

Education

- 2015–2021 **Ph. D (Physics)**, *University of California, Merced*.
Dissertation: From Microbes in Motion to Pumas in Pursuit of Prey: Foraging Phenomena in Interactive Multi-agent Systems
Advisor(s): Prof. Ajay Gopinathan (Physics, UC Merced) and Dr. Justin Yeakel (Life and Environmental Sciences, UC Merced).
- 2010–2015 **Int. BS-MS (Physics)**, *Indian Institute of Science Education and Research, Thiruvananthapuram (IISER TVM), India*.
Thesis: Environmental Effects in Excitonic Energy Transfer

Academic Appointments

- 2024–present Affiliate researcher, Department of Communication, UCLA
2022–2024 Postdoctoral researcher, Department of Communication, UCLA
2021–2022 Staff researcher, Department of Communication, UCLA

Other Academic and Professional Activities

- Course development Developed computational course modules for PHYS 204, Biophysics at UC Merced
- Reviewer Current Biology, CogSci 2025
- Summer/Fall 2020, 2021 CCBM Virtual Sessions: Facilitated workshops titled 'Understanding Living Systems through Scientific Computing' (2020) and 'The Science of Flocks and Swarms' (2020, 2021) as part of the Center for Cellular and Biomolecular Machines (CCBM) Summer/Fall Virtual Sessions, with Prof. Ajay Gopinathan
- 01/2018 Co-chair, Social Behavior, Society of Integrated and Comparative Biology (SICB) Annual Meeting

Publications

1. **VPS Ritwika**, Gina Pretzer, Sara Mendoza, Tim Shea, Christopher Shedd, Christopher Kello, Ajay Gopinathan, Anne Warlaumont. **Exploratory dynamics of vocal foraging during infant-caregiver communication.** *Scientific Reports*. 10(1):1–14, 2020.
2. **VPS Ritwika**, Ajay Gopinathan, Justin D. Yeakel. **Beyond the kill: The allometry of predation behaviours among large carnivores.** *Journal of Animal Ecology*. 93(5):554–566, 2024.

Manuscripts in Preparation

1. **VPS Ritwika**, Sara Schneider, Lukas Lopez, Jeffrey Mai, Gina Pretzer, Ajay Gopinathan, Christopher Kello, Anne Warlaumont. **Controlling for bursts and lulls in vocal activity, contingent vocal responses lead to more infant and adult vocalization.**
2. Jeffrey Mai, **VPS Ritwika**, Sara Schneider, Gina Pretzer, Jimel Mutrie, Greg Bryant, Caitlin Fausey, Christopher T. Kello, Anne Warlaumont. **Adults' Infant-Directed Singing and Infants' Speech-Related Vocalizations are Inversely Correlated in 5-Minute Excerpts of Daylong Audio Recordings**
3. Lukas Lopez, Sara Schneider, **VPS Ritwika**, Jeffrey Mai, Christopher Kello, Anne Warlaumont. **Infant Vocalizations and Adult Verbal Responsivity by Time of the Month**

Awards and Fellowships

- 2021 **Steve and Mia Kang Student Leadership for Social Change Prize**, *Margo F. Souza Student Leadership Center, UC Merced*.
- 2021 **Building Community Award**, *Margo F. Souza Student Leadership Center, UC Merced*, (awarded to the UC Merced Graduate Student Association).
- 2021 **Outstanding Student Service and Outreach Award**, *Department of Physics, UC Merced*.
- 2021 **UC Merced GradSLAM Top 10 Finalist**, *UC Merced*.
- 2021 **Graduate Dean's Dissertation Fellowship**, *UC Merced*.
- 2020–2021 **CCBM Scholar**, *Center for Cellular and Biomolecular Machines (CCBM), UC Merced*.

- 2019, 2020 **GRAD-EXCEL Peer Mentorship Program Award**, UC Merced.
- 2019 **Graduate Fellowship Incentive Program Award**, UC Merced.
- 2019 **Travel award through the Dean's office**, UC Merced.
- 2018, 2019 **APS DBIO Student Travel Award**, American Physical Society (APS).
- 2018 **Broadening Participation Committee Travel Award**, Society for Integrative and Comparative Biology (SICB).
- 2018 **Charlotte Mangum Student Support Program Award**, SICB.
- 2017, 2018, 2019 **UC Merced Physics Summer Fellowship**, UC Merced.
- 2017, 2018, 2020 **UC Merced Physics Travel Award**, UC Merced.
- 2016 **Top performer in Physics prelims and Physics core courses**, UC Merced.
- 2015–2016 **Graduate Group Recruitment Fellowship**, UC Merced.
- 2010–2015 **INSPIRE Fellowship**, Department of Science and Technology, Govt. of India.
- 2013 **DAAD WISE Fellowship 2013**, DAAD (declined).

