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EDUCATION

University of Tennessee, Knoxville

Doctor of Philosophy, 2013 – 2019

Dissertation Title: *Living life on the edge: The role of invasion processes in shaping personalities in a non-native spider species*

Department: Ecology & Evolutionary Biology

Committee: Susan Riechert (chair), Daniel Simberloff, James Fordyce, Todd Freeberg

University of California, Berkeley

Bachelor of Science, 2008 – 2012

Concentration: Entomology, Major: Molecular Environmental Biology

Department: Environmental Science, Policy, & Management

Minor: Forestry and Natural Resources

PROFESSIONAL POSITIONS

2020 – **Postdoctoral Associate**, Entomology and Nematology Department, *University of Florida*

2019 – 20 **Lecturer**, Psychology Department, *University of Tennessee*

2013 – 19 **Graduate Research Fellow**, Susan Riechert Lab, Ecology and Evolutionary Biology Department, *University of Tennessee*

2013 **Research Assistant**, I-Min Tso Behavioral Ecology Lab, Tunghai University, *Taiwan*

2013 **Field Assistant**, Caribbean Arachnids Expedition 2013, *Lesser Antilles, Caribbean*

2012 **Field Assistant**, Steven Beissinger Lab, Hato Masaguaral Research Station, *Venezuela*

2012 **Field Assistant**, Caribbean Arachnids Expedition 2012, *Dominican Republic*

2012 **Preparation Laboratory Assistant**, Museum of Vertebrate Zoology, UC Berkeley

2011 **Student Researcher**, UC Berkeley Field Station, *Mo'orea, French Polynesia*

2011 **Research Assistant**, Robert Dudley Biomechanics Lab, UC Berkeley

2010 **Research Assistant**, Miguel Altieri Agroecology Lab, UC Berkeley

PEER-REVIEWED PUBLICATIONS

(144 total citations, * Joint first authorship, ‡ In press, * Media coverage)

- ‡ **Chuang, A.** & Riechert, S.E. Personality shifts are inconsistent across two rapid range expansions of a non-native spider, *Animal Behaviour*. ANBEH-D-20-00421
8. Frank, D., Simberloff, D., Bush, J., **Chuang, A.**, & Leppanen, C. (2019). Logical fallacies and reasonable debates in invasion biology: A response to Guiaşu and Tindale, *Biology and Philosophy*, 34–49. <https://doi.org/10.1007/s10539-019-9704-0>

7. **Chuang, A.**, Gates, M.W., Grinsted, L., Askew, R., & Leppanen, C. (2019). Two hymenopteran egg sac associates of the tent-web orbweaver spider, *Cyrtophora citricola* (Araneae: Araneidae), *Zookeys*, 874:1–18. <https://doi.org/10.3897/zookeys.874.36656>
6. **Chuang, A.** & Leppanen, C. (2018). Location and web substrate records of *Cyrtophora citricola* (Araneae: Araneidae) in southern Spain, including Tenerife, *Revista Ibérica de Aracnología*, 33: 89–100.
5. Bosco, J. & **Chuang, A.** (2018). A new species of grass spider, *Agelenopsis riechertii*, from the Southwestern USA, with notes on its courtship behavior (Araneae: Agelenidae), *Zootaxa*, 4442(4): 579–583. <https://doi.org/10.11646/zootaxa.4442.4.6>
4. Zhao, L., Panayotova, I. N., **Chuang, A.**, Bourouiba, L., Sheldon, K., & Miller, L. A. (2017). Flying spiders: simulating and modeling the dynamics of ballooning, *Women in Mathematical Biology*, 179–210. https://doi.org/10.1007/978-3-319-60304-9_10
3. Sheldon, K. S., Zhao, L., **Chuang, A.**, Panayotova, I., Bourouiba, L., & Miller, L. A. (2017). Revisiting the physics of spider ballooning, *Women in Mathematical Biology*, 163–178. https://doi.org/10.1007/978-3-319-60304-9_9
2. **Chuang, A.*** & Peterson, C. R.* (2016). Expanding population edges: theories, traits, and trade-offs, *Global Change Biology*, 22: 494–512. <https://doi.org/10.1111/gcb.13107>
1. Blamires, S. J., Piorkowski, D., **Chuang, A.**, Tseng, Y. H., Toft, S., & Tso, I. M. (2015). Can differential nutrient extraction explain property variations in a predatory trap? *Royal Society Open Science*, 2(3): 140479. <https://doi.org/10.1098/rsos.140479>

* Spiders customize webs based on diet. *Australian Geographic*. 19 March, 2015.

