Dr. Jens Herberholz

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Education

1999	Dr. rer. nat. (PhD, Natural Sciences)	Technical University Munich, Germany
1995	Diplom (M.Sc., Zoology)	Albert-Ludwigs-University Freiburg, Germany
1992	Vordiplom (B.Sc., Biology)	Albert-Ludwigs-University Freiburg, Germany

Academic Positions & Appointments

8/2023 – present	Full Professor (tenured), Department of Psychology, University of Maryland, College Park, USA
1/2022 – present	Associate Chair of Undergraduate Studies, Department of Psychology, University of Maryland, College Park, USA
8/2015 – 12/2020	Co-Director, Brain and Behavior Initiative (BBI), University of Maryland, College Park, USA
7/2013 - 6/2017	Director, Neuroscience and Cognitive Science Program (NACS), University of Maryland, College Park, USA
1/2012 - 7/2012	Visiting Professor (sabbatical), Department of Zoology, Technical University Munich, Germany
8/2011 – 8/2023	Associate Professor (tenured), Department of Psychology, University of Maryland, College Park, USA
8/2009 - present	Affiliate Faculty, Department of Biology, University of Maryland, College Park, USA
8/2005 - present	Affiliate Faculty, Neuroscience & Cognitive Science Graduate Program (NACS), University of Maryland, College Park
8/2005 - 8/2011	Assistant Professor, Department of Psychology, University of Maryland, College Park, USA
1/2002 - 7/2005	Research Scientist, Department of Biology, Georgia State University, Atlanta, USA
8/1999 - 12/2001	Postdoctoral Research Associate, Department of Biology, Georgia State University, Atlanta, USA

Memberships

2018 - 2019	Member, International Behavioral Neuroscience Society
2003 - present	Member, International Society for Neuroethology
2000 - present	Member, Society for Neuroscience (*most years*)

Awards & Honors

2024 Excellence in Service Award; College of Behavioral and Social Sciences, University of Maryland, College Park

2012 Emerging Scholars Program Award; College of Behavioral and Social Sciences, University of Maryland, College Park

2007 Faculty Mentor Award; Philip Merrill Presidential Scholars Program, University of Maryland, College Park

Publications

A) Peer-reviewed articles and book chapters

1. Pathak S.*, Peña-Flores N.*, Alvarez P., Feeley J., Ghodssi R., Losert W., and **Herberholz J**. (2025) Interactions between CNS regulation and serotonergic modulation of crayfish hindgut motility. *Royal Society Open Science* (submitted) *equal contributions.
2. Han J.*, Ho T.*, Stine J.M., **Herberholz J**., and Ghodssi R. (2024) Simultaneous dopamine and serotonin monitoring in freely moving crayfish using a wireless electrochemical sensing system. *ACS Sensors.* doi.org/10.1021/acssensors.3c02304 [Cover picture] *equal contributions.
3. Overton S.N., Han J., Straker M.A., Levy J.A., Stine J.M., Ho T., **Herberholz J**., and Ghodssi R. (2024) Serotonin sensing technologies to promote understanding of the gut-brain axis. *IEEE Sensors Letters* 8: 1-4. doi: 10.1109/LSENS.2024.3394236
4. **Herberholz J**. (2022) The giant escape neurons of crayfish: Past discoveries and present opportunities. *Frontiers in Physiology* 13; doi:10.3389/fphys.2022.1052354
5. Venuti L.S., Pena-Flores N.L., and **Herberholz J**. (2021) Cellular interactions between social experience, alcohol sensitivity, and GABAergic inhibition in a crayfish neural circuit. *Journal of Neurophysiology* 125: 256-272. doi: 10.1152/jn.00519.2020
6. Rajasekaran P.R., Chapin A., Quan D.N., **Herberholz J**., Bentley W.E., and Ghodssi R. (2020) 3D printed electrochemical sensor-integrated transwell systems. *NPJ Microsystems and Nanoengineering* 6: 100.
7. Chapin A., Rajasekaran P.R., Quan D.N., Hu L., **Herberholz J**., Bentley W.E., and Ghodssi R. (2020) Electrochemical measurement of serotonin by AU-CNT electrodes fabricated on porous cell culture membranes. *NPJ Microsystems and Nanoengineering* 6: 90.
8. Chapin A., Han J., Ho T., **Herberholz J**., and Ghodssi R. (2020) A hybrid biomonitoring system for gut-neuron communication. *IEEE Journal of Microelectromechanical Systems* 29: 727-733. doi:10.1109/JMEMS.2020.3000392.
9. Exum A., Sun L., and **Herberholz J.** (2020) Discrete modulation of antipredatory and agonistic behaviors by sensory communication signals in juvenile crayfish. *Journal of Experimental Biology* 223: 1-11. doi:10.1242/jeb.226704
10. **Herberholz J**., Swierzbinski M.E., Widjaja A., and Kohn A. (2019) Not so fast: giant interneurons control precise movements of antennal scales during escape behavior of crayfish. *Journal of Comparative Physiology A* 205: 687-698.
11. Algarin J.M., Ramaswamy B., Venuti L., Swierzbinski M.E., Baker-McKee J., Weinberg I.N., Chen Y.J., Krivorotov I.N., Katine J.A., **Herberholz J**., Araneda R.C., Shapiro B., and Waks E. (2019) Activation of microwave signals in nanoscale magnetic tunnel junctions by neuronal action potentials. *IEEE Magnetics Letters* 10: DOI 10.1109/LMAG.2019.2896307

