

# Ravindra Palavalli-Nettimi

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Department of Biological Sciences, Florida International University, 11200 SW 8th St, Miami, FL 33199

## Education

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- **PhD (Biology)** || (Oct. 2015-Oct. 2018). Awarded in Feb. 2019.  
**Department of Biological Sciences, Macquarie University, Sydney, Australia**  
Thesis title: Implications of miniaturisation in ants on their vision and visual navigation. I used techniques such as electrophysiology, lab and field behavioural observations to investigate vision and navigation in ants and published 5 papers in international journals. Thesis advisor: Dr Ajay Narendra.
- **Integrated BS-MS** ||Biology major. Grade: very good, GPA 8.6, (Aug. 2010-Aug. 2015).  
**Indian Institute of Science Education and Research (IISER), Pune, India**  
I volunteered to work in tropical forests and carried out research projects on ant foraging ecology and ant-aphid mutualism. For my final year thesis, I studied mate and nestmate recognition in a paper wasp. I published 3 papers in reputed journals.  
Thesis advisor: Prof Raghavendra Gadagkar, Indian Institute of Science, Bangalore.

## Professional experience

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- **Post-doctoral research associate**, Theobald Lab, Florida International University, Miami, USA. (March 2019-present)  
I study fruit fly vision, flight, and navigation using a virtual reality arena and 3D flight reconstruction, guest lecture in Neurobiology and Animal behavior classes, and supervise students.
- **Research assistant**, Mariella Herberstein's lab, Macquarie University, Sydney, Australia. (Jan 2019- Feb 2019)  
I identified ant-mimic spiders and liaised with the Australian Museum staff to add new specimens to their spider collection.
- **Research assistant**, Ecological Neuroscience lab, Macquarie University, Sydney, Australia. (Nov 2018- Dec 2018)  
I digitised confocal microscopy scans of ant brains to compare how nocturnal and diurnal species differ in their brain composition.
- **Multimedia editor**, Journal of Animal Ecology blog. (2017-2019)  
I hosted, produced, and edited Field Reports [podcast](#) about field ecologists; trained undergrads to produce [Audio abstracts](#) podcast; and engaged a wide range of audience.
- **Web editor**, Australian Science Communicators website. (2017-2018)  
I maintained the website and managed their LinkedIn account.
- **Teaching assistant**, Macquarie University, Sydney, Australia. (2016-2017)  
I taught Human Physiology lab course for undergraduate students.

## Fellowships, awards, and grants

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- Broadening participation travel grant. (Society of Integrative and Comparative Biology) US\$500. (2019)

- The Company of Biologists travel grant. (Society of Experimental Biology) GBP 250. (2019)
- Competitive Postgraduate Research Fund, Macquarie University. A\$5000. (2018)
- Australian Science Communicators grant. A\$400. (2017)
- New South Wales Office of Environment and Heritage, and the Ecological Society of Australia award for outstanding outreach. A\$ 400 + an opportunity to work on a project with primary school students. (2016-2017)
- Best student talk at the Australasian Society for the Study of Animal Behaviour conference. (2016)
- Barbara Rice award for the best field-based presentation, Macquarie University. A\$500. (2016)
- Annual HDR fund, Department of Biological Sciences, Macquarie University. A\$15,000. (2015-2018)
- International Macquarie University Research Excellence Scholarship. A\$107,538 (fee waiver) + A\$77, 547 (scholarship). (2015-2018)
- Summer Research Fellowship, Indian Academy of Sciences. ₹14, 000. (2013)
- Kishore Vaigyanik Protsahan Yojana scholarship, Department of Science and Technology, Govt. of India, ₹384, 000. (2011-2015)
- INSPIRE scholar, Department of Science and Technology, India, ₹80,000. (2010-2011)
- Japan-India student exchange program, JENESYS, all expenses paid trip to Japan. (2007)