<https://www.australiangeographic.com.au/news/2015/03/spiders-spin-different-silk-to-alter-diet/>

* Custom web design keeps spiders in business. *ABC Science*. 18 March, 2015.

<https://www.abc.net.au/science/articles/2015/03/18/4199173.htm>

REVIEWS & OTHER PUBLICATIONS († Invited review, * Radio Interview)

8. **Chuang, A.** (2020). Saving species, one roll at a time. *Science*. 369(6504): 633–633. <https://doi.org/10.1126/science.abc7387>
7. † **Chuang, A.** & O. Schwery. (2020). Evolution makes a splash, *Science*. 367(6482): 1081–1081. <https://doi.org/10.1126/science.aba9172>
6. † **Chuang, A.** (2019). Only the strongest hive will survive, *Science*. 365(6459): 1255–1255. <https://doi.org/10.1126/science.aaz1804>
5. **Chuang, A.** & O. Schwery. (2019). Who cares? Parenting in invertebrate animals, *Frontiers for Young Minds*. 7:78 <https://doi.org/10.3389/frym.2019.00078>
4. **Chuang, A.** (2019). Fowl play, *Science*. 364(6435): 36–36. <https://doi.org/10.1126/science.aaw7753>

* Not So Angry Birds: The Ornithology-Inspired Board Game 'Wingspan'. *All Things Considered*, National Public Radio. 9 April, 2020.

* A Board Game Where Birds (And Science) Win. *Short Wave*, National Public Radio. 21 February, 2020.

* Rolling Out The Best Science Board Games. *Science Friday*. 6 December, 2019.

3. † **Chuang, A.** (2018). Playing with particle physics, *Science*. 362(6418): 1005–1005.
<https://doi.org/10.1126/science.aav5921>
2. † **Chuang, A.** & J. M. Bush. (2017). Book Review: Judith S. Weis and Daniel Sol (eds): Biological Invasions and Animal Behaviour, *Biological Invasions*. 6(19): 1951–1952.
<https://doi.org/10.1007/s10530-017-1400-x>
1. **Chuang, A.** (2017). Game changers, *Science*. 355(6325): 587–587.
<https://doi.org/10.1126/science.aam5437>

FUNDING & AWARDS (\$155,848 in total)

RESEARCH FUNDING (\$25,732, *internal university grants italicized*)

- 2019 *Open Access Publishing Fund, University of TN, \$810*
- 2018 Arachnological Research Fund, American Arachnological Society, **\$1000**
- 2017 David F. Ludwig Memorial Student Travel Scholarship, Association for Environmental Health and Sciences Foundation, **\$1000**
- 2017 *Dept. EEB Research Grant, University of TN, \$1800*
- 2016 *Dept. EEB Research Grant, University of TN, \$1050*
- 2016 Arachnological Research Fund, American Arachnological Society, **\$300**
- 2016 Love of Learning Grant, Phi Kappa Phi, **\$500**
- 2016 *W.K. McClure Scholarship Fund for the Study of World Affairs, University of TN, \$3000*
- 2016 The Explorers Club Exploration Fund- Mamont Scholars Program, **\$2000**
- 2015 *Dept. EEB Research Grant, University of TN, \$1072*
- 2015 Young Explorers Grant, National Geographic Society, **\$5000**
- 2015 The Lewis and Clark Fund for Exploration and Field Research, American Philosophical Society, **\$5000**
- 2014 Grants-In-Aid of Research, Sigma Xi, **\$700**
- 2014 *Dept. EEB Research Grant, University of TN, \$1072*
- 2013 *Dept. EEB Research Grant, University of TN, \$428*
- 2011 *Institute of International Studies Undergraduate Merit Scholarship, UC Berkeley, \$1000*

FELLOWSHIPS, AWARDS, AND HONORS (\$131,166, *internal awards italicized*)

