



Maéva A. Techer

VISITING FACULTY/RESEARCHER

Arizona State University (School of Sustainability & School of Life Sciences)

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As an evolutionary biologist, my research seeks to understand how biological innovations originate and persist by linking the interplay between genetic variation and phenotypic responses to dynamic environments, with a focus on insect plasticity and host-symbiont interactions.

🎓 Education

Ph.D. in Population Genetics and Ecology

University of Reunion Island

ADVISORS: DR. HÉLÈNE DELATTE, DR. JOHANNA CLÉMENCET, DR. BERNARD REYNAUD

2012 - 2015

- Thesis: Genetic diversity, structure, and admixture of native and introduced honey bee populations in the South West Indian Ocean islands.

Master of Sciences in Biodiversity and Tropical Ecosystems

University of Reunion Island

ADVISORS: DR. HÉLÈNE DELATTE AND DR. JOHANNA CLÉMENCET

2010 - 2012

Bachelor of Sciences in Biology of Organisms and Populations

University of Reunion Island

2007 - 2010

💼 Professional Experience

AI Research Consultant in Life Science and Biology

Nagareyama, Japan

Aligned Labs

May to July 2026

- LLM trainer and reviewer for AI models developed by OpenAI and Google DeepMind.

Visiting Faculty / Researcher

Tempe, AZ, USA (remote Japan)

Arizona State University

2024 - Present

- Conduct independent research and bioinformatics analyses, including multi-omics analysis and scientific communication for studies of non-model insects.
- Collaborate with and mentor students on interdisciplinary projects related to neurobiology, transcriptomics, single-cell genetics, behavior, and pathology.

Postdoctoral Research Associate

College Station, TX, USA

Texas A&M University and NSF-BII Behavioral Plasticity Research Institute

2021 - 2025

- Generated a high temporal resolution and tissue-specific transcriptomic data during locusts phase change.
- Conducted comparative transcriptomics and genomics of six newly assembled chromosome-length *Schistocerca* genomes (8.5 Gb).
- Built, tracked, and co-organized the rearing and maintenance of locusts and grasshoppers in crowded and isolated conditions in quarantine.

Postdoctoral Scholar and JSPS Research Fellow (from 2019)

Okinawa, Japan

Okinawa Institute of Science and Technology

2016 - 2021

- Developed new methods to extract DNA/RNA from single low input arthropod material for Illumina and PacBio next-generation sequencing.
- Created the largest worldwide collection to retrace the invasive routes of the honey bee parasitic *Varroa* mite (56 countries spanning over 30 years).
- Developed bioinformatics pipelines for population genomics to analyze >1500 mite whole genomes.

PhD Graduate Student

La Reunion, France

University of Reunion Island

2012 - 2015

- Collected and sequenced DNA from > 3,000 honey bees from the South West Indian Ocean islands and mainland native areas (Europe and Africa).
- Retraced the colonization and admixture levels of native and invasive honey bee subspecies populations in insular systems using population genetics.

🏆 Awards & Distinctions

ESA2024 Travel Grant

DEPARTMENT OF ENTOMOLOGY, TEXAS A&M UNIVERSITY

2024

Theo Murphy Childcare Travel Grant

THE ROYAL SOCIETY

2024

TAGC2024 Childcare Travel Grant

GENETICS SOCIETY OF AMERICA

2024

Postgraduate Poster Award: Life on a Dynamic Planet Symposium

TEXAS A&M UNIVERSITY

2023

ESA2022 Travel Grant

DEPARTMENT OF ENTOMOLOGY, TEXAS A&M UNIVERSITY

2019

OIST Mini-Symposium Grant (co-awardee)

OKINAWA INSTITUTE OF SCIENCE AND TECHNOLOGY

2020

KAKENHI Research Grant

JAPAN SOCIETY FOR THE PROMOTION OF SCIENCE

2019

Agreenium fellow travel Grant

AGREENIUM CONSORTIUM

2013-2014

Darwin Conference Travel Award (1st prize of the Rosalind Franklin Challenge)

