

# Alexander S. Hall

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## Education

Ph.D., Quantitative Biology The University of Texas at Arlington	December 2016
B.S., Animal Behavior with Honors Southwestern University	May 2011

## Positions Held

Marketing Specialist – 3D Visualization at Thermo Fisher Scientific	2024 – Present
Product Application Specialist at Thermo Fisher Scientific	2017 – 2024
Postdoctoral Researcher at UT Arlington	2017
Biostatistics Teaching Assistant	2016
Lead Instructor; General Zoology Lab	2011 – 2016

## Publications

Orcid ID: [\[link\]](#); Google Scholar Profile: [\[link\]](#)

- Senici, L, AS Hall, F Glaw, and MD Scherz. (Accepted). Potential evolutionary convergence in trophic adaptations of two booid snake lineages as evidenced by skull morphology. *Journal of Morphology*. [\[Wiley\]](#) [\[pdf\]](#) [\[data\]](#)
- Gignac, PM, et al. (75 Authors [Alphabetically]). 2024. The role of networks to overcome large-scale challenges in tomography: The non-clinical tomography users research network. *Tomography of Materials and Structures*, 5: 100031. [\[ScienceDirect\]](#) [\[pdf\]](#) [\[related grant\]](#)
- Huynh, TV, AS Hall, and S Xu. 2023. The transcriptomic signature of cyclical parthenogenesis. *Genome Biology and Evolution*, evad122. [\[Oxford\]](#) [\[pdf\]](#) [\[biorXiv preprint\]](#) [\[supp mat\]](#) [\[code\]](#) [\[NCBI BioProject\]](#)
- Katti, P, AS Hall, HA Parry, PT Ajayi, Y Kim, TB Willingham, CKE Bleck, H Wen, and B Glancy. 2022. Mitochondrial network configuration influences sarcomere and myosin filament structure in striated muscles. *Nature Communications*, 13:6058. [\[Nature\]](#) [\[pdf\]](#) [\[biorXiv preprint\]](#) [\[data\]](#)
- Maldonado, J, TJ Firreno Jr, AS Hall, and M Fujita. 2022. Parthenogenesis doubles the rate of amino acid substitution in whiptail mitochondria. *Evolution*, doi:10.1111/evo.14509. [\[Wiley\]](#) [\[pdf\]](#) [\[zenodo\]](#) [\[supp mat\]](#)
- Wang, S, A Cabreros, Y Yang, AS Hall, S Valenzuela, Y Luo, J-P Correa-Baena, M-c Kim, Ø Fjeldberg, DP Fenning, and YS Meng. 2020. Impacts of the hole transport layer deposition process on buried interfaces in perovskite solar cells. *Cell Reports Physical Science*, 1:100103. [\[Cell\]](#) [\[pdf\]](#)



Hall, AS, JL Jacobs, and EN Smith. 2020. Possible osteosarcoma reported from a new world elapid snake and review of reptilian bony tumors. *The Anatomical Record*. [\[Wiley\]](#) [\[Cover\]](#) [\[pdf\]](#) [\[biorXiv preprint\]](#) [\[data\]](#)

Dias, KS, E Dosso, AS Hall, A Schuch, and A Tozetti. 2019. Ecological light pollution affects anuran calling season, daily calling period, and sensitivity to light in natural Brazilian wetlands. *The Science of Nature*, 106:1-10. [\[SpringerLink\]](#) [\[pdf\]](#) [\[supp mat\]](#)

