

## *Curriculum Vitae*

# S. Tonia Hsieh

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<b>EDUCATION</b>	<b>Harvard University</b> Department of Organismic and Evolutionary Biology Ph.D., Biology received 2005; A.M., Biology received 2002. <i>Advisor: George Lauder</i> Thesis: Biomechanics of Locomotion at the Air-Water Interface <b>University of California (UC), Berkeley</b> B.A., Integrative Biology (I.B.) received 1999.	Cambridge, MA      Berkeley, CA
<b>POSITIONS</b>	<b>Assistant Professor</b> , University of Florida, Gainesville, FL <b>Post-doctoral Research Associate</b> , Harvard University, Cambridge, MA <i>Advisor, Jonathan Losos</i> <b>Post-doctoral Research Associate</b> , Brown University, Providence, RI <i>Advisor, Thomas Roberts</i>	Fall 2008-present 2007-2008 2006-2007
<b>HONORS</b>	Dean's Teaching Excellence Award, Warren Alpert Medical School, Brown Univ. Certificate of Distinction in Teaching Award, Harvard University Elsevier Young Investigator Award, Soc. Experimental Biology Departmental Citation, UC Berkeley Distinguished Service Citation, California Alumni Association	2007 1999, 2005, 2006 2004 1999 1996
<b>GRANTS AND FELLOWSHIPS</b>	National Geographic Society Research and Exploration Grant Student Travel Fellowship, Society of Integrative & Comparative Biology Putnam Expedition Fund, Harvard University Graduate Research Fellowship, National Science Foundation Summer Research Grant, UC Berkeley Biology Fellows Program Explorers' Club Youth Activity Fund Alumni Scholarship, UC Berkeley Hewlett-Packard University Scholarship	2003-2004 2003 2002, 2003 2001-2004 1998 1998 1995-1999 1995
<b>GRANT IN PREPARATION</b>	<b>National Science Foundation Physiological and Structural Systems Cluster</b> "Experiments and models of lizard foot interaction during locomotion on flowing granular media and on rigid ground" (multi-institution collaboration with Daniel Goldman, Georgia Institute of Technology)	
<b>PROFESSIONAL MEMBERSHIP</b>	International Society of Vertebrate Morphologists Society for Experimental Biology Society for Integrative and Comparative Biology	

**TEACHING  
EXPERIENCE**

**University of Florida**

Department of Zoology, 2008  
Functional Vertebrate Anatomy (lecture and lab)

**Brown University**

*Post-doctoral Teaching Associate*, Warren Alpert Medical School, 2006-2007  
Human Gross Anatomy (1<sup>st</sup> year medical students)

**Harvard University**

*Post-doctoral Teaching Fellow*, Department of Organismic and Evolutionary Biology, 2006  
Lizard Ecology

*Head Teaching Fellow*, Department of Organismic and Evolutionary Biology, 2005  
Biology and Diversity of Birds

*Head Teaching Fellow*, School of Public Health, 2004  
The Human Organism

*Teaching Fellow*, Department of Organismic and Evolutionary Biology, 1999-2005  
Advanced Structure and Physiology of Vertebrates  
Human Anatomy  
Structure and Function of Vertebrates

**REFEREED  
PUBLICATIONS**

**Hsieh, ST. submitted.** The evolution of locomotion in a marine fish. *Proceedings of the National Academy of Sciences*.

**Hsieh, ST. 2006.** A three-axis optical force plate for studies in small animal locomotion. *Review of Scientific Instruments*. 77:054303.

Autumn, K, **ST Hsieh**, DM Dudek, J Chen, C Chitaphan, and RJ Full. **2006.** Dynamics of geckos running vertically. *The Journal of Experimental Biology*. 209:260-272.

**Hsieh, ST** and GV Lauder. **2004.** Running on water: three-dimensional force generation by basilisk lizards. *Proceedings of the National Academy of Sciences*. 101(48):16784-16788.

**Hsieh, ST. 2003.** Three-dimensional hindlimb kinematics of water running in the plumed basilisk lizard (*Basiliscus plumifrons*). *The Journal of Experimental Biology*. 206:4363-4377.