UNIVERSITY OF LA REUNION

2009

Eskom Expo for Young Scientists Travel Award

EXPO SCIENCES REUNION

2009

Scientific Publications

BOOK/CHAPTER

1. Chantawannakul, P., Beaurepaire, A., Bulet, P., Houdelet, C., Huang, S., Li, J., Maeda, T., de Miranda, J. R., Paxton, R. J., Phokasem, P., Sakamoto, Y., Sinpoo, C., **Techer, M. A.**, Zheng, H., & Dietemann, V. (accepted). Standard methods for *Apis cerana* pest and pathogen research. **Journal of Apicultural Research: BEEBOOK Vol. IV**.
2. **Techer, M. A.**, Chakrabarti, P., Caesar, L., Eynard, S. E., Farrell, M. C., Foster, L. J., Gorrochategui-Ortega, J., Henriques, D., Li-Byarlay, H., Morré, J. T., Newton, I. L. G., Parejo, M., Pinto, M. A., Vignal, A., Zarrasaindia, I., & McAfee, A. (2025). Standard methods and good practices in *Apis* honey bee omics research. **Journal of Apicultural Research: BEEBOOK Vol. IV**, 64(2), 307-402.

PEER-REVIEWED AND ACCEPTED PAPERS

1. Eliash, N., Endo, T., Hua, X., **Techer, M. A.**, Rangel, J., Zheng, H., Economo, E. P., & Mikheyev, A. S. (2026). *Varroa* mites escape the evolutionary trap of haplodiploidy. **Nature Communications**. (accepted)
2. Neumann, P., Beaurepaire, A., Bouga, M., Brodschneider, R., Carreck, N. L., Dahle, B., de Miranda, J. R., de Sousa, R. T., Dietemann, V., Eliash, N., Ellis, J. D., Erler, S., Evans, J. D., Locke, B., Martin, S., Mondet, F., Morawetz, L., Moro, A., Özkırım, A., Panziera, D., Pettis, J., Pirk, C. W. W., Schiesser, A., Soroker, V., **Techer, M. A.**, Williams, G. R., Zheng, H., & Traynor, K. S. (2026). Darwin's solution: Honeybees survive mite vectors and viruses through natural selection. **Trends in Parasitology**. (featured on the journal cover)
3. **Techer, M. A.**, Peralta Santana, V. A., Woo, B., Marquess, R., Brennan, C., Mechti, A. M. C., Linde, J. B., Behmer, S. T., Sword, G. A., & Song, H. (2026). Rearing, dissection, and temporal transcriptomic profiling protocols to study density-dependent phenotypic plasticity in the genus *Schistocerca*. **STAR Protocols**, 7(2), 104554.
4. Hasegawa, N., **Techer, M. A.**, Adjlane, N., Al-Hissnawi, M. S., Antúnez, K., Beaurepaire, A., Christmon, K., Delatte, H., Dukku, U. H., Eliash, N., El-Niweiri, M. A. A., Esnault, O., Evans, J. D., Haddad, N. J., Locke, B., Muñoz, I., Noël, G., Panziera, D., Roberts, J. M. K., De la Rúa, P., Shebl, M. A., Stanimirovic, Z., Rasmussen, D. A., & Mikheyev, A. S. (2023). Evolutionarily diverse origins of deformed wing viruses in western honey bees. **Proc. Natl. Acad. Sci. U. S. A.**, 120, e2301258120. (featured on the journal cover)
5. Dukku, U., **Techer, M.**, Yeboah, A. A., & Vincent, S. N. (2023). A country-wide survey of *Varroa destructor*, an ectoparasitic mite of honey bees, in Nigeria: determination of mitochondrial haplotype. **Journal of Apicultural Research**.
6. **Techer, M. A.**, Roberts, J. M. K., Cartwright, R. A., & Mikheyev, A. S. (2022). The first steps toward a global pandemic: Reconstructing the demographic history of parasite host switches in its native range. **Molecular Ecology**, 31(5), 1358-1374.
7. Hasegawa, N., **Techer, M. A.**, & Mikheyev, A. S. (2021). A toolkit for studying *Varroa* genomics and transcriptomics: Preservation, extraction, and sequencing library preparation. **BMC Genomics**, 22(1), 54.
8. Galataud, J., Delatte, H., **Techer, M. A.**, Simiand, C., Sookar, P., Reynaud, B., & Clémencet, J. (2020). When European meets African honeybees in the tropics: morphological changes related to genetics in Mauritius Island. **PLOS ONE**, 15(11), e0242053.
9. Traynor, K. S., Mondet, F., de Miranda, J. R., **Techer, M. A.**, Kowallik, V., Oddie, M. A. Y., Chantawannakul, P., & McAfee, A. (2020). *Varroa destructor*: A Complex Parasite, Crippling Honey Bees Worldwide. **Trends in Parasitology**, 36(7), 592-606. (featured on the journal cover; cited >600 times)
10. Dukku, U. H., **Techer, M. A.**, & Vincent, S. N. (2020). A country-wide survey of *Varroa destructor*, an ectoparasitic mite of honey bees, in Nigeria: a preliminary report. **Journal of Apicultural Research**, 59(1), 59-62.
11. **Techer, M. A.**, Rane, R. V., Grau, M. L., Roberts, J. M. K., Sullivan, S. T., Liachko, I., Childers, A. K., Evans, J. D., & Mikheyev, A. S. (2019). Divergent evolutionary trajectories following speciation in two ectoparasitic honey bee mites. **Communications Biology**, 2(1), 357.
12. Wragg, D., **Techer, M. A.**, Canale-Tabet, K., Basso, B., Bidanel, J.-P., Labarthe, E., Bouchez, O., Le Conte, Y., Clémencet, J., Delatte, H., & Vignal, A. (2018). Autosomal and mitochondrial adaptation following admixture: A case study on the honeybees of Reunion Island. **Genome Biology and Evolution**, 10(1), 220-238.
13. **Techer, M. A.**, Clémencet, J., Simiand, C., Turpin, P., Garnery, L., Reynaud, B., & Delatte, H. (2017). Genetic diversity and differentiation among insular honey bee populations in the southwest Indian Ocean likely reflect old geographical isolation and modern introductions. **PLOS One**, 12(12), e0189234.