12. Weinberg I.N., Mair L.O., Jafari S., Algarin J., Benlloch Baviera J.M., Baker-McKee J., English B., Chowdhury S., Malik P., Watson-Daniels J., Hale O., Stepanov P.Y., Nacev A., Hilaman R., Ijanaten S., Koudelka C., Araneda R., **Herberholz J**., Martinez-Miranda L.J., Shapiro B., Villar P.S., Krivorotov I., Khizroev S., and Fricke S. (2018) Image-guided Placement of Magnetic Neuroparticles as a Potential High-Resolution Brain-Machine Interface. In: Evolving BCI Therapy-Engaging Brain State Dynamics. IntechOpen; x.doi.org/10.5772/intechopen.75522
13. Swierzbinski M.E. and **Herberholz J.** (2018) Effects of ethanol on sensory inputs to the medial giant interneuron of crayfish. *Frontiers in Physiology* 9: 448. doi: 10.3389/fphys.2018.00448
14. Swierzbinski M.E., Lazarchik A.R., and **Herberholz J**. (2017) Prior social experience affects the behavioral and neural responses to acute alcohol in juvenile crayfish. *Journal of Experimental Biology* 220: 1516-1523. [Editor's choice][2017 Outstanding Paper Prize nomination]
15. Schadegg A.C. and **Herberholz J**. (2017) Satiation level affects anti-predatory decisions in foraging juvenile crayfish. *Journal of Comparative Physiology A* 203: 223-232.
16. **Herberholz J.**, Swierzbinski M.E., and Birke J.M. (2016) Effects of different social and environmental conditions on established dominance relationships in crayfish. *Biological Bulletin* 230: 152-164. [Cover picture]
17. **Herberholz J.** (2014) Neurobiology of social status in crustaceans. In: The Natural History of the Crustacea, Vol. 3: Crustacean Nervous Systems and Their Control of Behavior, C. Derby and M. Thiel (eds). Oxford University Press, 457-483.
18. **Herberholz J.** (2013) Serotonergic modulation of aggression. In: Serotonin: Biosynthesis, Regulation and Health Implications, F.S. Hall (ed.). NOVA Science Publishers, 27-51.
19. Sullivan J.M. and **Herberholz J.** (2013) Structure of the nervous system: general design. In: The Natural History of the Crustacea, Vol. 1: Functional Morphology and Diversity, L. Watling and M. Thiel (eds). Oxford University Press, 451-484.
20. **Herberholz J.** and Marquart G. (2012) Decision making and behavioral choice during predator avoidance. *Frontiers in Neuroscience* 6:125. doi: 10.3389/fnins.2012.00125.
21. **Herberholz J.**, Mishra S.H., Uma D., Germann M.W., Edwards D.H., and Potter K. (2011) Non-invasive imaging of neuroanatomical structures and neural activation with high-resolution MRI. *Frontiers in Neuroscience* 5:16. doi: 10.3389/fnbeh.2011.00016.
22. Liden W.H., Phillips M.L., and **Herberholz J.** (2010) Neural control of behavioral choice in crayfish. *Proceedings of the Royal Society B: Biological Sciences* 277: 3493-3500.
23. Liu Y.C. and **Herberholz J.** (2010) Sensory activation and receptive field organization of the lateral giant escape neurons in crayfish. *Journal of Neurophysiology* 104: 675-684.
24. **Herberholz J.** (2009) Recordings of neural circuit activation in freely behaving animals. *Journal of Visualized Experiments* 29, doi: 10.3791/1297.
25. Graham M.E. and **Herberholz J.** (2009) Stability of dominance relationships in crayfish depends on social context. *Animal Behaviour* 77, 195-199.
26. Liden W.H. and **Herberholz J.** (2008) Behavioral and neural responses of juvenile crayfish to moving shadows. *Journal of Experimental Biology* 211, 1355-1361.
27. **Herberholz J.** (2007) The neural basis of communication in crustaceans. In: Evolutionary ecology of social and sexual systems: crustaceans as model organisms, J. E. Duffy and M. Thiel (eds). Oxford University Press, 71-89.
28. **Herberholz J.**, McCurdy C., and Edwards D.H. (2007) Direct benefits of social dominance in juvenile crayfish. *Biological Bulletin* 213, 21-27.

