# M. Andrew Jansen

## Curriculum Vitæ

Updated: *January 3, 2019*

## *Personal Information*


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|---|---|
| **Position** | Ph.D. Candidate |
| **Address** | School of Life Sciences, PO Box 874501, Arizona State University, Tempe, AZ 85287-4501, USA |
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| **GitHub** | github.com/entojansen |


## *Research Interests*

Insect evolution, biomechanics, and systematics, with emphasis on weevils (Coleoptera: Curculionoidea: Curculionidæ); mathematical and finite element modeling of insect cuticle; structural adaptation and morphological optimization; mechanical behavior of biomaterials; biomimetic design of robotic systems and materials.

## *Education*

**2014 - 2019** Ph.D. Candidate, Arizona State University, Evolutionary Biology.
**2012 - 2014** M.Sc., Arizona State University, Biology.
**2007 - 2011** B.S., University of Florida, Entomology and Nematology.

## *Peer Reviewed Publications*

**Jansen, M.A.** & N.M. Franz. 2018. Descriptions of four new species of *Minyomerus* Horn, 1876 (Coleoptera: Curculionidæ), with notes on their distribution and phylogeny. *PeerJ.* 6: e5633.

**Jansen, M.A.**, Luck, K., Campbell, J., Amor, H.B., & D. Aukes. 2017. Bio-inspired robot design considering load-bearing and kinematic ontogeny of Chelonioidea sea turtles. In *Biomimetic and Biohybrid Systems.* p. 216-229

Luck, K., **Jansen, M.A.**, Campbell, J., Aukes, D., & H.B. Amor. 2017. From the lab to the desert: fast prototyping and learning of robot locomotion. *Proceedings of Robotics: Science and Systems.* 13: p. 75-83.

**Jansen, M.A.**, Singh, S.S., Chawla, N., & N.M. Franz. 2016. A multilayer micromechanical model of the cuticle of *Curculio longinasus* Chittenden, 1927 (Coleoptera: Curculionidæ). *Journal of Structural Biology.* 195: p. 139-158.

Singh, S.S., **Jansen, M.A.**, Franz, N.M., & N. Chawla. 2016. Microstructure and nanoindentation of the rostrum of *Curculio longinasus* Chittenden, 1927 (Coleoptera: Curculionidæ). *Materials Characterization.* 118: p. 206-211.

**Jansen, M.A.** & S.E. Halbert. 2016. Key to Florida Alydidæ (Hemiptera: Heteroptera) and selected exotic pest species. *Insecta Mundi.* 0476: p. 1-14.

**Jansen, M.A.** & N.M. Franz. 2015. Phylogenetic revision of *Minyomerus* Horn, 1876 sec. Jansen & Franz, 2015 (Coleoptera, Curculionidæ) using taxonomic concept annotations and alignments. *ZooKeys.* 528: p. 1-133.

## *Manuscripts in Preparation*

**Jansen, M.A.**, Singh, S.S., Chawla, N., & N.M. Franz. Microstructure-derived toughness in the acorn weevil exoskeleton. *Nature Materials - In Prep.*

# *Products Developed*

### C-Turtle

**Website** https://sites.google.com/view/c-turtle/
**Design** Version 1.0 Cut-files
**License** Attribution 4.0 International (CC BY 4.0)

### Patent Applications

Aukes, D., Amor, H.B., Luck, K., **Jansen, M.A.**, & J. Campbell, *inventors*; Arizona State University, Skysong Innovations, *assignee*. 2018. United States non-provisional patent application for systems and methods for rapid-prototyped robotic devices. *US Patent Application No. 16/215,910*. Filed 11 December 2018.

Aukes, D., Amor, H.B., Luck, K., **Jansen, M.A.**, & J. Campbell, *inventors*; Arizona State University, Skysong Innovations, *assignee*. 2017. United States provisional patent application for systems and methods for rapid-prototyped robotic devices. *US Patent Application No. 62/597,276*. Filed 11 December 2017.

### Featured Media

Adams, D. 2017. "An army of these odd-looking robotic 'turtles' might help rid the world of landmines". *Digital Trends*. 26 May.

Ander, J. 2017. "Landmine-clearing Pi-powered C-Turtle". *Raspberry Pi Official Blog*. 26 July.