Autumn, K, Y Liang, **ST Hsieh**, W Zesch, WP Chan, T Kenny, R Fearing, and RJ Full. **2000.** Adhesive force of a single gecko foot-hair. *Nature*. 405(6787):681-685.

**Hsieh, ST**, RE Ballard, G Murthy, AR Hargens, VA Convertino. **1998.** Plasma colloid osmotic pressure increases in humans during simulated microgravity. *Aviation, Space, and Environmental Medicine*. 69:23-26.

**CONFERENCE/  
TECHNICAL  
PAPERS**

Liang YA, K Autumn, **ST Hsieh**, W Zesch, WP Chan, R Fearing, RJ Full, TW Kenny. **2000.** Adhesion force measurements on single gecko setae. In: *Technical Digest of the 2000 Solid-State Sensor and Actuator Workshop, Hilton Head Island, SC*. pp.33-38.

Matsuyama M, T Ueno, C Yang, **ST Hsieh**, HB Lillywhite, AR Hargens. **1998.** Evolutionary adaptations of intracranial pressure to gravity. In: *NASA Ames Research Center Research and Technology 1997*.

**IN  
PREPARATION**

**Hsieh, ST**, TR Roberts. Hindlimb joint power production and energy storage during jumping in the Cuban tree frog. For *The Journal of Experimental Biology*.

**SELECT  
PUBLISHED  
ABSTRACTS**

- St. Louis, J, TJ Sanger, **ST Hsieh**. *In press*. How the development and microstructure of toe pad morphology reflect habitat specialization in *Anolis* lizards. *Integrative and Comparative Biology*.
- Hsieh ST**, TJ Roberts. **2008**. Do hindlimb joints serve multiple functions during jumping in the Cuban tree frog? *Integrative and Comparative Biology*. 47(1):e52.
- Hsieh ST**. **2004**. Mechanics of terrestrial locomotion in aquatic, amphibious, and terrestrial blennies. *Integrative and Comparative Biology*. 44(6):572 (Abstract 41.5).
- Hsieh ST**. **2003**. Comparative locomotor characteristics of two amphibious blennies, *Alticus arnoldorum* and *Praealticus labrovittatus*. *Integrative and Comparative Biology*. 43(6): 905 (Abstract 26.2).
- Hsieh ST**. **2002**. Fish out of water: the amphibious locomotor repertoire of the Pacific leaping blenny, *Alticus arnoldorum*. *Integrative and Comparative Biology*. 42(6):1246 (Abstract 37.1).
- Hsieh ST**, GV Lauder. **2001**. Running on water: quantitative flow visualization of basilisk lizard locomotion. *American Zoologist*. 41(6):1475(Abstract 16.4).
- Hsieh ST**. **2000**. Ontogenetic 3-D kinematics of water running in green basilisk lizards (*Basiliscus plumifrons*). *American Zoologist*. 40(6):1066(Abstract 21.2).
- Autumn K, **ST Hsieh**, W Zesch, WP Chan, R Fearing, RJ Full. **1999**. How gecko feet work. *American Zoologist*. 39(5):105A(Abstract 621).
- Autumn K, **ST Hsieh**, DM Dudek, J Chen, C Chitaphan, RJ Full. **1999**. Dynamics of geckos running vertically. *American Zoologist*. 38(5):84A (Abstract 288).
- Autumn K, **ST Hsieh**, DM Dudek, J Chen, C Chitaphan, RJ Full. **1999**. Function of feet in ascending and descending geckos. *American Zoologist*. 38(5):84A (Abstract 287).
- Hsieh ST**, Lillywhite HB, Ballard RE, Hargens AR. **1998**. Cardiovascular responses of snakes to gravitational gradients. (Annual Meeting of the Professional Research Scientists on Experimental Biology 98, Part 1, San Francisco, California, USA, April 18-22, 1998. ) *FASEB Journal*. 12(4): A333.
- Hargens AR, **ST Hsieh**, G Murthy, RE Ballard, VA Convertino. **1995**. Sixteen-day bedrest significantly increases plasma colloid osmotic pressure. *Aerospace Medical Association Meeting*, Anaheim, CA, 7-11 May 1995, p. A23 (Abstract 131).

