

# CURRICULUM VITAE

## Austin M. Garner

Integrated Bioscience  
Department of Biology  
The University of Akron  
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### EDUCATION

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- 2016 – Ph.D. in Integrated Bioscience**  
The University of Akron, Akron, Ohio  
Dissertation: *Morphology, Performance, and Adhesion Behavior of Adhesive Subdigital Pad-bearing Lizards*  
Anticipated graduation date: May 2021
- Co-advisors: Peter H. Niewiarowski, Ph.D. (Department of Biology)  
Ali Dhinojwala, Ph.D. (Department of Polymer Science)
- Committee: Henry C. Astley, Ph.D. (Departments of Polymer Science and Biology)  
Todd A. Blackledge, Ph.D. (Department of Biology)  
Anthony P. Russell (Department of Biological Sciences, University of Calgary)
- 2012 – 2016 B.Sc. in Biology, *magna cum laude***  
The University of Akron, Akron, Ohio

### PROFESSIONAL EXPERIENCE

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- 2018 – Mentoring Fellow**  
[Tiered Mentoring Program](#), Department of Biology, The University of Akron, Akron, Ohio
- 2016 – Teaching Assistant**  
Department of Biology, The University of Akron, Akron, Ohio
- 2016 Research Assistant**  
The University of Akron Field Station, Bath, Ohio  
Supervisors: Randall J. Mitchell, Ph.D. and Lara D. Roketenetz, Ph.D.

### PEER-REVIEWED PUBLICATIONS

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‡ Denotes equal contribution of authors \*Denotes undergraduate co-author

- 2019 Garner, A.M., C. Buo, J.M. Piechowski, A.M. Pamfilie, S.R. Stefanovic, A. Dhinojwala, and P.H. Niewiarowski. Digital hyperextension has no influence on the active self-drying of gecko adhesive subdigital pads. Journal of Experimental Zoology – Part A. [PDF](#).**

- 2019** Cohn, E.\*<sup>‡</sup>, P. Cole\*<sup>‡</sup>, A. Haymaker\*<sup>‡</sup>, **A.M. Garner**, and R.L. Londraville. Response to Underwater Laser Pointer in the Orange-Finned Anemonefish *Amphiprion chrysopterus* and Three-spot Damselfish *Dascyllus trimaculatus*. *Journal of Fish Biology* 96: 274-277. [PDF](#).
- 2019** Gamel, K.M., **A.M. Garner**, and B.E. Flammang. Bioinspired remora adhesive disc offers insight into evolution. *Bioinspiration & Biomimetics* 14(5): 1-8. [PDF](#).
- 2019** Niewiarowski, P.H., A. Dhinojwala, and **A.M. Garner**. Adapting a thermal physical model approach to estimate gecko adhesion performance opportunity and constraint: How rough could it be? *Integrative and Comparative Biology* 59(1): 203-213. [PDF](#).
- 2019** **Garner, A.M.**, M.C. Wilson, A.P. Russell, A. Dhinojwala, and P.H. Niewiarowski. Going Out on a Limb: How Parallel Investigation of the Anoline Adhesive System can Enhance our Understanding of Fibrillar Adhesion. *Integrative and Comparative Biology* 59(1): 61-69. [PDF](#).
- 2018** McInerney, S.J., B. Khakipoor, **A.M. Garner**, T. Houette<sup>‡</sup>, C.K. Unsworth<sup>‡</sup>, A. Rupp, N. Weiner, J.F.V. Vincent, J.K.S. Nagel, and P.H. Niewiarowski. E2BMO: Facilitating User Interaction with a BioMimetic Ontology via Semantic Translation and Interface Design. *Designs* 2(4): 53. [PDF](#).
- 2017** **Garner, A.M.**, S.M. Lopez, and P.H. Niewiarowski. Brown anole (*Anolis sagrei*) adhesive forces remain unaffected by partial claw clipping. *Acta Herpetologica* 12:133-137. [PDF](#).
- 2017** **Garner, A.M.**, A.Y. Stark, S.A. Thomas, and P.H. Niewiarowski. Geckos go the Distance: Water's Effect on the Speed of Adhesive Locomotion in Geckos. *Journal of Herpetology* 51:240-244. [PDF](#).