- 2019 The J. Paul Blakely Award of Merit in Science Writing, Graduate Division, Society for Technical Communication, East Tennessee Chapter, **\$50**
- 2019 *Access and Diversity Fellowship, College of Arts and Sciences, University of TN, \$1000*
- 2019 *Daniel and Donna Popek Ecology Endowment Scholarship, Dept. Ecology and Evolutionary Biology (EEB), University of TN, \$7350*
- 2018 Diversity Travel Award, Animal Behavior Society, **\$125**
- 2018 *Tom Hallam Award for outstanding contributions to the grad experience, EEB, University of TN, \$500*
- 2018 *Travel Award, Graduate Student Senate, University of TN, \$700*

- 2017 *Tom Hallam Award for outstanding contributions to the grad experience, EEB, University of TN, \$500*
- 2017 *Travel Award, Graduate Student Senate, University of TN, \$480*
- 2017 *Diversity Travel Award, Animal Behavior Society, \$125*
- 2017 *Travel Award, Graduate Researchers in Ecology, Behavior, and Evolution, \$150*
- 2017 *Graduate Student Senate Award for Excellence in Research, University of TN*
- 2016 *Travel Award, Graduate Student Senate, University of TN, \$710*
- 2016 *Travel Award, Graduate Researchers in Ecology, Behavior, and Evolution, \$130*
- 2016 *Travel Award, American Arachnological Society, \$537*
- 2015 *Tom Hallam Award for outstanding contributions to the grad experience, EEB, University of TN*
- 2013 – 16 *Chancellor's Funds and Stipend Top-off Awards, University of TN, \$15,809 total*
- 2013 *National Science Foundation Graduate Research Fellowship, \$102,000 total*
- 2012 *Best Paper Award, Institute of International Studies, UC Berkeley, \$1000*

PRESENTATIONS († Invited talk)

- 2020 **Chuang, A.** & S. E. Riechert. Personality composition across the native and non-native ranges of an invasive spider. Animal Behavior Society Meeting, online. Oral.
- 2020 **Chuang, A.** & S. E. Riechert. Personality clines across two range expansions of introduced *Cyrtophora citricola* (Araneidae) in Florida. American Arachnological Society Meeting, online. Poster.
- 2019 † **Chuang, A.** How does introduction and range expansion shape behavior in an orbweaver spider? Ecology, Evolution, Ecosystems, and Society Seminar, Dartmouth College, Hanover, NH, USA. Seminar.
- 2018 **Chuang, A.** & S. E. Riechert. Does an invasive orbweaver spider exhibit behavioral spatial sorting across its introduced range? South Eastern Population Ecology & Evolutionary Genetics Meeting, Pembroke, VA, USA. Oral.
- 2018 **Chuang, A.** & S. E. Riechert. How are personality types of a globally invasive spider structured in its invasive vs. native range? Ecological Society of America Meeting, New Orleans, LA, USA. Poster.
- 2017 **Chuang, A.** Defensive strategies of a forest cellar spider through ontogeny and reproductive state. Animal Behavior Society Meeting, Toronto, Ontario, Canada. Oral.
- 2016 **Chuang, A.** & S. E. Riechert. Behavior-driven range expansion in the colonial tentweb orbweaver, *Cyrtophora citricola*? International Congress of Arachnology, Golden, CO, USA. Poster.
- 2012 **Chuang, A.** Size and motherhood of a French Polynesian spider affects whirling and defensive behaviors. Institute of International Studies Symposium, Berkeley, CA, USA. Oral.