14. **Techer, M. A.**, Clémencet, J., Simiand, C., Preaduth, S., Azali, H. A., Reynaud, B., & Delatte, H. (2017). Large-scale mitochondrial DNA analysis of native honey bee *Apis mellifera* populations reveals a new African subgroup private to the South West Indian Ocean islands. **BMC Genetics**, 18(1), 53.
15. **Techer, M. A.**, Clémencet, J., Simiand, C., Portlouis, G., Reynaud, B., & Delatte, H. (2016). Genetic diversity of the honeybee (*Apis mellifera* L.) populations in the Seychelles archipelago. **Insect Conservation and Diversity / Royal Entomological Society of London**, 9(1), 13-26.
16. Rasolofoarivao, H., Clémencet, J., **Techer, M. A.**, Ravaomanarivo, L. H. R., Reynaud, B., & Delatte, H. (2015). Genetic diversity of the endemic honeybee: *Apis mellifera unicolor* (Hymenoptera: Apidae) in Madagascar. **Apidologie**, 46(6), 735-747.
17. **Techer, M. A.**, Clémencet, J., Turpin, P., Volbert, N., Reynaud, B., & Delatte, H. (2015). Genetic characterization of the honeybee (*Apis mellifera*) population of Rodrigues Island, based on microsatellite and mitochondrial DNA. **Apidologie**, 46(4), 445-454.

MANUSCRIPTS IN REVIEW

1. Lu, Y., Feng, Y., **Techer, M. A.**, Liu, Y., Martin, S. J., Zha, L., Mikheyev, A. S., Brandorf, A., & Zheng, H. (2026). Unraveling the Original Host Shift of *Varroa destructor*, a Global Pest of the Honey Bee *Apis mellifera* in Eastern China. **Molecular Ecology**. (in review)
2. Holman, A. P., Mechti, A. M., Miller, A. C., **Techer, M. A.**, Goff, N. K., Song, H., Behmer, S., Kourouski, D., & Sword, G. (2026). Rapid Prediction of Locust Phase State Using Resonance Raman Spectroscopy and Machine Learning. **Journal of the Royal Society Interface**, manuscript rsif-2026-0471. (in review)