Coledewey, D. 2017. "These flat-pack turtlebots will crawl across minefields for safety's sake". *Tech Crunch*. 25 May.

Crookes, D. 2017. "C-TURTLE". *The MagPi Magazine*: Issue 63 1 November.

DeLisle, J.J. 2017. "Raspberry-Pi-powered turtle robot learns to navigate new terrains on its own - From planetary exploration to swarm robotic landmine sensing, C-Turtle's possibilities are endless". *Electronic Products*. 11 August.

Fagan, K. 2017. "The landmine-detecting robot 'turtle'". *BBC News*. 22 July.

Horsey, J. 2017. "Raspberry Pi used to create C-Turtle, landmine clearing robot". *Geeky Gadgets*. 27 July.

Kety, S. 2017. "'C-Turtle', the 3D printed robot whose movements are similar to a sea turtle". *3D Adept News*. 16 August.

Koslow, T. 2017. "Out of the shell - C-Turtle: the paper turtle robot that can detect landmines". *All3DP*. 20 August.

Lavars. N. 2017. "Turtle-bot teaches itself to waddle through the desert". *New Atlas*. 26 May.

Ludacer, R. 2017. "Researchers are using robotic sea turtles to find land mines". *Tech Insider*. 10 June.

Ray, A. 2017. "A new turtle explorer - This $70 robot that mimics a sea-turtle may eventually reach Mars". *Quartz*. 15 August.

Massaouden, L. 2017. "C-Turtle, le robot tortue en carton qui doit un jour explorer Mars". *Mashable avec France 24*. 25 August.

Mathews, L. 2017. "Robotic Turtles With Raspberry Pi Brains Are Sniffing Out Land Mines". *Geek.com*. 27 July.

Sabin, D. 2017. "This crawling C-Turtle robot could hunt for landmines". *Inverse*. 26 May.

Reynolds, M. 2017. "Robotic turtles can be used to detect landmines in the desert". *New Scientist Magazine*: Issue 3127. 24 May.

Sant, J.V. 2017. "ASU Robotics turns to nature for inspiration". KPHO Broadcasting Corporation: *3TV/CBS5*. 5 June.

Scott, C. 2017. "Partially 3D printed C-Turtle robots crawl and adapt in the desert". *3Dprint.com*. 17 August.

Seckel, S. 2017. "Technology comes from collaboration between computer science, mechanical engineering and biology". *ASU Now*. 25 May.

Seckel, S. 2017. "ASU-designed C-Turtle robot teaches itself to get around". *ASU Now*. 25 May.

Wehner, M. 2017. "These robotic turtles could save your life". *New York Post*. 25 May.

Unknown - 'Hackster Staff'. 2017. "Nature-inspired C-Turtle robot waddles the desert with ease". *Hackster*. 26 May.

Unknown - 'Gadget Junkie'. 2017. "C-Turtle: cardboard turtle robot with Raspberry Pi". *gadgetify*. 27 July.

Unknown - 'Robot Man'. 2017. "C-Turtle cardboard robot turtle learns to navigate different terrains". *Robotic Gizmos*. 27 July.

## *Conference Presentations*

**Jansen, M.A.**, & N.M. Franz. 2018."Comparative bending mechanics and morphology of the snout in *Curculio* Linnaeus 1756". *Annual Meeting of the Entomological Society of America*, Vancouver, BC.

**Jansen, M.A.**, Chawla, N., & N.M. Franz. 2017. "Fracture mechanics and evolution of resilient cuticle in the rostrum of *Curculio* Linnaeus, 1758". *Annual Meeting of the Entomological Society of America*, Denver, CO.

**Jansen, M.A.** & N.M. Franz. 2017. "Evolutionary mechanics of the rostrum in *Curculio* Linnaeus, 1758". *Annual Meeting of the Willi Hennig Society*, St. Petersburg, FL.

**Jansen, M.A.**, Luck, K., Campbell, J., Amor, H.B., & D. Aukes. 2017. "Bio-inspired robot design considering load-bearing and kinematic ontogeny of Chelonioidea sea turtles". *Living Machines*, Stanford, CA.