- Campbell, JA, EN Smith, and AS Hall. 2018. Caudals and calyces: The curious case of a consumed Chiapan colubroid. *Journal of Herpetology*, 52:459-472. [[BioOne](#)] [[pdf](#)] [[data](#)] [[covered by ~100 news outlets](#)]
- Hall, AS, LL Lavery, and P Doux. 2018. Effective multi-modal multi-scale analytical and imaging correlation. *IEEE Sensors Letters*. [[IEEE Xplore](#)] [[pdf](#)]
- Hall, AS 2016. Origins and maintenance of diversity in a vertebrate parthenogen [Ph.D. Thesis]. The University of Texas at Arlington, Arlington, TX. [[pdf](#)] [[code](#)]
- Hall, AS 2016. Acute artificial light diminishes central Texas anuran calling behavior. *American Midland Naturalist*, 175:183-193. [[BioOne](#)] [[pdf](#)] [[data & code](#)]
- Pierce, BA, and AS Hall. 2013. Call latency as a measure of calling intensity in anuran auditory surveys. *Herpetological Conservation and Biology*, 8:199-206. [[HerpConBio](#)] [[pdf](#)]
- Biagas, T. D., AS Hall, A. L. Ritzer and BA Pierce. 2012. Time of day does not affect outcome of visual encounter surveys of a spring-dwelling salamander, *Eurycea naufragia*. *The Southwestern Naturalist*, 57:162-165. [[JSTOR](#)] [[pdf](#)]
- Hall, AS 2011. Artificial lighting and anuran calling behavior [Honors Thesis]. Southwestern University, Georgetown, TX. [[OCLC](#)]

### Selected Manuscripts In Prep

- Yang, J, V Vrbovska, T Franke, BS Sibert, MR Larson, AS Hall, A Rigort, J Mitchels, and ER Wright. (Submitted). Integrated fluorescence microscopy (iFLM) for cryo-FIB-milling and in-situ cryo-ET. [[biorXiv preprint](#)]
- Hall, AS, AMK Vázquez-Quinto, EN Smith, and A Ramírez-Velázquez. (In Revision). Evidence for range maintenance and homing in a new world Elapid. [[biorXiv preprint](#)] [[data](#)]
- O'Connell, KA, KJ Shaney, AS Hall, U Arifin, N Kurniawan, I Sidik, and EN Smith. (In Revision). Description of a new species of parachuting frog (Rhacophoridae: *Rhacophorus*) from northern Sumatra using micro-computed tomography.
- Roth, C, M Singh, AS Hall, KY Sanbonmatsu, S Micheva-Viteva, J Watt, and SR Starckenburg. (In Prep). The evolution of 4D chromatin dynamics with cellular differentiation and infection with CoV-229E.
- Hall, AS, D Rivera, JA Maldonado, and MK Fujita. (In Prep). Multiple origins of a unisexual hybrid lizard (*Aspidoscelis tessellata*).

### Invited Talks

- Hall, AS. 2023. Amira software for electron tomography 3D segmentation and visualization. Tomography and Cryo-FIB Workshop. Midwest Center for Cryo-Electron Tomography; University of Wisconsin; Madison, WI. [[recording](#)] [[website](#)]
- Hall, AS. 2020. Artificial intelligence in Amira-Avizo software. CCEM Image Processing Techniques for Electron Microscopy Data Workshop. McMaster University; Hamilton, Canada. [[recording](#)]
- Hall, AS, and SA Shojaee. 2020. Bone analysis in Avizo. Ohio State University, OH.
- Hall, AS, M Dean, H Taïeb, J Giesebrecht, and K Madi. 2019. Digital volume correlation for volumetric characterization of biomechanical changes. SICB; Tampa, FL.
- Hall, AS, and P Doux. 2018. Effective multi-modal multi-scale analytical and imaging correlation. Multi Modal Data Fusion Symposium; Boston, MA. [[Report](#)] [[Special Issue](#)]

Hall, AS 2018. Amira for natural history CT data (and lots more). Workshop: computed tomography in the analysis of natural history, morphology, and evolution; Arlington, TX.

Hall, AS 2016. Mitochondrial genomes as tools for systematics. World Congress of Herpetology; Hangzhou, China.

## Presentations

Hall, AS. 2024. Interactive deep learning segmentation for FIB-SEM data. FIB-SEM User Group Meeting; Laurel, MD.

Senici, L, AS Hall, F Glaw, and MD Scherz. 2024. Potential evolutionary convergence in trophic adaptations of two booid snake lineages as evidenced by skull morphology. World Congress of Herpetology; Kuching, Malaysia. [\[website\]](#)

Hall, AS, A Staude, and A Zolfaghari. 2023. Transforming 3D time series tomography: Interactive visualization & analysis. ToScA; Glasgow, UK.