29. Song C.-K., **Herberholz J.,** and Edwards D.H. (2006) The effects of social experience on the behavioral response to unexpected touch in crayfish. *Journal of Experimental Biology* 209, 1355-1363.
30. Antonsen B.L., **Herberholz J.,** and Edwards D.H. (2005) The retrograde spread of synaptic potentials and recruitment of presynaptic inputs. *Journal of Neuroscience* 25, 3086-3094.
31. Edwards D.H. and **Herberholz J.** (2005) Crustacean models of aggression. In: The Biology of Aggression, R. J. Nelson (ed). Oxford University Press, 38-61.
32. **Herberholz J.**, Mims C.J., Zhang X., Hu X., and Edwards D.H. (2004) Anatomy of a live invertebrate revealed by manganese-enhanced Magnetic Resonance Imaging. *Journal of Experimental Biology* 207, 4543-4550.
33. **Herberholz J.**, Sen M.M., and Edwards D.H. (2004) Escape behavior and escape circuit activation in juvenile crayfish during prey-predator interactions. *Journal of Experimental Biology* 207, 1855-1863.
34. Edwards D.H., Issa F.A. and **Herberholz J.** (2003) The neural basis of dominance hierarchy formation in crayfish. *Microscopy Research and Technique* 60, 369-376.
35. **Herberholz J.**, Sen M.M., and Edwards D.H. (2003) Parallel changes in agonistic and non-agonistic behaviors during dominance hierarchy formation in crayfish. *Journal of Comparative Physiology A* 189, 321-325.
36. **Herberholz J.**, Antonsen B.L., and Edwards D.H. (2002) A lateral excitatory network in the escape circuit of crayfish. *Journal of Neuroscience* 22, 9078-9085.
37. Drummond J., Issa F.A., Song C.K., **Herberholz J.**, S.R. Yeh, and D.H. Edwards (2002) Neural mechanisms of dominance hierarchies in crayfish. In: The Crustacean Nervous System, K. Wiese (ed). Springer Verlag, Berlin, 124-135.
38. **Herberholz J.**, Issa F.A., and Edwards D.H. (2001) Patterns of neural circuit activation and behavior during dominance hierarchy formation in freely behaving crayfish. *Journal of Neuroscience* 21, 2759-2767.
39. Edwards D.H., Antonsen B.L., and **Herberholz J.** (2001) Network, neuronal and biochemical computations in the escape circuit of crayfish. In: Proceedings of the Eleventh Yale Workshop on Adaptive and Learning Systems, K. S. Narendra (ed). Center for Systems Science, Yale University, New Haven, 225-232.
40. **Herberholz J.** and Schmitz B. (2001) Signaling via water currents in behavioral interactions of snapping shrimp (Alpheus heterochaelis). *Biological Bulletin* 201, 6-16.
41. **Herberholz J.** and Schmitz B. (1999) Flow visualisation and high speed video analysis of water jets in the snapping shrimp (Alpheus heterochaelis). *Journal of Comparative Physiology A* 185, 41-49.
42. **Herberholz J.** and Schmitz B. (1998) Role of mechanosensory stimuli in intraspecific agonistic encounters in the snapping shrimp (Alpheus heterochaelis). *Biological Bulletin* 195, 156-167.
43. Schmitz B. and **Herberholz J.** (1998) Snapping behaviour in intraspecific agonistic encounters in the snapping shrimp (Alpheus heterochaelis). *Journal of Biosciences* 23, 623-632.

B) Published conference proceedings

1. **Herberholz J**. (2024) Interactions between social experience and alcohol sensitivity in crayfish. *15th International Congress of Neuroethology*, Berlin, Germany; Abstract: PS2.131.
2. Ho T., Williams M.M., **Herberholz J**. (2023) Personal space during social isolation affects alcohol sensitivity in crayfish. *Society for Neuroscience 53rd Annual Meeting*. *Abstract:* PS2.131.