Luck, K., **Jansen, M.A.**, Campbell, J., Aukes, D., & H.B. Amor. 2017. "From the lab to the desert: fast prototyping and learning of robot locomotion". *Robotics: Science and Systems*, Cambridge, MA.

**Jansen, M.A.** & N.M. Franz. 2016. "Why the long face? Insights into the mechanical behavior of the rostrum in the genus *Curculio* Linnaeus, 1758". International Congress of Entomology, Orlando, FL.

**Jansen, M.A.**, Singh, S.S., Chawla, N., & N.M. Franz. 2015. "Mechanical Behavior of the Rostrum of *Curculio* Linnaeus, 1758 (Coleoptera: Curculionidæ)". Annual Meeting of the Entomological Society of America, Minneapolis, MN.

**Jansen, M.A.** & N.M. Franz. 2014. "A phylogenetic revision of *Minyomerus* Horn, 1876, and *Piscatopus* Sleeper, 1960 (Coleoptera: Curculionidæ: Entiminæ: Tanymecini)". Annual Meeting of the Entomological Society of America Pacific Branch, Tucson, AZ.

**Jansen, M.A.** & N.M. Franz. 2013. "A phylogenetic revision of *Minyomerus* Horn, 1876, and *Piscatopus* Sleeper, 1960 (Coleoptera: Curculionidæ: Entiminæ: Tanymecini)". Annual Meeting of the Entomological Society of America, Austin, TX.

**Jansen, M.A.** & N.M. Franz. 2013. "A phylogenetic revision of *Minyomerus* Horn, 1876, and *Piscatopus* Sleeper, 1960 (Coleoptera: Curculionidæ)". 12th Biennial Conference of Science and Management on the Colorado Plateau, Flagstaff, AZ.

## *Society Memberships*

**2013 - 2018** Entomological Society of America, Pacific Branch
**2013 - 2018** Coleopterists Society

## *Awards and Fellowships*

**2019** $12,000.00 - ASU School of Life Sciences Completion Fellowship
**2018** $400.00 - ASU School of Life Sciences Fall Travel Award
**2018** $500.00 - ASU Q2 Graduate College Travel Award
**2018** $12,250.00 - ASU Biomimicry Center Fellowship
**2017** $500.00 - The Willi Hennig Society Student Travel Award
**2017** $400.00 - ASU School of Life Sciences Fall Travel Award
**2017** $195.00 - ASU Q2 Graduate College Travel Award
**2017** $6,000.00 - ASU Evolutionary Biology Doctoral Program Summer Fellowship
**2016** $400.00 - ASU School of Life Sciences Fall Travel Award

## *Academic Service*

### Manuscript Reviewer

Coleopterists Society Monographs (Patricia Vaurie Series)
The Pan-Pacific Entomologist
Zootaxa

### Book Chapter Reviews

"Weevils (Coleoptera: Dryophthoridæ, Brachyceridæ, Erirhinidæ, Curculionidæ) of the Prairie Ecozone in Canada". Robert S. Anderson, Patrice Bouchard, & Hume Douglas. In Volume 4 of *Arthropods of Canadian Grasslands*.

### Community Outreach

**2013 - 2016** ASU - SoLS Night of the Open Door
**2013 - 2016** ASU - IAFSE Engineering Open House
**2014 - 2015** ASU - SoLS Graduate Partners in Science Education

### Insect Identification Services

**2017 - 2018** US Department of Agriculture - Tempe, AZ, USA
**2017** Greater Good, Madrean Discovery Expedition - Cajón Bonito, SO, México
**2014** Madrean Discovery Expedition - Patagonia, AZ, USA
**2013** Madrean Discovery Expedition - Sierra la Púrica, SO, México
**2013** US National Park Service, BioBlitz - Joshua Tree National Park, CA, USA
**2012** Madrean Discovery Expedition - Sierra Aconchi, SO, México

### Design and Prototyping Services

**2017 - 2019** Laser cutting of insect mounting points for entomological collections (Western Entomological Supply)
**2018** 3D printing (filament extrusion) of curation equipment for insect specimens (Western Entomological Supply)
**2018** 3D printing (filament extrusion) of cassette cartridge spacer and brackets prototypes for TechShot