Hall, AS, and A Zolfaghari. 2023. Transforming 3D time series tomography: Interactive visualization & analysis. ToScA NA; Austin, TX.

Hall, AS, R Brandt, R Blanc, R Pelapur, R Passey, and H Phelippeau. 2022. A stack alignment toolbox for serial electron microscopy. FIB-SEM User Group Meeting; Laurel, MD. [\[extended abstract\]](#)

Vallejo, ND, K Huang, C Kain, L Zhou, J Woo, N Ayers, A Mahmud, E Honse, H Chan, A Hall, F Zelenka, and Y Sohn. 2022. Flaw type dependent tensile properties of 316L stainless steel manufactured by laser powder bed fusion. TMS; Anaheim, CA. [\[abstract\]](#)

Hall, AS, JJ Bevitt, U Garbe, JF Hunter, R Nelson, and T Williamson. 2021. Neutron imaging for paleontology. Virtual SVP (Virtual Conference).

Huynh, T, AS Hall, and S Xu. 2021. Gene expression profiling of *Daphnia* reproductive modes reveal conserved transcriptional differences between sexual and asexual cycles. Virtual Evolution (Virtual Conference). [\[biorXiv preprint\]](#)

Hall, AS, R Blanc, J Caplan, and M Muniswamy. 2021. Supervised texture-based classification for 3DEM. 3DMS (Virtual Conference); Washington, DC. [\[pdf\]](#)

Hall, AS, G Tallec, A Zolfaghari, R Pelapur, A Chirazi, and F Gamba. 2021. Dual energy computed tomography (DECT) for rock classification. ToScA NA (Virtual Conference); Austin, TX. [\[Recording\]](#) [\[data\]](#)

Phelippeau, H, A Hall, R Brandt, and R Blanc. 2020. Fast, efficient, and easy to use stack alignment toolbox for electron microscopy. EMC2020 (Postponed). [\[extended abstract\]](#)

Jacobs, JL, AS Hall, and EN Smith. 2020. Learning to swim: evolutionary transition from terrestrial to aquatic life in South American coral snakes. SICB; Austin, TX.

Thammachoti, P, A Hall, A Harmidy, N Kurniawan, and EN Smith. 2019. Skull anatomy of forest skinks (*Sphenomorphus* Fitzinger, 1843) living in different habitats of Java and Sumatra Islands, Indonesia. IFAA, London, UK. [\[abstract\]](#)

Hall, AS, R Blanc, J Caplan, and M Muniswamy. 2019. Supervised texture-based classification for 3DEM. CIASEM; Buenos Aires, Argentina. [\[pdf\]](#)

Hall, AS. 2019. Digitally unraveling coiled museum specimens. ToScA NA; Gainesville, FL. [\[pdf\]](#)

Hall, AS, M Dean, H Taïeb, J Giesebrecht, and K Madi. 2019. Digital volume correlation for volumetric characterization of biomechanical changes. ToScA; Gainesville, FL.