## Publications

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- **R. Palavalli-Nettimi** and J. Theobald. 2020. Small eyes in dim light: implications to spatio-temporal visual abilities in *Drosophila melanogaster*. *Vision Research*. 169, 33-40. [doi.org/10.1016/j.visres.2020.02.007](https://doi.org/10.1016/j.visres.2020.02.007)
- **R. Palavalli-Nettimi** and J. Theobald. 2020. Insect Neurobiology: How a small spot stops a fly. *Current Biology*. 30, R761-R763. [doi.org/10.1016/j.cub.2020.05.005](https://doi.org/10.1016/j.cub.2020.05.005)
- K. Soanes, K. Cranney, M. Dade, A. Edwards, **R. Palavalli-Nettimi**, T. Doherty. 2020. How to work with children and animals: a guide for school-based citizen science in wildlife ecology. *Austral Ecology*. 45, 3-14. \*Most downloaded paper in the journal in 2020. [doi.org/10.1111/aec.12836](https://doi.org/10.1111/aec.12836)
- **R. Palavalli-Nettimi**, Y. Ogawa, L. Ryan, N. Hart, A. Narendra. 2019. Miniaturisation reduces contrast sensitivity and spatial resolving power in ants. *J. Exp. Biol.* 222, \*Cover page. [doi.org/10.1242/jeb.203018](https://doi.org/10.1242/jeb.203018)
- Y. Ogawa, L. Ryan, **R. Palavalli-Nettimi**, O. Spencer, N. Hart, A. Narendra. 2019. Spatial resolving power and contrast sensitivity are adapted for ambient light conditions in the Australian *Myrmecia* ants. *Front. in Ecol. and Evol.* 7, 1-18. [doi.org/10.3389/fevo.2019.00018](https://doi.org/10.3389/fevo.2019.00018)
- **R. Palavalli-Nettimi** and S. Sane. 2018. Fairyflies. *Current Biology*. 28(23), R1331-R1332. [doi.org/10.1016/j.cub.2018.10.014](https://doi.org/10.1016/j.cub.2018.10.014)
- **R. Palavalli-Nettimi** and A. Narendra. 2018. Does size affect orientation using celestial cues? *Insectes Sociaux*. 65, 657-662. [doi.org/10.1007/s00040-018-0640-9](https://doi.org/10.1007/s00040-018-0640-9)
- **R. Palavalli-Nettimi** and A. Narendra. 2018. Miniaturisation decreases visual navigation competence in ants. *J. Exp. Biol.* 221(7), jeb177238. [doi: 10.1242/jeb.177238](https://doi.org/10.1242/jeb.177238)
- Mitra, **R. Palavalli-Nettimi**, A. Ramachandran, P. Saha, R. Gadagakar. 2015. Males and females of the social wasp *Ropalidia marginata* do not differ in their cuticular hydrocarbon

profiles and do not seem to use any long-distance volatile mate attraction cues. *Insectes Sociaux*. 62(3), 281-289. [doi.org/10.1007/s00040-015-0408-4](https://doi.org/10.1007/s00040-015-0408-4)

- **R. Palavalli-Nettimi** and Iyer, P. 2015. Patch fidelity in *Camponotus compressus* ants foraging on honeydew secreted by tree hoppers. *Current Science*. 109(2), 362-366. [Link](#).
- **Ravindra. P. N.** 2014. Ant runners: an analysis of running speed of *Leptogenys processionalis* (Hymenoptera: Formicidae: Ponerinae). *Current Science*. 106(9), 1187-1189. [Link](#).

### **Supervision and teaching**

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- ZOO 4315. Introduction to Animal Behavior. Guest lecture. Florida International University. (Spring 2021)
- ZOO 4744. Neurobiology. Animal navigation: sensorimotor cues, neural correlates, and behaviour. Guest lecture. Florida International University. (Fall 2019)
- How to script podcasts based on research papers? Florida International University. (The final project outcome was a [podcast series](#) produced by the students under my guidance. Fall 2019)
- Supervised Michelle Proenca (high school student), Francisco (undergraduate), Florida International University. (2019-2020)
- Supervised Jack Westacott, Sarah Campbell, and Justin O'Donnell (undergraduates), Macquarie University. (2016-2017)
- Human Physiology BIOL247, Teaching assistant, Macquarie University. (2016-2017)
- Lesson plans on biodiversity (for Habitat Stepping Stones, NGO), on ant behaviour (for Outreach Committee of the Biology department of Macquarie University), and on how to ask questions and learn to integrate knowledge (for TeacherPlus magazine). (2016)