3. Han J., Stine J., Ho T., **Herberholz J**., Ghodssi R. (2023) Implantable biosensor for continuous serotonin detection in freely moving crayfish; *22nd International Conference on Solid-State Sensors, Actuators, and Microsystems*; M4P.097.
4. Pathak S., Peña-Flores N., Alvarez P., Feeley J., Losert W., and **Herberholz J**. (2023) Local vs Central Nervous System control of Hindgut Motility. *Bulletin of the American Physical Society*; S11.00008.
5. Peña-Flores N., Pathak S., Losert W., **Herberholz J**. (2022) Central nervous system control and serotonergic modulation of hindgut motility in crayfish. *Society for Neuroscience 52nd Annual Meeting*. *Abstract: 11722.*
6. Ho T., **Herberholz J**. (2022) Serotonin modulates the interaction between prior social experience and alcohol sensitivity in crayfish. *Society for Neuroscience 52nd Annual Meeting*; Abstract: 13147 [invited talk]
7. **Herberholz J**., Pena-Flores N., Doctor R., Ho T. (2022). Social modulation of the gut-brain axis in crayfish. *14th International Congress of Neuroethology*, Lisbon, Portugal; Abstract: 7472.
8. Pathak S., Peña-Flores N., Alvarez P., Feeley J., Losert W., and **Herberholz J**. (2022) Optical flow-based characterization of serotonergic modulation of crayfish hindgut motility. *Bulletin of the American Physical Society*; W04.00007.
9. Han J., Stine J., Ho T., **Herberholz J**., Ghodssi R. (2022) A wearable system for electrochemical sensing of serotonin in crayfish. *Hilton Head Workshop;* MP-42.
10. Chapin A., Han J., Ho T., **Herberholz J**., and Ghodssi R. (2020) A hybrid biomonitoring system for gut-neuron communication. *Hilton Head Workshop;* [invited paper]
11. Chapin A., Rajasekaran P.R., **Herberholz J**., Bentley W.E., and Ghodssi R. (2019) Dynamic In Vitro Biosensing with Flexible Microporous Multimodal Cell-Interfacial Sensors. *Transducers 2019 Eurosensors XXXIII, Berlin.*
12. **Herberholz J.** (2018) The effects of alcohol on crayfish neural circuitry and behavior depend on prior social experiences. *International Behavioral Neuroscience Society 18th Annual Meeting*; 162.
13. Rajasekaran P.R., Chapin A., Quan D.N., Jang S.-H., **Herberholz J**., Hu L., Bentley W.E., and Ghodssi R. (2018) Multimodal Intelligent Transwell System (MITS). *Solid-State Sensors, Actuators, and Microsystems Workshop, Hilton Head;* MP-04 [invited paper]
14. **Herberholz J**., Swierzbinski M.E., Venuti L.S., Lee H.J., and Exum A.C. (2017) Neuro-pharmacology of alcohol effects on crayfish neural circuitry. *Society for Neuroscience 47th Annual Meeting*; 156.27.
15. Rajasekaran P.R., Quan D.N., Chapin A., Bentley W.E., **Herberholz J.**, and Ghodssi R. (2017) A bio-electronic membrane to investigate the gut brain microbiome axis. *254th American Chemistry Society National Meeting*; 159.
16. Algarin J.M., Ramaswamy B., Venuti L., Swierzbinski M., Villar P., Chen Y.J., Weinberg I., **Herberholz J.**, Araneda R., Shapiro B. and Waks E. (2017) Modulation and detection of single neuron activity using spin transfer nano-oscillators. *Spintronics X* 10357; 27 [invited paper]
17. **Herberholz J**., Swierzbinski M.E., and Hu R. (2014) Modulation of neural thresholds in a decision-making circuit. *11th International Congress of Neuroethology*, Sapporo, Japan; Abstract: PO2194
18. **Herberholz J**., Swierzbinski M.E., and Lazarchik A.R. (2014) Interactions between social status and alcohol intoxication in crayfish. *Society for Neuroscience 44th Annual Meeting*; 181.16
19. Hu R., Murphy M. and **Herberholz J.** (2014) Monoaminergic modulation of sensory inputs to the crayfish medial giant escape neurons. *Society for Neuroscience 44th Annual Meeting*; 181.17