- Hall, AS, and J Hummel. 2019. Segmentation and meshing for biomechanical finite element analysis. SICB; Tampa, FL.
- Hall, AS, J Jacobs, and EN Smith. 2018. Automatic bone measurement from X-ray computed tomography. SVP; Albuquerque, NM. [\[pdf\]](#)
- Hall, AS, J Jacobs, and EN Smith. 2018. Automatic bone measurement from X-ray computed tomography and a rare snake vertebral osteosarcoma. ASBMR; Montreal, QBC, Canada. [\[pdf\]](#)
- Hall, AS, J Jacobs, and EN Smith. 2018. Automatic bone measurement from X-ray computed tomography. Thermo Fisher Scientific MSD Technical Conference; San Diego, CA. [\[pdf\]](#)
- Hall, AS, J Jacobs, and EN Smith. 2018. Computed tomography reveals hidden bone tumor in a coralsnake. IHS; Houston, TX.
- Hall, AS, MA Karreman, and Y Schwab. 2018. Correlative microscopy: a solution for multi-scale sample analysis. FIB-SEM User Group Meeting; McMaster University, Hamilton, ON, Canada. [\[pdf\]](#)
- Hall, AS, EN Smith. 2017. Learning to swim: evolutionary transition from terrestrial to aquatic life in South American coralsnakes. ToScA; Austin, TX. [\[pdf\]](#)
- Hall, AS, JE Cordes, JM Walker, D Rivera, and MK Fujita. 2016. Genetic characterization of unisexual *Aspidoscelis tessellata* and *A. dixonii*. World Congress of Herpetology; Hangzhou, China.
- Hall, AS, JE Cordes, JM Walker, D Rivera, and MK Fujita. 2016. Genetic characterization of unisexual *Aspidoscelis tessellata* and *A. dixonii*. Evolution; Austin, TX.
- Hall, AS, JE Cordes, and JM Walker. 2015. Genetic characterization of unisexual *Aspidoscelis tessellata* and *A. dixonii*. THS; San Marcos, TX
- Hall, AS, RH Adams, and MK Fujita. 2015. Inferring paternal parentage of hybrid parthenoforms using whiptail lizards (*Aspidoscelis*). SSAR; Lawrence, KS.
- Hall, AS, RH Adams, and MK Fujita. 2015. Inferring paternal parentage of hybrid parthenoforms using whiptail lizards (*Aspidoscelis*). Evolution; Guarujá, Brazil.
- Hall, AS, JA Maldonado, and MK Fujita. 2015. Who are the fathers? Characterizing hybrid origins of parthenogenetic *Aspidoscelis* lizards. ACES, UT Arlington.
- Hall, AS, JA Maldonado, and MK Fujita. 2015. Who are the fathers? Characterizing hybrid origins of parthenogenetic *Aspidoscelis* lizards. TAS; San Antonio, TX.
- Hall, AS 2015. A gentle introduction to high throughput sequencing applications and study design. TAS; San Antonio, TX. [\[pdf\]](#)
- Hall, AS 2014. Origins of diversity in a hybrid parthenogenetic lizard. Genome Biology Group Seminar; UT Arlington.
- Hall, AS, JA Maldonado, and MK Fujita. 2014. Who are the fathers? Characterizing hybrid origins of parthenogenetic *Aspidoscelis* lizards. Evolution; Raleigh, NC.
- Maldonado, JA, AS Hall, and MK Fujita. 2014. High-throughput sequencing of whole mitochondrial genomes. Evolution; Raleigh, NC.
- Hall, AS 2013. Vertebrate parthenogenesis. Genome Biology Group Seminar; UT Arlington.
- Hall, AS 2013. Recombination without sex: Quantifying genome dynamics in an asexual lizard. TAS; Kerrville, TX.

- Hall, AS, and BA Pierce. 2012. Call latency in anuran breeding call surveys in central Texas. World Congress of Herpetology; Vancouver, Canada.
- Hall, AS, and BA Pierce. 2011. Call latency in anuran breeding call surveys in central Texas. JMIH; Minneapolis, MN.
- Wilson, EA, AS Hall and JE Purdy. 2011. Retention of learned association following metamorphosis in African claw-toed frogs. Southwestern Psychological Association; Southwestern Comparative Psychology Association; San Antonio, TX.
- Hall, AS 2011. Artificial lighting and nocturnal anuran calling behavior in Michigan and central Texas. TAS; Austin, TX.
- Hall, AS, and BA Pierce. 2011. Call latency in anuran breeding call surveys in central Texas. TAS; Austin, TX.
- Pierce, BA, AE Wall, AS Hall and KD McEntire. 2011. Monthly surface abundance, population size and movement of the Georgetown salamander, *Eurycea naufragia*, in two springs of central Texas. TAS; Austin, TX.
- Hall, AS 2010. Nocturnal anurans and artificial lighting. JMIH (Stoye Award Competition); Providence, RI.
- Biagas, TD, AS Hall, L Kromann, AL Ritzer and BA Pierce. 2010. The natural history and ecology of the Georgetown salamander (*Eurycea naufragia*). Biology Departmental Seminar; Southwestern University; Georgetown, TX.
- Hall, AS 2010. Artificial light and nocturnal anuran calling behavior in northern Michigan vernal pools. Student Works Symposium; Southwestern University; Georgetown, TX.
- Biagas, TD, AS Hall, AL Ritzer and BA Pierce. 2010. Feel free to hit the snooze button: Time of day does not influence surface counts of the Georgetown salamander (*Eurycea naufragia*). Student Works Symposium (Poster); Southwestern University; Georgetown, TX.
- Hall, AS 2010. Artificial light and nocturnal anuran calling behavior in northern Michigan vernal pools. TAS; Stephenville, TX.
- Biagas, TD, AS Hall, AL Ritzer and BA Pierce. 2010. Feel free to hit the snooze button: Time of day does not influence surface counts of the Georgetown salamander (*Eurycea naufragia*). TAS; Stephenville, TX.
- Mingle, M, AS Hall, C Winland, J Bolton and F Guarraci. 2010. The paradoxical effects of morphine on sexual motivation in female rats. Southwestern Psychological Association; Southwestern Comparative Psychology Association; Dallas, TX.