TEACHING & PEDAGOGY At The University of Tennessee, Knoxville
 ♦ Instructor of record, †Primary Instructor, *Graduate TA, ‡Guest Lecturer

TEACHING: ♦ Instructor of record, *Graduate TA, †Primary Instructor, ‡Guest Lecturer

2020 ♦ **PSYC 320**- Motivation; 5 sections, 200 students
Includes 1 accelerated summer online section from May 28 – July 3, 2020

2019 ♦ **EEB 370/PSYC 370**- Evolutionary Psychology/Ethology; 2 sections, 30 students
♦ **PSYC 320**- Motivation; 2 sections, 104 students
* **EEB 370/PSYC 370**- Evolutionary Psychology/Ethology; 1 section, 30 students *
‡ “Sociality, Cooperation, and Altruism”

2018 * **EEB 406/MATH 405**- Models in Biology; 18 students in lecture
* **BIOL 150**- Skills of Biological Literacy; 3 discussion sections, 76 students *

2017 † **BIOL 167**- Honors: Skills of Biological Investigation; 2 laboratory sections, 33 students

2016 ‡ **BIOL 167**- “Crash Course in Statistics”, Honors: Skills of Biological Investigation; 2 laboratory sections, 35 students

2015 * **BIOL 159**- Skills of Biological Investigation; 2 laboratory sections, 48 students *

2014 * **BIOL 167**- Honors: Skills of Biological Investigation; 2 laboratory sections, 26 students

PEDAGOGY:

2020 Vols Virtual Online Bootcamp for teaching online

2019 “Crossing Boundaries for STEM Teaching”- Spring Regional Meeting and Mini-Conference, Tennessee STEM Innovation Network, The University of Tennessee

2018 **EEB 607**- Science Education Journal Club, 3 semesters

2016 **Practitioners Level Certification**- Best Practices in Teaching Course, Center for Integration of Research, Teaching, and Learning (CIRTL)

2016 **Associates Level Certification**- CIRTL

PROFESSIONAL ACTIVITIES

JOURNAL REVIEWER & EDITOR

2019 – Associate Editor, *Biological Invasions* (8)

2015 – *Biological Invasions* (7), *Behavioral Ecology and Sociobiology* (2), *Behavioral Ecology* (2), *Movement Ecology* (2), *Southeastern Naturalist* (1), *Journal of Animal Ecology* (1), *Conservation Science and Practice* (2), *Florida Entomologist* (1)

SOCIETY MEMBERSHIP AND LEADERSHIP

2020 – Vice Chair, Ecological Society of America; Invasion Ecology Section

2013 – Membership: American Arachnological Society; American Naturalist; Animal Behavior Society; Citizen Science Association; Ecological Society of America; Entomological Society of America

UNDERGRADUATE MENTORSHIP

2017 – 20 Anthony Bowman, Savannah Sumatra, William Kirkpatrick: University of TN, EEB Mentoring Program

2018 Anna Cameron, Casey Felthoelter, Han Noh Lee: “Egg sac predation rates by *Philolema palanichamyi* in the native range of a globally invasive spider”, University of TN, EEB, Riechert and Simberloff Labs

2016 Hannah Anderson, Edward Hutchinson: “Core vs. leading edge behavioral traits in the invasive range of the colonial orbweaver spider, *Cyrtophora citricola*”, Riechert Lab

2015 Ashish Gauli (Fisk University), Nathan Wikle (Truman State University), Ryan Yan (College of William and Mary): “Ships, Ports, Invasions, and Math: Invasive Species Movements through Global Shipping Routes”, Summer Research Experience project at the

National Institute of Mathematical and Biological Synthesis, Knoxville, TN
*Resulted in Comflo, an interactive visualization system on commodity flow in the United States, that won an award through NatureServe EcoInformatics Workshop

2014 Charles Blue, Jane Sheehan: “Repeatability of behavioral traits in an invasive orbweaver spider, *Cyrtophora citricola*”, Riechert Lab

CONTRIBUTOR

2016 – 18 Studio Tomás Saraceno: *Hybrid Webs* art installations and sculptures, Berlin, Germany

WORKSHOP PARTICIPANT

2020 Florida Ornamental Integrated Pest Management Workshop, University of Florida. Virtual.

2015 Women in Mathematical Biology: Aerodynamics of spider ballooning, National Institute of Mathematical and Biological Synthesis, Knoxville, TN

LEADERSHIP & SERVICE

2020 **Mentor**, EEB Mentor Match to connect underrepresented minority students applying for the NSF GRFP to mentors

2020 **Judge**, Exhibition of Undergraduate Research and Creative Achievement (EURēCA), UT

2019 **Panelist**, STEM Graduate Student Chat, ASPIRE Brunch for rural, first generation college students, UTK