20. Swierzbinski M.E. and **Herberholz J.** (2014) Inhibitory properties of the medial giant escape circuit in crayfish. *Society for Neuroscience 44th Annual Meeting*; 181.18
21. Venuti L.S., Swierzbinski M.E. and **Herberholz J.** (2014) Investigation of fast autoinhibition in the lateral giant circuit of crayfish. *Society for Neuroscience 44th Annual Meeting*; 181.19
22. Swierzbinski M.E. and **Herberholz J.** (2012) Interactions between alcohol and GABAergic inhibition in the escape circuit of crayfish. *Front. Behav. Neurosci. Conference Abstract: Tenth International Congress of Neuroethology*. doi: 10.3389/conf.fnbeh.2012.27.00327
23. Uma D. and **Herberholz J.** (2012) Are juvenile crayfish attracted to their natural predators? *Front. Behav. Neurosci. Conference Abstract: Tenth International Congress of Neuroethology.* doi: 10.3389/conf.fnbeh.2012.27.00196
24. Swierzbinski M.E. and **Herberholz J.** (2011) Effects of alcohol on escape behavior and underlying neural circuitry in crayfish. *Society for Neuroscience 41th Annual Meeting*; 944.09.
25. Richards J.M., Leonard J.R., Meshera N., **Herberholz J.**, Lejeuz C.W. and Daughters S.B. (2011) HPA axis response to stress predicts distress tolerance in a sample of cocaine users. *The College on Problems of Drug Dependence Annual Meeting;* 585.
26. **Herberholz J.**, Phillips M.L., Sichler, K. and Medley V.A. (2010) Crayfish select escape strategies based on external conditions and internal states. *9th International Congress of Neuroethology*, Salamanca, Spain; Abstract: P150.
27. **Herberholz J.** and Liden W. H. (2009) Escape circuit activation and behavioral choice in juvenile crayfish. *Society for Neuroscience 39th Annual Meeting*; 287.
28. Medley V.A. and **Herberholz J.** (2009) Mechanisms underlying visual activation of the medial giant escape circuit in crayfish. *Society for Neuroscience 39th Annual Meeting*; 288.
29. **Herberholz J.** and Liu Y.-C. (2008) Receptive field organization of the giant escape neurons in crayfish. *Society for Neuroscience 38th Annual Meeting*; 198.4.
30. **Herberholz J.** (2007) Manganese-enhanced Magnetic Resonance Imaging in crayfish. *Proceedings of the 8th International Congress of Neuroethology*, Vancouver, Canada; SY45.
31. **Herberholz J.** and Liden W. H. (2007) Behavioral and neural responses of juvenile crayfish to visual threat stimuli. *8th International Congress of Neuroethology*, Vancouver, Canada; Abstract: PO219.
32. **Herberholz J.** and Edwards D.H. (2005) The control of escape in crayfish through interactions of command neurons. *Society for Neuroscience 35th Annual Meeting*; 754.7.
33. **Herberholz J.**, Sen M.M. and Edwards D.H. (2004) Patterns of neural activity during escape from predators. *Society for Neuroscience 34th Annual Meeting*; 870.4.
34. Mims C.J., **Herberholz J.**, Zhang X., Hu X. and Edwards D.H. (2004) Anatomical and functional studies in the crayfish brain by means of manganese-enhanced Magnetic Resonance Imaging. *Proceedings of the 7th International Congress of Neuroethology*, Nyborg, Denmark; 251.
35. **Herberholz J.**, Sen M.M. and Edwards D.H. (2004) Behavioral and neural responses in crayfish to attacks from a natural predator. *7th International Congress of Neuroethology*, Nyborg, Denmark; Abstract: 233.
36. Zhang X., **Herberholz J.**, Mims C. J., Edwards D.H. and Hu X. (2004) Observation of neural activity in crayfish with Mn-enhanced MRI. *Proceedings of the International Society of Magnetic Resonance in Medicine* 11: 1115.
37. **Herberholz J.**, Mims C.J., Zhang X. , Hu X. and Edwards D.H. (2003) Manganese-enhanced MRI of the crayfish brain. *Society for Neuroscience 33rd Annual Meeting*; 270.5.