## Past Work Experience

Instructor; Non-Majors Biology Lab; 2012  
Seasonal Park Ranger; US Army Corps of Engineers; Lake Georgetown, TX; 2012  
Teaching Assistant; Introduction to Animal Behavior; 2010  
Webmaster; Animal Behavior; 2008 - 2010  
Animal Care Assistant; CityVet Veterinary Clinic, Flower Mound, TX; 2008 - 2009  
Photographer; "The Megaphone," SU Student Newspaper; 2007 - 2010

## Computer and Programming Skills

Amira and Avizo Software (Expert), FIJI/ImageJ, ITK/VTK, OpenInventor, MATLAB, R, Python, Perl, ArcGIS, SPSS, UNIX, Remote System Access & HPC, Machine Learning for Image Analysis

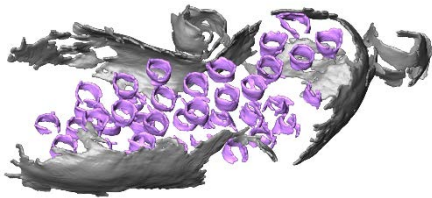
## Honors and Awards

UTA Office of Graduate Studies Dissertation Fellowship; 2016; \$6750  
Society for the Study of Evolution - Outreach Grant; 2016; \$1000  
NSF Doctoral Dissertation Improvement Grant; 2015; \$16,993  
1<sup>st</sup> Place - Texas Academy of Science Ph.D. Student Research Competition; 2015; \$1,750  
Phi Sigma Research Grants (5); 2013, 2014 (2), 2015, 2016; \$1,250, \$5,000, \$5,000, \$500, \$3000  
Texas Herpetological Society - Grants in Herpetology; 2015; \$500  
Society for the Study of Evolution; Rosemary Grant; 2013; \$1,800  
Travel Award of the Graduate Student Senate (4); 2013 - 2016; \$750, \$500, \$750, \$750  
Phi Sigma Travel Grants (4); 2014, 2015, 2016; \$630, \$750, \$750, \$750  
Departmental Travel Award; UT Arlington Biology; 2013; \$250  
Graduate Doctoral Teaching Fellowship; UT Arlington; 2011 - 2016  
Enhanced Graduate Teaching Assistantship; UT Arlington; 2011 - 2016  
Departmental Honors in Animal Behavior; Southwestern University; 2011  
Fabritius Award for Outstanding Service; Southwestern University Animal Behavior; 2011  
Outstanding Service Award; Alpha Phi Omega; Alpha Gamma Kappa Chapter; 2011  
Best Topic in Terrestrial Ecology and Conservation; Texas Academy of Science; 2010  
Dean's List; Southwestern University; Two Semesters  
Mood Scholar; Southwestern University; 2007 - 2011  
Provost's Scholarship; University of Dallas; 2007 (Declined)  
Business Departmental Scholarship; University of Dallas; 2007 (Declined)  
Distinguished Cadet; Lewisville High School NJROTC; Awarded Three Times  
ROTC Leadership Award; Military Order of the Purple Heart; 2006  
Eagle Scout; Boy Scouts of America; 2004

## Memberships

Society for the Study of Evolution  
American Society of Ichthyology and Herpetology  
Society of Vertebrate Paleontology  
Society of Integrative and Comparative Biology  
Society for the Study of Amphibians and Reptiles

## Media Coverage



Johnson et al. (2022, January 13). Bacterial gasdermins reveal an ancient mechanism of cell death. *Science*.