Skills

TECHNICAL SKILLS

Wet lab	Omics Analysis	Bioinformatics
DNA/RNA extraction and quality control – Sanger Sequencing – Library Preparation – Whole Genome Sequencing – RNASeq – PCR – Orthoptera tissues dissections – Image Stacking – Lab BioSafety Compliance	Population Genetic and Structure Analysis – Reads mapping and QC – Variant Calling and Filtering – Differential Gene Expression Analysis – Comparative Genomics – Spatial Genomics – Demographic Inferences	R – Shell – SLURM – Bash – Python – Snakemake – GitHub – Markdown

LANGUAGES

Skill	French	English	Spanish	Japanese
Reading	Native	Advanced / Bilingual	Elementary	Beginner
Writing	Native	Advanced / Bilingual	Beginner	Beginner
Listening	Native	Advanced / Bilingual	Elementary	Beginner
Speaking	Native	Advanced / Bilingual	Beginner	Beginner

Mentoring and Teaching Experience

TEACHING

Teaching activity	Institution and commitment	Dates
Instructor - Hands-on Molecular Approaches for Honey Bee Research in Health and Disease	UNU-BIOLAC, Uruguay (1 h total)	2026
Instructor - Orthoptera Anatomical Dissections for RNA Studies	Texas A&M University; three graduate students (approx. 150 to 180 h total)	2023-2025
Instructor - Bioinformatics and Reproducibility with Snakemake	Texas A&M University; graduate students (approx. 30 h total)	2021-2025
Instructor - Wet-Lab NGS Genomics and Transcriptomics Techniques	OIST and Texas A&M University; undergraduate/graduate students (approx. 160 to 320 h total)	2020-2024
Guest Lecturer - Undergraduate Population Genetics Class	Texas A&M University (J. Spencer Johnston; 2 h total)	2022
Guest Teacher - Onna/OIST Children's School of Science	Okinawa Institute of Science and Technology (4 h total)	2017

STUDENT MENTORING

- Emily Baker - Undergraduate, Texas A&M University (2024-2025)
 - Jackson Linde - Ph.D. Student, Texas A&M University (2023-Present)
 - Christopher Brennan - Ph.D. Student, Texas A&M University (2021-2024)
 - Alyssa Canova - Ph.D. Student, Texas A&M University (2021-2023)
 - Audélia Mechti - Ph.D. Student, Texas A&M University (2021-2024)
- Vivian Peralta Santana - Ph.D. Student, Texas A&M University (2021-Present)
 - Alexis Acoff - M.Sc. Student, Southern Illinois University Edwardsville (2022)
 - Danielle Sherry - Undergraduate, Texas A&M University (2021-2022)
 - Nonno Hasegawa - Ph.D. Student, Okinawa Institute of Science and Technology (2020-2022)
 - Elroy Kwan-Au - Honours Student, Australian National University (ANU), Canberra (2019)

Oral presentations and outreach

SELECTED INVITED TALKS

Theo Murphy Meeting: Locust and bee plasticity in a changing world, The Royal Society TEMPORAL DYNAMICS OF PHASE TRANSITIONS: TRANSCRIPTOME PROFILING IN SWARMING LOCUSTS	<i>Cambridge, UK</i> 2024
SOLATINA, The Latin American Society for Bee Research THE UNTOLD STORY OF VARROA MITE SUCCESSFUL INVASION UNRAVELED BY WORLDWIDE POPULATION GENOMICS	<i>Zoom, Virtual</i> 2021
1st COLOSS (Prevention of honey bee Colony LOSSes) Asia Conference WORLD BIOGEOGRAPHY AND POPULATIONS GENOMICS OF ECTOPARASITIC VARROA MITES	<i>Chiang Mai, Thailand</i> 2020
28th Plant and Animal Genome Conference: Honeybee Genomics FACING THE WAR BETWEEN HONEY BEES AND MITES: GENOMIC INSIGHTS INTO VARROA GLOBAL SUCCESS	<i>San Diego, California</i> 2020
OIST Science Festival Cafe, Okinawa Institute of Science and Technology THE STORY OF BEES AND MITES' JOURNEY.	<i>Okinawa, Japan</i> 2019
Ecology and Evolution Seminar Series, The Australian National University AT THE ORIGIN OF A GLOBAL INVASION: THE HONEY BEE PARASITE VARROA THAT KEEPS ON JUMPING	<i>Canberra, Australia</i> 2019
EcoEncontros, University of Sao Paulo AT THE ORIGIN OF A GLOBAL INVASION: THE HONEY BEE PARASITE VARROA THAT KEEPS ON JUMPING	<i>Sao Paulo, Brazil</i> 2018

