A, **Mayer U** (2021). Selective response of the right hippocampus during navigation by spatial cues in domestic chicks (*Gallus gallus*). *Neurobiology of Learning and Memory* 177:107344: DOI: 10.1016/j.nlm.2020.107344
22. Corrales-Parada CD, Morandi-Raikova A, Rosa-Salva O, **Mayer U** (2021). Neural basis of familiar conspecific recognition in domestic chicks (*Gallus gallus*). *Behavioural Brain Research* 397, 112927. DOI: 10.1016/j.bbr.2020.112927
21. Morandi-Raikova A, **Mayer U** (2020). The effect of monocular occlusion on hippocampal c-Fos expression in domestic chicks (*Gallus gallus*). *Scientific Reports* 10:7205: DOI: 10.1038/s41598-020-64224-9
20. Morandi-Raikova A, Vallortigara G, **Mayer U** (2020). The use of spatial and local cues for orientation in domestic chicks (*Gallus gallus*). *Animal Cognition* 23, 367–387. DOI:10.1007/s10071-019-01342-6
19. Rosa-Salva O\*, **Mayer U\***, Vallortigara G (2019). Inborn preference for the head region of different species in visually naive domestic chicks. *PLoS ONE* 14(9): e0222079 \*Equal contribution
18. **Mayer U**, Rosa-Salva O, Loveland J, Vallortigara G (2019). Selective response of the nucleus taeniae of the amygdala to a naturalistic social stimulus in visually naive domestic chicks (*Gallus gallus*). *Scientific Reports* 9:9849: DOI: 10.1038/s41598-019-46322-5
17. Lorenzi E, **Mayer U**, Rosa-Salva O, Morandi-Raikova A, Vallortigara G (2019). Spontaneous and light-induced lateralization of immediate early genes expression in domestic chicks. *Behavioural Brain Research* 368 DOI: 10.1016/j.bbr.2019.111905
16. Golücke S, Bischof HJ, Engelmann J, Caspers BA\*, **Mayer U\*** (2019). Social odour activates the hippocampal formation in zebra finches (*Taeniopygia guttata*). *Behavioural Brain Research*. 364: 41-49. \*Joint last authorship
15. Krause ET\* , Bischof HJ\* , Engel K\* , Golücke S\* , Maraci Ö\* , **Mayer U\*** , Sauer J\* , Caspers BA\* (2018). Olfaction in the Zebra Finch (*Taeniopygia guttata*): What is known and further perspectives. In *Advances of the Study of Behavior* Volume 50. (ed. Naguib M, Barrett L, Healy SD, Podos J, Simmons LW, Zuk M), pp 37-85, Academic Press. \*Equal contribution
14. **Mayer U**, Bhushan R, Vallortigara G, Lee SA (2018). Representation of environmental shape in the hippocampal formation of domestic chicks (*Gallus gallus*). *Brain Structure and Function* Brain Structure and Function. 223: 941-953.
13. Lorenzi E, **Mayer U**, Rosa Salva O, Vallortigara G (2017). Dynamic features of animate motion activate septal and preoptic areas in visually naïve chicks (*Gallus gallus*). *Neuroscience* 354:54-68.
12. Di Giorgio E\*, Loveland JL\*, **Mayer U\***, Rosa-Salva O\*, Versace E\*, Vallortigara G (2017). Filial responses as predisposed and learned preferences: Early attachment in chicks and babies. *Behavioural Brain Research* 325:90-104. \*Equal contribution
11. **Mayer U**, Rosa Salva O, Morbioli F, Vallortigara G (2017). The motion of a living conspecific activates septal and preoptic areas in naive domestic chicks (*Gallus gallus*). *European Journal of Neuroscience* 45(3):423-432.
10. **Mayer U**, Rosa Salva O, Vallortigara G (2017). First exposure to an alive conspecific activates septal and amygdaloid nuclei in visually naïve domestic chicks (*Gallus gallus*). *Behavioural Brain Research* 317:71-81.
09. **Mayer U**, Rosa Salva O, Lorenzi E, Vallortigara G (2016). Social predisposition-dependent neuronal activity in the intermediate medial mesopallium of domestic chicks (*Gallus gallus domesticus*). *Behavioural Brain Research* 310: 93-102.