<https://doi.org/10.1126/science.abj8432>. Promoted by co-author Megan Mayer on Twitter using my work:

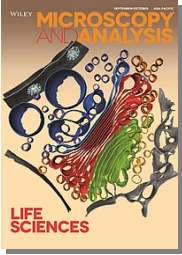
[https://twitter.com/mayer\\_lemon/status/1481818924031393796](https://twitter.com/mayer_lemon/status/1481818924031393796).

Pederson, G. (2019, January 18). UTA herpetologists describe new species of snake found in stomach of predator snake.

<https://www.uta.edu/news/releases/2019/01/snake-in-a-snake.php>

Solly, M. (2018, December 21). A new snake species was found in another snake's stomach. *Smithsonian Magazine*. <https://www.smithsonianmag.com/smart-news/new-snake-species-was-found-another-snakes-stomach-180971100>

Buehler, J. (2018, December 20). New snake species discovered in another snake's belly. *National Geographic*. <https://www.nationalgeographic.co.uk/animals/2018/12/new-snake-species-discovered-another-snakes-belly>



Cover Image. *Microscopy and Analysis* September/October 2018 Asia Pacific.

<http://www.microscopybooks.com/Europe/Supplements/2018/September/>

Faronbi, J. (2015, April 8). Student projects receive grants to complete research. *The Shorthorn*, Vol. 96, No. 27, p. 4. [http://www.theshorthorn.com/news/student-projects-receive-grants-to-complete-research/article\\_378804a4-da63-11e4-8ef9-abb767fa330a.html](http://www.theshorthorn.com/news/student-projects-receive-grants-to-complete-research/article_378804a4-da63-11e4-8ef9-abb767fa330a.html)

Pederson, G. P. (2015, March 31). Biology doctoral students receive NSF funding for research. *COS News*. <http://www.uta.edu/cos/news.php?ID=291>

Davis, E. (2012, January 25). Research that hits home. <http://southwestern.edu/live/news/6414-research-that-hits-home>

Osborn, C. (2011, February 7). Access limited to Georgetown preserve. *Austin American-Statesman*, pp. B1, B5.

Davis, E. (2010, February 26). Biology professor receives \$25,000 for salamander research. <http://www.southwestern.edu/newsroom/story.php?id=2206>

## Volunteer Experience

NSF Reviewer; 2020, 2021, 2022

Journal Reviewer: *PeerJ*; *Global Change Biology*; *Ecology, Ethology, & Evolution*; *Hydrobiologia*; *Genome*; *Journal of Natural History*; *Herpetological Review*; *Animals*; *Northwestern Naturalist*; *The Anatomical Record*; *Algorithms*; *Neobiota*; *Applied Sciences*; *Journal of Imaging*

Virtual SVP Session Moderator; 2021

World Molecular Imaging Congress Reviewer; 2021, 2024

Poster Judge; SICB-DVM & SICB-DAB; 2019, 2020

iNaturalist contributor; 2014-present [link](#)

Dog Foster; Greyhound Adoption League of Texas; 2015 – 2017

Poster Judge; UTA Annual Celebration of Excellence by Students (ACES); 2016

Undergraduate Poster and Presentation Judge; Texas Academy of Science; 2015

Poster Judge; Fort Worth Regional Science and Engineering Fair; 2014, 2016

Graduate Student Senate; UT Arlington; 2012 - 2016

Panel Member; "Grad School 101"; Texas Academy of Science; 2011

Elected Representative; SU Student Congress; 2009 - 2011

Co-Founder, Publicity Chair; SU Animal Behavior Society; 2008 - 2011

Alpha Phi Omega; National Co-ed Service Fraternity; 2007 - 2011

Student Mentor; Science and Math Achiever Team; Spring/Fall 2009