38. Versteeg S., Antonsen B.L., Agran J., **Herberholz J.** and Edwards D.H. (2003) Simulation of the lateral excitatory network in crayfish based on anatomical and physiological data. *Society for Neuroscience 33rd Annual Meeting*; 270.8.
39. **Herberholz J.**, Antonsen B.L. and Edwards D.H. (2002) Lateral and retrograde amplification of sensory inputs to the lateral giant escape circuit of crayfish. *Society for Neuroscience 32nd Annual Meeting*; 60.9.
40. Antonsen B.L., **Herberholz J.** and Edwards D.H. (2002) Interactions between primary afferent neurons mediated through the dendrites of the lateral giant interneuron in crayfish. *Society for Neuroscience 32nd Annual Meeting*; 60.10.
41. **Herberholz J.**, Antonsen B.L. and Edwards D.H. (2001) Coupled sensory afferents form a presynaptic excitatory network in the terminal ganglion of crayfish. *Society for Neuroscience 31st Annual Meeting*; 307.8.
42. Antonsen B.L., **Herberholz J.** and Edwards D.H. (2001) The organization of sensory input to the lateral giant escape command neuron of crayfish. *Proceedings of the 6th International Congress of Neuroethology*, Bonn, Germany; 196.
43. Issa F.A., **Herberholz J.** and Edwards D.H. (2001) Patterns of tailflip escape behavior in crayfish during agonistic interactions. *Proceedings of the 6th International Congress of Neuroethology*, Bonn, Germany; 249.
44. Song C.K., **Herberholz J.**, Drummond J. and Edwards D.H. (2001) The behavioral response to unexpected touch depends on the agonistic condition in socially experienced crayfish. *Proceedings of the 6th International Congress of Neuroethology*, Bonn, Germany; 195.
45. **Herberholz J.**, Issa F.A., and Edwards D.H. (2000) The role of tailflip behavior in crayfish during dominance hierarchy formation. *American Zoologist* 40: 1053.
46. **Herberholz J.**, Issa F.A., and Edwards D.H. (2000) Hands-off-electrophysiology reveals a new offensive type of tail flip in fighting juvenile crayfish. *Society for Neuroscience 30th Annual Meeting*; 1725.
47. Song C.-K., **Herberholz J.**, Drummond J. and Edwards D.H. (2000) Social experience changes the behavioral response to unexpected touch in crayfish. *Society for Neuroscience 30th Annual Meeting*; 174.
48. **Herberholz J.** and Schmitz B. (1998) The visible water jet: flow visualisation in snapping shrimp (Alpheus heterochaelis). N. Elsner and R. Wehner (eds). Thieme, Stuttgart. *Proceedings of the 26th Göttingen Neurobiology Conference;* 242.
49. Schmitz B. and **Herberholz J.** (1998) Snapping movements and laser Doppler anemometry analysis of water jets in the snapping shrimp Alpheus heterochaelis. N. Elsner and R. Wehner (eds). Thieme, Stuttgart. *Proceedings of the 26th Göttingen Neurobiology Conference*; 241.
50. Schmitz B., **Herberholz J.**, Schultz S. and Wuppermann K. (1998) Behavioral and biophysical analysis of rapid waterjets in the snapping shrimp Alpheus heterochaelis. *Proceedings of the 5th International Congress of Neuroethology*, San Diego, USA; 183.
51. **Herberholz J.** and Schmitz B. (1997a) The role of visual and mechanosensory input during intraspecific agonistic encounters in the snapping shrimp (Alpheus heterochaelis). N. Elsner and H. Wässle (eds). Thieme, Stuttgart. *Proceedings of the 25th Göttingen Neurobiology Conference*; 251.
52. **Herberholz J.** and Schmitz B. (1997b) Sex-specific behaviour in intraspecific agonistic encounters in the snapping shrimp (Alpheus heterochaelis). *Verhandlungen der Deutschen Zoologischen Gesellschaft* 90: 355.

C) Conference presentations (external)

1. Ho T., Williams M.M., and **Herberholz J** (2023) Personal space during social isolation affects alcohol sensitivity in crayfish. DC Chapter SfN.
2. Chapin A., Rajasekaran P.R., Quan D.N., Jang S.-H., Hu L., Bentley W.E., **Herberholz J**. and Ghodssi R. (2018) A discovery platform to peek into the "Gut Feeling". Mid-Atlantic Nano/Micro Alliance Symposium, Washington, D.C.
3. Phillips M.L., Florek K.E., Liden W.H. and **Herberholz J.** (2010) Integration of sensory signals during escape behavior in crayfish. South East Nerve Net Conference, Atlanta, GA.
4. Liu Y.C. and **Herberholz J.** (2008) Integration of sensory signals and interactions of command neurons in the escape circuitry of crayfish. The 34th Annual East Coast Nerve Net Conference, Woods Hole, MA.
5. **Herberholz J.** and Liden W.H. (2008) Behavioral and neural responses of juvenile crayfish to visual threat stimuli. The 34th Annual East Coast Nerve Net Conference, Woods Hole, MA.

Research Grant Support

Current

1. "Ultrahigh Sensitivity Mass Spectrometry for Scalable Proteomics". PI: Peter Nemes. Co-PIs: Jens Herberholz, Ricardo Araneda, Kan Cao, Najib El-Syed, Elizabeth Quinlan, Colenso Speer. Agency: National Institute on Aging (NIA). Grant type: Focused Technology Research and Development. Total costs: $2,431,272. August 2024 – April 2028.
2. "The effects of social isolation on intestinal health and the gut-brain axis of crayfish". PI: Jens Herberholz. Agency: College of Behavioral and Social Sciences; University of Maryland. Grant type: Dean's Research Initiative; Seed Project. Total costs: $13,800. Funding period: June 2023 – June 2025.

Pending

N/A

Past (last 5 years)

1. "Developing engineering solutions to measure, investigate, and predict gut microbiome-to-neuron communication". PI: Reza Ghodssi. Co-PIs: Jens Herberholz, William Bentley, Wolfgang Losert. Agency: National Science Foundation. Grant type: Integrative Strategies for Understanding Neural and Cognitive Systems (NCS). Total costs: $1,000,000. Funding period: 9/15/2019 - 8/31/2023.
2. "Comparative analysis of neurobehavioral responses to short-term social isolation". PI: Jens Herberholz. Co-PIs: Erica Glasper, Anna Li, Farrah Madison, Matthew Roesch. Agency: University of Maryland, Division of Research. Grant type: Strategic Growth Fund. Total costs: $15,000. Funding period: 8/16/2019 - 8/15/2020.
3. "Modulation of alcohol effects on nervous system function by social experience". PI: Jens Herberholz. Agency: National Institute on Alcohol Abuse and Alcoholism (NIAAA). Grant type: Small Research Grant Program (R03). Total costs: $152,000. Funding period: 8/1/2017 - 7/31/2020.