## *Programming Languages and Software*

### Languages

Most experienced with R, Python, and LaTeX
Some experience with Bash, Abaqus Script, MATLAB
Dabbled in HTML, XML, Visual Basic, Fortran, JavaScript, Git

### Software

Most experienced with Solidworks, Makerbot Print/Desktop, Adobe Illustrator
Some experience with Abaqus/CAE, GitHub Desktop
Dabbled in ImageJ, Adobe Photoshop, GraphPad Prism

## *Teaching Appointments*

| Course | Subject | Semester | Position |
|---|---|---|---|
| BIO 386 | Entomology | Fall - 2018 | Instructor |
| BIO 201 | Human Anatomy and Physiology | Spring - 2017 | Teaching Assistant |
| BIO 281 | Biology (1st Semester) | Fall - 2016 | Teaching Assistant |
| BIO 182 | Biology (2nd Semester) | Summer - 2016 | Teaching Assistant |
| BIO 181 | Biology (1st Semester) | Spring - 2016 | Teaching Assistant |
| BIO 386 | Entomology | Fall - 2015, 2014, 2013 | Teaching Assistant |
| BIO 282 | Biology (2nd Semester for Majors) | Spring 2014 | Teaching Assistant |

## *Field and Museum Work*

**Field Work**

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| **United States** | AZ, CA, CO, FL, GA, ID, NM, NV, SC, TX, UT (2010-2018) |
| **Mexico** | SO (2012, 2013, 2017) |
| **Guatemala** | AV, BV, CM, CQ, ES, GU, HU, IZ, JA, PR, QC, QZ, SA, SO, SR, SU, TO, ZA (2014) |

**Collections Visited**

**ASUT** USA, Arizona, Tempe, Arizona State University, Hasbrouck Insect Collection
**BYUC** USA, Utah, Provo, Brigham Young University, Monte L. Bean Life Science Museum
**CASC** USA, California, San Francisco, California Academy of Sciences
**CSCA** USA, California, Sacramento, California State Collection of Arthropods
**CSDS** USA, California, Baker, Desert Studies Center
**CSUC** USA, Colorado, Fort Collins, Colorado State University
**CWOB** USA, Arizona, Green Valley, Charles W. O'Brien Collection
**EMEC** USA, California, Berkeley, University of California, Essig Museum of Entomology
**FSCA** USA, Florida, Gainesville, Division of Plant Industry, Florida State Collection of Arthropods
**FSMC** USA, Florida, Gainesville, University of Florida, Florida Museum of Natural History
**LBOB** USA, Arizona, Green Valley, Lois B. O'Brien Collection
**MGCL** USA, Florida, Gainesville, University of Florida, McGuire Center for Lepidoptera and Biodiversity
**NAUF** USA, Arizona, Flagstaff, Northern Arizona University
**NMSU** USA, New Mexico, Las Cruces, New Mexico State University, Museum of Southwestern Biology
**NVDA** USA, Nevada, Reno, Nevada State Department of Agriculture
**RLAC** USA, California, El Dorado Hills, Rolf L. Aalbu Collection
**SWRS** USA, Arizona, Portal, Southwestern Research Station
**TAMU** USA, Texas, College Station, Texas Agricultural and Mechanical University
**TTUZ** USA, Texas, Lubbock, Texas Tech University
**UAIC** USA, Arizona, Tucson, University of Arizona
**UCDC** USA, California, Davis, University of California, R.M. Bohart Museum of Entomology
**UCRC** USA, California, Riverside, University of California, Entomology Research Museum
**UNMC** USA, New Mexico, Albuquerque, University of New Mexico
**UMNH** USA, Utah, Salt Lake City, University of Utah, Utah Museum of Natural History
**UVGC** Guatemala, Guatemala City, Universidad del Valle de Guatemala, Colleción de Artrópodos

## *Employment History*

**2012** Museum Technician - Florida State Collection of Arthropods & McGuire Center for Lepidoptera
**2011** Research Technician - Honeybee Research and Extension Laboratory, University of Florida
**2011** Research Assistant - Division of Insect Behavior, USDA-ARS, Gainesville, FL
**2009 - 2011** Senior Counsellor - Center for Precollegiate Education and Training, University of Florida