2017 – 18 **Panelist**, “So You Want To Go To Grad School- Graduate School Demystified”, UTK

2018 **Organizer**, “Medical School Q&A for pre-med undergraduates”, Dept. EEB, UTK

2017 **Graduate Student Representative**, EEB Faculty Graduate Affairs Committee

2016 – 17 **President**, Graduate Researchers in Ecology, Behavior, and Evolution (GREBE)

2016 – 17 **Graduate Student Representative**, EEB Faculty Executive Committee

2015 **Vice President**, GREBE, University of Tennessee

2015 – 16 **Member**, University of Tennessee Graduate Student Senate Travel Awards Committee

2015 – 16 **Senator**, University of Tennessee Graduate Student Senate

2014 – 15 **Organizer**, Dept. EEB Friday Seminar Committee, University of Tennessee

GENERAL MEDIA APPEARANCES

This spider catapults its web to tangle prey at super speed. *Nova*, PBS. Interview. 13 May, 2019.

<https://www.pbs.org/wgbh/nova/article/hyptiotes-spider-web-catapult/>

The Power of Play. *The Nature of Things: Season 58, Episode 12*. Documentary. 2018.

<https://gem.cbc.ca/media/the-nature-of-things/season-58/episode-12/38e815a-01033501556>

Spiders can fly hundreds of miles using electricity. *The Atlantic*. Interview. 5 July, 2018.

<https://www.theatlantic.com/science/archive/2018/07/the-electric-flight-of-spiders/564437/>

How big spiders use nanoscale physics to fly. *Inside Science*. Interview. 10 April, 2018.

<https://insidescience.org/news/how-big-spiders-use-nanoscale-physics-fly>

Studying spiders. National Geographic Learning Panorama: Science. Scientist profile. 6 November, 2017. Available through <https://ngl.cengage.com/>.

Estudiar las arañas. National Geographic Learning Panorama: Science. Scientist profile. 6 November, 2017. Available through <https://ngl.cengage.com/>.

COMMUNITY ENGAGEMENT

- 2014 – 19 **Volunteer & Organizer**, UTK Darwin Week, UT, Knoxville, TN
- 2018 **Presenter**, Invasive species awareness week, Cedar Bluff Middle School, Knoxville, TN
- 2018 **Volunteer Leader**, Biodiversity unit: Stream ecology, West High School IB
Biology Course, Knoxville, TN
- 2018 **Judge**, Tennessee State Science Olympiad, Knoxville, TN
- 2017 **Volunteer**, EEB Outreach Committee, Vestal Boys and Girls Club, Knoxville, TN
- 2016 – 17 **Volunteer Instructor**, Kids University: Vertebrate Zoology, UT, Knoxville, TN
- 2016 **Organizer**, “National Invasive Species Awareness Week”, UT, Knoxville, TN
- 2015 **Volunteer**, THRIVE program for underprivileged students, Knoxville, TN
- 2015 **Presenter**, “Aliens Among Us: Invasive species in Knoxville”, Knoxville
Neighborhoods Conference, Knoxville, TN
- 2015 **Volunteer Instructor**, Kids University: Animal Behavior, UT, Knoxville, TN
- 2015 **Volunteer Instructor**, “Math in Nature” Pond Gap Elementary School, Knoxville, TN
- 2014 **Volunteer Instructor**, Kids University: Bugs, UT Knoxville, TN
- 2014 **Volunteer**, Arachnid outreach, U.S. Science and Engineering Fair, Washington D.C.
- 2013 – 15 **Volunteer**, Bat Exhibit, “Boo at the Zoo”, Knoxville Zoological Gardens, TN
- 2012 **Leader**, Spider Outreach Camp, Caribbean Expedition, Dominican Republic

REFERENCES

Postdoctoral Advisor:

Dr. Lauren Diepenbrock
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700 Experiment Station Road
Lake Alfred, FL 33850-2299
ldiepenbrock@ufl.edu

Ph.D. Major Advisor:

Dr. Susan Riechert
(865) 974-6187
569 Dabney Hall
1416 Circle Drive
Knoxville, TN 37996
rieichert@utk.edu

Ph.D. Committee Member:

Dr. Daniel Simberloff
(865) 974-0849
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