SELECTED CONTRIBUTED TALKS

Behavioral Plasticity Research Institute BPRI 2023 Symposium TIME-COURSE TRANSCRIPTOME LANDSCAPE OF PHASE TRANSITIONS IN THE DESERT LOCUST	<i>Houston, Texas</i> 2023
Entomological Society of America ESA2022 TIME-COURSE ANALYSIS OF SENSORY AND BRAIN TISSUE TRANSCRIPTOMES DURING PHASE TRANSITIONS IN THE DESERT LOCUST (<i>SCHISTOCERCA GREGARIA</i>).	<i>Vancouver, Canada</i> 2022
Congress of Apidology Eurbee 8 TRACKING GENOMICS FOOTPRINTS OF SUCCESSFUL HOST SWITCHES IN HONEY BEE VARROA MITES.	<i>Ghent, Belgium</i> 2018
International Union for the Study of Social Insects IUSSI2018 AT THE ORIGIN OF A GLOBAL INVASION: THE HONEYBEE PARASITE THAT KEEPS ON JUMPING.	<i>Guaruja, Brazil</i> 2018
Congress of Apidology Eurbee 7 GENETIC DIVERSITY AND STRUCTURE OF <i>A. MELLIFERA</i> IN THE SOUTH WEST INDIAN OCEAN ISLANDS.	<i>Cluj-Napoca, Romania</i> 2016
International Union for the Study of Social Insects IUSSI2014 UNRAVELING THE MYSTERIES OF HONEYBEE IN THE MASCARENE ISLANDS	<i>Cairns, Australia</i> 2014

OUTREACH EXPERIENCE

1. Featured participant in the [BPRI Video Docuseries](#) on interdisciplinary locust research (YouTube), 2025.
2. [Honey and Coral Project](#). Collaboration for prevention of red soil erosion between the Ecology and Evolution and Onna Village Office, Agricultural Section, Okinawa, 2019.
3. Guest at [WonderLabs podcast](#) (Apple: [apple.co/2KP4pWL](#), Google: [bit.ly/2StEUuX](#))
4. Invited [Speaker at the 3rd Nerd Nite](#) Okinawa, Chatan, 2018.
5. [Lead organizer of the OIST Science Festival booth](#) “The wonderful world of honeybees” and creator of the “EcoEvo Quest” video game (Microsoft Powerpoint support), 2016-2019.
6. Invited speaker to the OIST Science Trip to Miyako High School, Miyako-jima, 2017.

Leadership and Academic Services

Member of the NSF-BII BPRI Research Committee	2023–2025
Member of the NSF-BII BPRI Trainee Leadership Council	2022–2025
Jury at the Graduate Student Forum of Entomology at Texas A&M University	2021
Co-organizer of Honey Bee Health in a Changing World and COLOSS Asia at OIST	2021
Jury member of My Research in 200s at OIST	2020
Member of the OIST Internal Seminar Series organizing committee	2017–2019
Ph.D. student delegate at the UMR PVBMT and 3P Laboratory	2014–2016

Peer Review Services	Society/Network Member
Apidologie – Journal of Apicultural Science – Insects – The Science of Nature – BioMed Research International – Entomological Science – Experimental and Applied Acarology – Molecular Ecology – PeerJ – Frontiers in Ecology and Evolution – Scientific Reports – Journal of Heredity	Entomological Society of America – Genetics Society of America – COLOSS – Global Locust Initiative – JSPS Alumni Network – i5K