Conferences and Seminars

- 04/2024 Environmental Sciences Undergraduate Seminar Series, UC Merced (Invited seminar talk)
- 03/2023 Society for Research in Child Development Biennial Meeting, Salt Lake City, Utah (Poster)
- 02/2023 UCLA Comm Brown Bag Series, UCLA Department of Communication (Invited talk)
- 03/2021 APS March Meeting, Chicago (Talk)
- 03/2020 UC Merced APS March Meeting 2020 Symposium (Talk)
- 03/2020 APS March Meeting (Talk, presented virtually in Physics of Social Interactions)
- 03/2019 APS March Meeting, Boston, MA (Talk)
- 08/2018 Ecological Society of America (ESA) Annual Meeting, New Orleans, LA (Talk)
- 04/2018 Central Valley 2018 SIAM Regional Student Conference, UC Merced (Poster)
- 03/2018 APS March Meeting, Los Angeles, CA (Talk)
- 01/2018 Gordon Research Conference on Predator-Prey Interactions, Ventura, CA (Poster)
- 01/2018 SICB Annual Meeting, San Francisco, CA (Talk)
- 11/2017 APS Far West Section Annual Meeting, UC Merced (Talk)
- 10/2017 UC Merced SIAM Student Chapter Seminar Series (Talk)
- 03/2017 APS March Meeting, New Orleans, LA (Talk)
- 02/2015 Young Quantum (YouQu), Harish-Chandra Research Institute (HRI), Allahabad, India (Poster)
- 12/2011 Young Ecologists Talk and Interact (YETI), IIT Guwahati, Assam, India (Poster)

Contributed conference and workshop abstracts

- 07/2024 Lukas Lopez, Jeffrey Mai, Sara Schneider, **VPS Ritwika**, Christopher Kello, Anne Warlaumont. **Monthly variation in infants' speech-like vocalizations and cries suggest detrimental effects of financial stress.** The International Congress on Infant Studies (ICIS), Glasgow.
- 07/2024 Jeffrey Mai, **VPS Ritwika**, Sara Schneider, Caitlin Fausey, Christopher Kello, Anne Warlaumont. **A longitudinal study of caregiver song and speech and infant vocalizations sampled from daylong recordings.** ICIS, Glasgow.
- 05/2024 Anne Warlaumont, **VPS Ritwika**. **Detecting sensitivity to contingent responses within simulated daylong infant and adult vocal streams.** IEEE International Conference on Development and Learning (ICDL), Austin, Texas.
- 08/2020 Jessica Audrey Lee, Kirtus Leyba, Adam Z. Reynolds, **VPS Ritwika**, Daniel Borrero, Pam Mantri. **The Pheno-Evo Model: Evolution of Microbial Phenotypic Diversity in 2D Space.** MEEvirtual: Virtual Meeting on Microbial Ecology and Evolution.
- 07/2020 Nicole Eikmeier, Philip Chodrow, Mari Kawakatsu, Dakota Murray, Kate Wootton, **VPS Ritwika**, Rodrigo Migueles Ramirez, Daniel Larremore. **Emergence of hierarchy in networked endorsement dynamics.** SIAM Workshop on Network Science, Toronto.
- 04/2020 Henri Kauhanen, **VPS Ritwika**, Harun Siljak, Kenzie Givens, Pablo M. Flores. **Long-scale language dynamics as a reaction-diffusion system: mesoscopic analysis.** EvoLang 13, Brussels (accepted; cancelled due to COVID-19 pandemic).

03/2020 Ernest Aigner, Jackie Brown, Kyle Furlong, David Gier, Ludvig Holmér, **VPS Ritwika Modeling the Dynamics of Belief in Climate Change with Statistical Physics**. APS March Meeting (Virtual).

Press coverage

08/2024 *Researchers Accurately Model Animals' Hunting, Scavenging Behavior*, Lorena Anderson, UC Merced News.

04/2020 *Babies Forage for Sounds That Contribute to Language Acquisition, Study Shows*, Merced Sun-Star.

04/2020 *Babies Forage for Sounds That Contribute to Language Acquisition, Study Shows*, Lorena Anderson, UC Merced News.

02/2020 *Tracking communication networks and the diffusion of information*, APS.

Workshops and Schools

Spring 2021 Institute for Evidence-Based Teaching Practices, UC Merced

03/2021 Mathematical and Computational Approaches to Social Justice (held virtually), The Institute for Computational and Experimental Research in Mathematics, Brown University

12/2019 Complex Networks Winter Workshop, Quebec City, Canada

11/2019 CCBM Workshop on Emerging Themes in Cellular and Biomolecular Machines, UC Merced

Summer 2017 CCBM-CREST Summer Workshop: Introduction to Scientific Computing

Summer 2019 Santa Fe Institute Complex Systems Summer School

Technical and Computer Skills

MATLAB, R, Python, Julia, Mathematica, NetLogo, Perl, L^AT_EX

Outreach and Service

07/22–present Board Member, UC Merced Alumni Association

05/20–05/21 Graduate Treasurer, W-STEM, UC Merced

05/20–05/21 International Affairs Officer, UC Merced Graduate Student Association

01/20–05/20 Graduate student member, Graduate Council, UC Merced

05/19–05/20 President, UC Merced Graduate Student Association

05/19–01/20 Graduate student member, Transportation and Parking Services Committee, UC Merced

08/17–05/18 Mentor, Women in STEM (W-STEM) Mentorship Program, UC Merced

04/2017 Volunteer, Center for Cellular and Biomolecular Machines (CCBM) outreach event (Burbank/Peterson elementary schools' visit to UC Merced campus)

08/17–05/21 Treasurer, Merced Indian Graduate Student Association

08/16–05/17 Member and website lead, BiotaQ: The UC Merced Science Collaborative

08/10–05/15 Editor, *Sopanam* (College magazine, IISER TVM)

Referees

- Prof. Ajay Gopinathan, Professor and Chair, Department of Physics, UC Merced
Email: agopinathan@ucmerced.edu
- Dr. Justin Yeakel, Associate Professor, Life and Environmental Sciences, UC Merced
Email: jyeakel@ucmerced.edu
- Dr. Anne Warlaumont, Associate Professor, Department of Communication, UCLA
Email: warlaumont@ucla.edu