

Ass. Prof. Dr. Uwe Mayer - CURRICULUM VITAE

Current Affiliation:

University of Trento,
Center for Mind/Brain Sciences (CIMEC)
Piazza Manifattura 1, 38068, Rovereto, Italy

uwe.mayer@unitn.it

www.mayerlab.org

Research Experience

- 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

- 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

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

Current working group

- Uwe Mayer, Principal Investigator
- 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)

Research Methods

- 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

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)

- Google Scholar H index: 18, total citations: 1045; Scopus H index: 16, total citations 730. I have published 31 peer-reviewed articles (25 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. Further, two manuscripts as the last author are submitted.

Publications (peer-reviewed journals)

33. Costalunga G, Kobylkov D, Morandi-Raikova A, Rosa-Salva O, Vallortigara G, **Mayer U** (submitted). Single-neuron responses in the left and right entopallium are differently affected by light stimulation in embryo. *iScience*
32. Morandi-Raikova A, Rosa-Salva O, Simdianova A, Vallortigara G, **Mayer U** (submitted). Hierarchical processing of local, egocentric and relational information for spatial orientation in domestic chicks. *Journal of Experimental Biology*
31. Protti-Sánchez F, **Mayer U**, Rowland MH (2023). In paired preference tests, domestic chicks innately choose the colour green over red, and the shape of a frog over a sphere when both stimuli are green. *Animal Cognition* DOI:10.1007/s10071-023-01821-x
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 naïve 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 naïve 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 naïve 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

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.

09. January 2024