## MANUSCRIPTS IN REVIEW OR IN PREPARATION

- In preparation** **A.M. Garner**<sup>‡</sup>, Pamfilie, A.M.<sup>‡\*</sup>, E.J. Hamad\*, R. Kindig\*, J.T. Taylor\*, C.K. Unsworth, and P.H. Niewiarowski. Home-field advantage: Native geckos outperform invasive geckos and exhibit improved endurance capacity in structurally complex environments.
- In preparation** **Garner, A.M.**<sup>‡</sup>, M.C. Wilson<sup>‡</sup>, C. Wright\*, A.P. Russell, P.H. Niewiarowski, and A. Dhinojwala. The adhesive setal field configuration of *Anolis equestris* differs from its gekkotan counterpart.
- In preparation** **Garner, A.M.**, A.J. Keith\*, A.N. Schnarrenberger\*, H.C. Astley, and P.H. Niewiarowski. What Goes Up, Must Come Down: Substrate Orientation Significantly Impacts Locomotor Performance of *Gekko gekko*.

## BOOK CHAPTERS IN REVIEW OR IN PREPARATION

**In preparation** Russell, A.P. and **A.M. Garner**. Convergent evolution of the adhesive apparatus of geckos and anoles. *Convergent Evolution*. Editors: Vincent Bels and Pierre Legreneur.

## HONORS AND AWARDS

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- 2020** **D. Dwight Davis Award**  
Finalist  
Division of Vertebrate Morphology  
Society for Integrative and Comparative Biology 2020 Annual Meeting
- 2017-2019** **Company of Biologists' Travel Grant**  
Society of Experimental Biology  
Amount: £250 per year, £750 total
- 2017-2019** **Professional Enrichment Grant**  
The University of Akron Graduate Student Government  
Amount: \$200 per year, \$600 total
- 2019** **Best Poster Award**  
The University of Akron Interdisciplinary Symposium  
Graduate Student Category  
Buchtel College of Arts and Sciences
- 2015-2017** **Charlotte Magnum Student Support Award**  
The Society for Integrative and Comparative Biology Annual Meetings  
Amount: \$109 per year, \$327 total

## CONFERENCE PRESENTATIONS

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† Denotes presenting author ‡ Denotes equal contribution of authors \*Denotes undergraduate co-author

### ORAL PRESENTATIONS

- 2020** **Garner, A.M.†**, M.C. Wilson, C. Wright\*, A.P. Russell, P.H. Niewiarowski, and A. Dhinojwala. Adhesive setal morphology and setal field configuration in *Anolis equestris*. SICB 2020 Annual Meeting, Austin, Texas.
- 2019** Niewiarowski, P.H.†, A. Dhinojwala†, and **A.M. Garner**. Developing prototypes for testing gecko adhesion on rough surfaces. From symposium titled, "The Path Less Traveled: Reciprocal Illumination of Gecko Adhesion by Unifying Material Science, Biomechanics, Ecology, and Evolution". SICB 2019 Annual Meeting, Tampa Bay, Florida.
- 2019** **Garner, A.M.†**, M.R. Klittich, D. Maksuta, P.H. Niewiarowski, and A. Dhinojwala. The Role of Surface Lipids on the Self-Cleaning Ability of Gecko Subdigital Adhesive Pads. SICB 2019 Annual Meeting, Tampa Bay, Florida.

- 2019** Gamel, K.M.<sup>†</sup>, **A.M. Garner**, and B.E. Flammang. Modeling evolutionary selection for performance, in the case of the remora adhesive disc. SICB 2019 Annual Meeting, Tampa Bay, Florida.
- 2018** Unsworth, C.K.<sup>†</sup>, **A.M. Garner**, S.J. McInerney, B. Khakipoor, T. Houette, A. Rupp, and N. Weiner. E2BMO: Facilitating User Interaction with a BioMimetic Ontology through Semantic Translation and Interface Design. AAAI, Arlington, Virginia.
- 2018** **Garner, A.M.**<sup>†</sup>, M.R. Klittich, J.M. Piechowski, D. Maksuta, C. Buo, S.R. Stefanovic, P.H. Niewiarowski, and A. Dhinojwala. Recovery Ability of Gecko Adhesive Toe Pads After Fouling with Water or Dirt. SICB 2018 Annual Meeting, San Francisco, California.
- 2018** M.R. Klittich<sup>†</sup>, **A.M. Garner**<sup>‡</sup>, D. Maksuta<sup>‡</sup>, P.H. Niewiarowski, and A. Dhinojwala. Impact of Surface Chemistry on Gecko Self-Cleaning. SICB 2018 Annual Meeting, San Francisco, California.
- 2017** **Garner, A.M.**<sup>†</sup>, J.M. Piechowski, C. Buo, S.R. Stefanovic, P.H. Niewiarowski, and A. Dhinojwala. The Role of Digital Hyperextension in the Self-drying Mechanism of Gecko Adhesive Toe Pads. SICB 2017 Midwest Regional Meeting, The University of Akron, Akron, Ohio.
- 2017** **Garner, A.M.**<sup>†</sup>, K.E. Siman, A. Wright, T. Davis, and P.H. Niewiarowski. What Goes Up, Must Come Down: The Effect of Running Orientation on the Speed of Adhesive Locomotion in Geckos. SICB 2017 Annual Meeting, New Orleans, Louisiana.