### **Invited seminars, workshops, and conference presentations**

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- Science policy and advocacy for STEM scientists [certificate course](#) (completed) from UC-Irvine, USA. (2020)
- Podcast a paper: Undergraduates understand primary literature better through podcasting. Symposium contribution at the Entomological Society of America virtual meeting. (2020)
- Implications of miniaturisation in insects. Invited virtual seminar at National Centre for Biological Sciences, India (Sanjay Sane lab). (2020)
- Small eyes in dim light. Symposium talk. Society of Integrative and Comparative Biology meeting, Austin, Texas. (2020)
- The art of being small. Biology department seminar at Florida International University. (2019)
- Light intensity and eye size dependent spatio-temporal visual abilities in fruit flies. Gordon Research Conference on neuroethology, West Dover, Vermont. (2019)
- Implications of miniaturisation on ant vision and visual navigation. Invited seminar at Arizona State University. (2018)
- Miniaturisation affects ant vision and visual navigation. International Congress of IUSSI. Guarujá, Brazil. (Aug. 2018)
- Miniaturisation affects ant vision and visual navigation. International Conference of Neuroethology. ISN. Brisbane. (July 2018)
- Obstacle avoidance in ants. Speed talk (3 minutes). The Australasian Society for the Study of Animal Behaviour (ASSAB) conference, Katoomba, NSW. (2016)
- Annual Higher Degree by Research (HDR) conference. Macquarie University. (2016-2018)
- Participated in Ant course. E O Wilson Laboratory, Mozambique. Organized by the California Academy of Sciences, (2016)

## Media coverage featuring me or my work

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- [Featured](#) in PBS Nova. World's fastest-running ant scuttles over scalding Saharan sands at super speeds. (2019)
- [Featured](#) in Sydney Morning Herald. Wiping out ants on the kitchen bench? This is what you interrupted. (2018)
- [Interviewed](#) for ABC Radio National (Australia). Jack Jumper ants navigate for driverless cars. (2016)
- [Interviewed](#) for In Situ Science podcast (episode 12). 'Ants, Ants and more ants with Ravindra Palavalli-Nettimi'. (2016)
- [Featured](#) in 'Lab reports' series produced by the Indian Institute of Science Education and Research and Vigyan Prasar, India. (2015)

## Science journalism and community outreach

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- Toward a sustainable model of scientific publishing. Op-Ed. Journal of Science Policy and Governance. (in press; 2021)
- Synthetic sunflower scent trains bees for better pollination. *Outside JEB*. Journal of Experimental Biology. (in press; 2021)
- Organized and led an outreach exhibit on Insect vision and brain at the Brain Fair, Miami Dade STEAM expo, Miami. (2020)
- In an ant's world, the smaller you are the harder it is to see obstacles. [The Conversation](#). (2018). Re-published in [Australianscience.com](#), [Phys.org](#), and [Australian Geographic](#).
- What can we learn from insects on a treadmill with virtual reality. [Robohub.org](#). (2017)
- [Insect inquiry](#). School outreach on making kids ask questions. Canberra, Australia. Scientists in School program. CSIRO. (2017)
- Ant behaviour exhibit at the Australian Museum Expo. Sydney Science Festival. (2017)
- Ant walk. An outreach program for natural history enthusiasts. Organized by Friends of Mt. Majura and Black Mountain, Canberra, Australia. (2017)
- Can ants get your pizza delivered faster? [Insectes Sociaux](#) blog. (2016)
- How ants walk backward carrying a heavy load and still find home. [The conversation](#). Re-published in [Australian Geographic](#), [Phys.org](#), and [Videnskab.dk](#) (in Danish). (2016)
- [Just questions](#). Produced a podcast about how scientists ask questions. (2016)
- Guest editorial. Ravindra. P. Nettimi, Madhur Mangalam, Mewa Singh. Why not be an early-bird researcher? *Current Science*. 108(6), 1027-1028. This article was also covered by Indian media: Indian Express (6 April 2015)

## Academic service

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- Adhoc reviewer for *Journal of Experimental Biology* (3), *Biology Letters* (2), *iScience* (1), *Animal Cognition* (1), and *Austral Entomology* (1); Review editor for *Journal of Insect Neurobiology*. (2019-present)

## Professional society memberships

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- Society of Experimental Biology
- Society of Integrative and Comparative Biology
- Entomological Society of America
- National Science Policy Network
- International Society of Neuroethology

## References

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- Dr Jamie Theobald, Florida International University || [jamie.theobald@gmail.com](mailto:jamie.theobald@gmail.com)
- Dr Ajay Narendra, Macquarie University || [ajay.narendra@mq.edu.au](mailto:ajay.narendra@mq.edu.au)
- Prof Raghavendra Gadagkar, Indian Institute of Science || [ragh@ces.iisc.ernet.in](mailto:ragh@ces.iisc.ernet.in)