**STUDENTS  
MENTORED**

**Undergraduates**

- Amanda Ropp (2009): Biological illustration.
- Cherice Smithers (2009): Effects of invasive brown anole on green anole limb plasticity.
- Chris Grassa (2010): How do springy surfaces affect jump performance in tree frogs?
- Tristan Hensley (2010): Single setal force measurements in anoles.
- Kevin Carbonell (2011): Hindlimb joint power production during jumping in frogs.
- Judith Misas (2011): Muscle mechanical advantage variability in anole ecomorphs.
- Israel Salazar (2011): The effects of substrate diameter and stability on lizard locomotion.
- Josh St. Louis (Harvard University, 2009): A phylogenetic comparison of anole toe pad morphology.

**Graduate Committees**

- Edwin Cadena, Ph.D. candidate: Paleocene and Eocene turtles from Colombia: Phylogenetic, paleoecologic and paleoclimatic implications
- Alex Hastings, Ph.D. candidate: Early Paleogene crocodyliiform evolution in the neotropics: Evidence from Northeastern Colombia

**Graduate Student**

- Phil Nicodemo (current). Power amplification of striking behavior in snakes and their ecological correlates.

## PROFESSIONAL SERVICE

**Reviewer** for *Canadian Journal of Zoology*, *Evolution*, *Functional Ecology*, *The Journal of Experimental Biology*, *Review of Scientific Instruments*

**Member**, Student Awards Committee for The Soc. of Integ. & Comp. Biol., **2008-2011**

**Curator**, Encyclopedia of Life *Anolis carolinensis* entry, **2007-2008**

**Contributor**, Michigan-Jamaica library book exchange program, **2007**

**Instructor**, Howard Hughes High School Outreach Program, Harvard Univ., **2003**

**Instructor**, Morse Elementary School After School Science and Math Program, **2001**

## CONFERENCES

American Society of Ichthyologists and Herpetologists  
(paper presentation: 2000; attended only: 1999)

Experimental Biology  
(poster presentation: 1998)

International Congress of Vertebrate Morphology  
(presentation: 2004)

Society of Experimental Biology  
(presentation: 2001-2004)

Society of Integrative and Comparative Biology  
(presentation: 1999, 2001-2005, 2008, 2009; attended only: 2000, 2006)

## SELECT RESEARCH PUBLICITY

### Water running in basilisk lizards

ABCNow Television, 30 November 2004.

BBC Radio, "Science In Action" radio show. November 2004.

BBC News (news.bbc.co.uk), "How lizards walk on water", 16 November 2004.

California Academy of Sciences (California Wild), 24 November 2004.

CBC Radio, "Quirks & Quarks" radio show. 20 November 2004.

The Guardian, "How to walk on water", 18 November 2004.

National Geographic News, "How 'Jesus Lizards' Walk on Water". November 2004

Nature Magazine, "High-speed biomechanics: Caught on camera"

NewsDay, "Leapin' lizard walks on water", 16 November 2004.

ScienceNow (sciencenow.sciencemag.org), "Watch Your Step", November 2004.

SpektrumDirekt ([www.wissenschaft-online.de](http://www.wissenschaft-online.de)), "Mit voller Kraft übers Wasser", 17 November 2004.

Spiegel Online ([www.spiegel.de](http://www.spiegel.de)), "Das Geheimnis der Jesus-Echse", 29 November 2004.

### Gecko adhesion

ABC Television, 8 June 2000.

BBC Television, 12 June 2000.

BusinessWeek, "Geckos stick like glue – without goo", 26 June 2000.

CBC Television, 8 June 2000.

CBS Television, 8 June 2000.

CNN Television, 8 June 2000.

Discovery Channel, 8 June 2000.

The Economist, "Climbing the walls", 10 June 2000.

Los Angeles Times, "Sticky-footed gecko a true force of nature", 8 June 2000.

Natural History magazine, "Get a Grip", July 2000.

National Geographic News, "Gecko stickum: recipe for synthetic adhesive", 8 June 2000.

National Public Radio, 8 June 2000.

NBC Television, 8 June 2000.

New York Times, "Pitter-patter of hairy feet", 13 June 2000.

Science Magazine, "How geckos climb the walls", 9 June 2000.