## POSTER PRESENTATIONS

- 2020** **Garner, A.M.**<sup>†</sup>, A.L. Ramer, and P.H. Niewiarowski. A sticky situation: anole adhesive performance as an inquiry-based learning exercise in an introductory biology course. SICB 2020 Annual Meeting, Austin, Texas.
- 2020** Pamfilie, A.M.<sup>†\*</sup>, **A.M. Garner**, and P.H. Niewiarowski. Watch your step: a comparison of digital morphology across ecomorphs in *Anolis* lizards. SICB 2020 Annual Meeting, Austin, Texas.
- 2019** **Garner, A.M.**<sup>†</sup>, A. Dhinojwala, and P.H. Niewiarowski. Design and Calibration of a Prototype Physical Model to Estimate Gecko Adhesion on Rough Surfaces. Gordon Research Conference, Science of Adhesion. Mt. Holyoke College, South Hadley, MA.
- 2019** **Garner, A.M.**<sup>†</sup>, A. Dhinojwala, and P.H. Niewiarowski. Design and Calibration of a Prototype Physical Model to Estimate Gecko Adhesion on Rough Surfaces. Gordon Research Seminar, Science of Adhesion. Mt. Holyoke College, South Hadley, MA.
- 2019** **Garner, A.M.**<sup>†</sup>, M.C. Wilson, A.P. Russell, P.H. Niewiarowski, and A. Dhinojwala. Morphometrics and Patterning of the Adhesive Setal Fields of an *Anolis* Lizard in Comparison to those of its Gekkotan Counterparts. SICB 2019 Annual Meeting, Tampa Bay, Florida.

- 2019**      **Garner, A.M.**, A.M. Pamfilie<sup>†\*</sup>, A. Dhinojwala, and P.H. Niewiarowski. Relationships between Adhesive Performance and Substrate Preference Behavior in Tokay Geckos (*Gekko gekko*). SICB 2019 Annual Meeting, Tampa Bay, Florida.
- 2018**      **Garner, A.M.**, A.J. Keith<sup>†\*</sup>, A. Schnarrenberger\*, H.C. Astley, and P.H. Niewiarowski. The Effect of Running Orientation on Gecko Locomotor Performance. SICB 2018 Annual Meeting, San Francisco, California.
- 2016**      **Garner, A.M.**<sup>†</sup>, A.Y. Stark, S.A. Thomas, and P.H. Niewiarowski. Geckos Go the Distance: Water's Effect on Gecko Locomotor Performance. SICB 2016 Annual Meeting, Portland, Oregon.

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**RESEARCH EXPERIENCE**

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- 2016 –**      **Doctoral Research**  
Program in Integrated Bioscience, Department of Biology, The University of Akron  
Co-advisors: Peter H. Niewiarowski, Ph.D. and Ali Dhinojwala, Ph.D.

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**TEACHING AND MENTORING EXPERIENCE**

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## COURSES TAUGHT

- 2017-2020**    **Principles of Biology Lab II**  
Teaching Assistant, Department of Biology, The University of Akron
- 2019**        **Vertebrate Zoology Laboratory**  
Instructor/Teaching Assistant, Department of Biology, The University of Akron
- 2018-2019**    **Digital Skills for Biologists (combined undergraduate and graduate course)**  
Teaching Assistant, Department of Biology, The University of Akron
- 2017-2018**    **Foundations of Physiology Lab I**  
Teaching Assistant, Department of Biology, The University of Akron
- 2018**        **Herpetology**  
Teaching Assistant, Department of Biology, The University of Akron
- 2017**        **Human Anatomy and Physiology Lab I**  
Teaching Assistant, Department of Biology, The University of Akron
- 2016**        **General Ecology**  
Teaching Assistant, Department of Biology, The University of Akron
- 2016**        **Biomimetic Design (combined undergraduate and graduate course)**  
Teaching Assistant, Department of Biology, The University of Akron