08. Bischof HJ\*, Eckmeier D\*, Keary N\*, Löwel S\*, **Mayer U\***, Michael N\* (2016). Multiple Visual Field Representations in the Visual Wulst of a Laterally Eyed Bird, the Zebra Finch (*Taeniopygia guttata*). *PLoS ONE* 11(5): e0154927. \**Equal contribution*
07. **Mayer U**, Pecchia T, Bingman VP, Flore M, Vallortigara G (2016). Hippocampus and medial striatum dissociation during goal navigation by geometry or features in the domestic chick: an immediate early gene study. *Hippocampus* 26(1):27-40.
06. Rosa Salva O, **Mayer U**, Vallortigara G (2015). Roots of a social brain: developmental models of emerging animacy-detection mechanisms. *Neuroscience & Biobehavioral Reviews* 50:150-68.
05. **Mayer U**, Watanabe S, Bischof HJ (2013). Spatial memory and the avian hippocampus: research in zebra finches. *Journal of Physiology - Paris* 107 (1-2): 2-12.
04. **Mayer U**, Bischof HJ (2012). Brain activation pattern depends on the strategy chosen by zebra finches to solve an orientation task. *The Journal of Experimental Biology* 215: 426-434.
03. Watanabe S, **Mayer U**, Bischof HJ (2011). Visual wulst analyses "where" and entopallium analyses "what" in zebra finch visual system. *Behavioural Brain Research* 222(1):51-56.
02. **Mayer U**, Watanabe S, Bischof HJ (2010). Hippocampal activation of immediate early genes Zenk and c-Fos in zebra finches (*Taeniopygia guttata*) during learning and recall of a spatial memory task. *Neurobiology of Learning and Memory* 93(3):322-9.
01. Watanabe S, **Mayer U**, Bischof HJ (2008). Pattern discrimination is affected by entopallial but not by hippocampal lesions in zebra finches. *Behavioural Brain Research* 190: 201-205.

## Poster presentations at international conferences

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More than 40 poster presentations at scientific conferences in *Italy, Germany, the United Kingdom, Austria, Netherlands, Japan, Turkey, Uruguay, and Costa Rica*. To see the complete list, click [here](#).

### Poster prizes:

- 2022: Morandi-Raikova A, **Mayer U**. (2022) 'Active exploration of an environment drives the activation of the anterior hippocampus of domestic chicks.' **Prize for the best poster** at the Avian Cognition and Neuroscience Conference, Bochum, Germany
- 2022: Kobylkov D, **Mayer U**, Zanon M, Vallortigara G (2022) 'Number neurons in the nidopallium of young domestic chicks' **Prize for the second best poster** at the Avian Cognition and Neuroscience Conference, Bochum, Germany
- 2020: Morandi-Raikova A, **Mayer U**. (2020) 'Selective activation of the right hippocampus during navigation by spatial cues in domestic chicks (*Gallus gallus*).' **Prize for the best poster** at the DS DAY 2020, Rovereto, Italy.
- 2019: Morandi-Raikova A, **Mayer U**. (2019) 'The effect of eye occlusion on the hippocampal representation of environmental novelty in domestic chicks (*Gallus gallus*).' **Prize for the best poster** at the DS DAY 2019, Rovereto, Italy.
- 2012: **Mayer U**, Bischof (2012). 'Brain Activation Pattern Depending on the Strategy Chosen by Zebra Finches to Solve an Orientation Task' **Prize for the best poster** in the division of neurobiology at the 104th annual meeting of the German Zoological Society (DZG), Saarbrücken 2011.