Recent Invited Talks (external)

2024 Illinois State University; Bloomington, IL; September 2024
2022 14th International Congress of Neuroethology, Lisbon, Portugal
2022 Crustacean Society Summer Meeting, Santos City, Brazil (*virtual*)
2019 University of Pennsylvania, Dept. of Bioengineering, Philadelphia, PA
2018 International Behavioral Neuroscience Society, Annual Meeting, Boca Raton, FL
2018 Lafayette College, Dept. of Biology, Easton, PA

Editorial boards

Journals

- *Behaviour*; Brill (Associate Editor, since 2012)
- *Frontiers in Physiology*; Frontiers (Review Editor, 2011-2021; Associate Editor, since 2022)
- *Invertebrate Neuroscience;* Springer (Review Editor, 2015-2020)

Ad hoc reviews

A) Funding agencies

- National Institute of Health (NIH); 2024
- French National Research Agency (ANR); 2023
- National Science Foundation (NSF); 2007-2010, 2017, 2022, 2023, 2024)
- Human Frontiers Science Program; 2022
- Natural Science and Engineering Research Council of Canada (NSERC); 2005

B) Panels & Study sections

- National Institute of Health (NIH); 2024
- National Science Foundation (NSF); 2017, 2022

C) Journals

- *Acta Ethologica*
- *Animal Behaviour*
- *Behavioral Ecology*
- *Behavioral Neuroscience*
- *Behaviour*
- *Behavioural Brain Research*
- *Behavioural Processes*
- *Biological Bulletin*
- *Brain, Behavior & Evolution*
- *Brain Research*
- *Bulletin of Marine Science*
- *Canadian Journal of Zoology*
- *Comparative Biochemistry and Physiology A*
- *Comparative Biochemistry and Physiology C*
- *Current Biology*
- *eNeuro*
- *Ethology, Ecology & Evolution*
- *Frontiers in Neuroscience*
- *Frontiers in Physiology*
- *Fundamental and Applied Limnology*
- *Hormones and Behavior*
- *Invertebrate Neuroscience*
- *Invertebrate Reproduction and Development*
- *Journal of Comparative Neurology*
- *Journal of Comparative Physiology A*
- *Journal of Ethology*
- *Journal of Experimental Biology*
- *Journal of Experimental Zoology*

- *Journal of Neurophysiology*
- *Journal of Neuroscience*
- *Journal of Neuroscience Methods*
- *Journal of Physiology*
- *Journal of the Acoustical Society of America*
- *Journal of Thermal Biology*
- *Journal of Visualized Experiments*
- *Marine and Freshwater Physiology & Behavior*
- *Marine Biology*
- *Philosophical Transactions of the Royal Society B*
- *Physiology & Behavior*
- *Proceedings of the Royal Society B*
- *PLoS*
- *Royal Society Open Science*
- *Science*
- *Science Advances*
- *Scientific Reports*

D) External reviews

- Promotion & Tenure reviews: UC Berkeley; College of Charleston.
- Grants review: Tübingen-Maryland Bioscience, Neuroscience, and Cognitive Science Graduate Education Partnership.
- PhD student thesis reviews: University of Helsinki, Finland; University of Western Australia.
- Book chapter reviews: Chemical Communication in Crustaceans (Springer; T. Breithaupt & M. Thiel, eds.); Crustacean Nervous Systems and their Control of Behavior (Oxford University Press; C.D. Derby & M. Thiel, eds.)

Teaching Experience

University of Maryland, College Park:

A) Main undergraduate courses

- *Neuroethology (PSYC406)*
  2007-2011, 2013-2025. Lecture; Average enrollment: 34
- *Animal Behavior (PSYC403)*
  2006-2012, 2014, 2018-2021; Lecture; Average enrollment: 34

B) Main graduate courses

- *Biopsychology of Aggression (PSYC798L)*
  2008-2013. Seminar; Average enrollment: 5
- *Introduction to Neuroscience (NACS641)*
  2013-2025. Lecture; Average enrollment: 14

Mentorship (current and past)

University of Maryland, College Park:

- Postdoctoral Associates [1]
- Faculty research assistants [8]
- Graduate students [8] (*NACS, Psychology*)
- Honors Students [6] (*Biology, Psychology*)
- Undergraduate students [73] (*Animal Sciences, Biology, Computer Science, Economics, Physics, Psychology, Public Health*)
- High School students [26]

Awards/fellowships/prizes received by trainees:

- APA Summer Science Fellowship
- APA/NIGMS Program for Minority Undergraduates Award
- APA Special Award
- BSOS Doctoral Dissertation Research Award
- BSOS Emerging Scholar Semester Award
- BSOS Summer Scholar Award
- Fulbright Scholar Award
- Graduate School Summer Research Fellowship
- Gregory F. Ball Scholarship Award
- Louis Stokes Alliances for Minority Participation (LSAMP) Program
- Maryland Summer Scholars Award
- Neuroscience and Cognitive Science Program Training Award
- NIH Postbaccalaureate IRTA Program Fellowship
- NIH Program in Biomedical Research Summer Internship
- NIH/NCMHD Minority International Research Training Award
- Philip Merrill Presidential Scholar Award
- Ronald E. McNair Post Baccalaureate Achievement Program
- UMD Senior Summer Scholar Award
- BSOS Fellowship in Support of Diversity and Inclusion

Student Theses Examination Committees

University of Maryland, College Park:

- PhD theses [27] (*Biology, Electrical & Computer Engineering, NACS, Kinesiology, Physics, Psychology*)
- Master's theses [5] (*NACS, Psychology*)
- Honors Theses [8] (*Animal Sciences, Biology, Psychology*)

Academic Service

University of Maryland, College Park:

A) University

- Reviewer, Brain Research Foundation; VPR (2024)
- Chair, Brain & Behavior Institute Vision Committee (2024)
- Reviewer, New Directions Fund; VPR (2024)
- MRI Engineer Search Committee (2021)
- Reviewer, MPower Seed Grants (2020)
- Member, Graduate School Summer Fellowship Committee (2019)
- Member, BBI Director Search Committee (2018)
- Member, Neuroscience Major Committee (2016 - 2019)
- Member, Research and Scholarship Awards Selection Committee (2016)
- Member; Limited Submission Review Committee; VPR (2015-2016)
- Member; Steering Committee, T32 Pre-doctoral Training Grant "Comparative and Evolutionary Biology of Hearing" (2015 - 2017)
- Co-Director; Brain and Behavior Initiative [BBI] (2015 - 2020)
- Member; Review Committee for the Dean, College of BSOS (2013)
- Director, Neuroscience and Cognitive Science Program (2013 - 2017)
- Member; Biological and Chemical Hygiene Committee (2008 - 2010)

B) College

- Member, APT Committee (2024)
- Member, Steering Committee, Neuroscience Major, College of BSOS (2023 -)
- Member, Search Committee Associate/Assistant Dean for Research, College of BSOS (2016)

C) Psychology Department

- Member, Merit Review Committee (2024)
- Associate Chair of Undergraduate Studies (2022 -)
- Co-Chair, Lecturer Search Committees (2022)
- Member, Neuroscience Faculty Search Committee (2022)
- Member, Faculty Hiring Committee (2021-)
- Member; IRB Human Subjects Committee (2018 -)
- Chair, APT committee (2018 - 2019)
- Member, 3rd Year Review committee (2016)
- Chair; Faculty Recruitment Committee (2015 - 2018)
- Chair, 3rd Year Review committee (2015)
- Member; Graduate Committee (2012)
- Member; Executive Committee (2011 – 2014; 2022-)
- Member; Vision Committee (2010 - 2011)
- Member; Space Committee (2009 & 2019-)
- Member; Faculty Salary Committee (2008 - 2009)
- Member; Faculty Recruiting Committee (2007- 2009)
- Member; Graduate Studies Committee (2006 - 2007)
- Member; Promotion & Tenure Committee (2005 - 2006 & 2007 - 2008)

D) Neuroscience & Cognitive Science (NACS) Program

- Member; Executive Committee (2011 - 2013; 2017 - 2021)
- Chair; NACS-Fest Organizational Committee (2006 - 2011)
- Member; Graduate Admissions Committee (2005 - 2009)

E) Other Services

- Served as faculty advisor for Psychology majors enrolled in the "Minor in Neuroscience Program", University of Maryland (2008-2009; 2020-)
- Serving as research advisor and student mentor to the Neuroscience Research Laboratory, Thomas Jefferson High School for Science and Technology, Alexandria, VA (2007-2018).

Media/Press Coverage (including interviews)

Internet: Baltimore Sun, USA Today, The Conversation, Smithsonian Magazine, The Wine Spectator, Fortune Magazine, New Scientist, ScienceDaily, The Verge, EurekAlert, IEEESpectrum, California Academy of Sciences, National Science Foundation, and many international websites in China, France, Germany, India, and the United Kingdom.

Radio: Deutschland Radio (Germany, 2010), Deutschlandfunk NOVA (Germany, 2017).

Digital Media: SciShow on YouTube (2017), The Scientist Magazine (2017).

Print Media: Der Spiegel (Germany, 1999), Biophotonics International (2006), The Diamondback (2010, 2019), Geo Magazin (Germany, 2017), The Economist (2017).