## GUEST LECTURES

- 2017**      **Gecko Biology and Adhesion: Beyond Saving You Money on Car Insurance**  
Biomimetic Design, The University of Akron
- 2016**      **The Gecko Adhesive System: An Adaptation for an Arboreal Lifestyle**  
General Ecology, The University of Akron
- 2016**      **The Gecko Adhesive System: A Sticky Solution for All Sorts of Problems**  
Biomimetic Design, The University of Akron

## CURRICULUM DEVELOPMENT

- 2019-2020**    **Principles of Biology Laboratory II**  
Co-developed two laboratory exercises on the topic of biomimicry aimed to increase student understanding of, and connections between, the broader impacts of basic and applied scientific research

## MENTORING

**Undergraduate Students**

Austin Keith            Alexis Schnarrenberger  
Alexandra Tomasko    Alexandra Pamfilie  
Caitlin Wright        Joshua Taylor  
EJ Hamad              Rachael Kindig  
Timothy Zatkos

**High School Students**

Benjamin Sprenger    Nyle Garg

**PROFESSIONAL SERVICE**

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## REVIEWER

Biological Journal of the Linnean Society

## OTHER SERVICE

- 2017 –**      **Great Lakes Biomimicry**  
Biological Consultant for Industrial Innovation
- 2018**      **The Society for Integrative and Comparative Biology**  
2018 Annual Meeting, San Francisco, California

Session co-chair, Adhesion: Sticky When Dry

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**ACADEMIC SERVICE**

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**COMMUNITY OUTREACH**

In addition to the below, I give regular outreach presentations using live geckos to educate diverse audiences about gecko biology, gecko adhesion, biomimicry, and Gecko Adhesion Research Group research. Audiences include: students (K-12, undergraduate, graduate), business professionals, scientists in various stages of their careers, and the general public.

- 2019**      **Skype A Scientist**  
Four K-12 US Classrooms
- 2019**      **Camp Bioscience**  
Guest Speaker
- 2019**      **Norbert Thompson Biology Undergraduate Research Symposium**  
Judge
- 2019**      **Western Reserve District 5 Science Day**  
Super Judge, Animal/Plant Sciences
- 2018**      **Camp Bioscience**  
Guest Speaker
- 2018**      **Norbert Thompson Biology Undergraduate Research Symposium**  
Judge
- 2018**      **Western Reserve District 5 Science Day**  
Super Judge, Animal/Plant Sciences
- 2018**      **University of Akron/Goodyear STEM Career Day**  
Gecko adhesion research demonstration
- 2017**      **Norbert Thompson Biology Undergraduate Research Symposium**  
Judge
- 2017**      **University of Akron/Goodyear STEM Career Day**  
Gecko adhesion research demonstration
- 2017**      **University of Akron Scholar's Day**  
Gecko adhesion research demonstration, Department of Biology tour, answered questions about undergraduate programs in biology

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**MEDIA ATTENTION**

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- 2019**      **YouTube**  
Cohn et al. 2019. Journal of Fish Biology.  
[Clownfish and Laser Pointers](#)
- 2019**      **Numerous media outlets**  
Gamel, Garner, and Flammang. 2019. Biomimetics & Bioinspiration.  
[New Jersey Institute of Technology](#), [ScienceDaily](#)
- 2019**      **Anole Annals**  
[SICB 2019: Anole Setal Morphological Diversity](#)
- 2018**      **Anole Annals**  
Garner, Lopez, and Niewiarowski. 2017. Acta Herpetologica.  
[Clipped Claws and Consequences for \*Anolis\* Adhesive Performance](#)
- 2016**      **Anole Annals**  
[SICB 2016: Can Geckos Run Fast When It's Wet Outside?](#)

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**PROFESSIONAL AFFILIATIONS**

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- 2017 –**      **Society of Experimental Biology**  
Student Member
- 2017 –**      **The Herpetologists' League**  
Student Member
- 2017 –**      **The Society for the Study of Amphibians and Reptiles**  
Student Member
- 2015 –**      **The Society for Integrative and Comparative Biology**  
Student Member