EMERSON AREHART

Salt Lake City, UT
+1 (775) 762-7551 / eejjaa@gmail.com

EDUCATION

Ph.D., Biology (Mathematical Ecology) **2021**
University of Utah, Salt Lake City, UT

- Dissertation Title: Quantifying the Fitness Benefit of Learning
- Advisor: Fred Adler

B.A., Mathematics **2008**
University of Nevada, Reno, NV

- Full Scholarship as a Nevada Millennium Fellow
- Minor in Journalism

Private Pilot's License **2011**

PUBLICATIONS

Arehart, E.; Jin, Tangxin; Daniels, B.C. Locating decision-making circuits in a heterogeneous neural network. *Frontiers in Applied Mathematics and Statistics*; 09 May 2018

Kuzma, H. A.; **Arehart, E.**; Louie, J. N.; Witzleben, J. L. The ear, the eye, earthquakes and feature selection: listening to automatically generated seismic bulletins for clues to differentiating between true and false events. *European Geophysical Union General Assembly Reports*; April 2012

SELECTED PRESENTATIONS

Poster: **Arehart, E**. Quantifying the fitness benefit of sensory learning as a function of environmental complexity. Winner of the Alfred J. Lotka Prize.
Ecological Society of America Annual Meeting, Louisville, KY August 2019

Poster: **Arehart, E.** and Dentinger, B. Genome Sequencing and Population Genetics of an endangered Chilean mushroom, Boletus loyo
Environment & Sustainability Research Symposium, University of Utah February 2019

Poster: Kuzma, H.A.; **Arehart, E**. Listening to Seismic Events: Is the ear easier to train than the eye?
Comprehensive Test-Ban Treaty Organisation Science and Technology Conference, Vienna, Austria June 2011

Invited Talk: Arehart, E. Mutating Math: Approaches to developing effective tools for modeling and solving in complex systems**.**
Department of Geophysics, UC Berkeley May 2009

FELLOWSHIPS AND AWARDS

2019 Alfred J. Lotka Prize for Best Theoretical Ecology Poster at Ecological Society of America conference
2018 Global Change and Sustainability Center Research Grant, University of Utah, $2,000
2016 Global Change and Sustainability Center Fellowship (1 year), University of Utah
2005 MacMillan Award for Short Fiction, University of Nevada
2003 Nevada Millennium Scholar
2003 National Merit Scholar Finalist

TEACHING EXPERIENCE

Spring 2020 Teaching Assistant: Statistics for Biologists (Graduate Level), University of Utah
Spring 2019 Teaching Assistant: Urban Ecology, University of Utah
Fall 2018 Teaching Assistant: Entomology, University of Utah
Fall 2017 Teaching Assistant: Mycology, University of Utah
Fall 2017 Teaching Assistant: Mathematical Modeling for Biologists, University of Utah

SELECTED PROFESSIONAL EXPERIENCE

Consulting **2010-2016**
Self-employed, Reno, NV and Austin, TX
I developed and implemented creative solutions to complex technical and business problems. Select projects:

- **Lab7.io:** Made complex and abstract software platform accessible and easy to use for scientists, lab technicians, and developers through documentation and interface design.
- **Genformatic LLC:** Consulted on security algorithm design for transmitting confidential genomic data. Discovered conceptual flaws leading to complete redesign of the project.
- **Comprehensive Test-Ban Treaty Organization:** Developed a novel auditory interface for discerning potential nuclear test events from earthquakes

Content Writer
***Impact Mill* (*formerly eEcosphere*),** Austin, TX **2016**

- Wrote about complex environmental topics for a general audience.

Technical Writer
Spredfast, Austin, TX **2014**

- Streamlined existing content, generated new documentation and developed support strategy for merging software companies. Projects completed in ¼ of allotted time.

Queen Breeder
BeeWeaver Apiaries, Austin, TX **2013-2014**

- Managed apiary of 1500+ hives, taught beginner/advanced beekeeping lessons, and produced approximately 10,000 queen bees per year.

Interaction Designer/Data Scientist
***BetaZi Predictive Analytics*,** Truckee, CA **2011-2012**

- Designed front- and back-end data flow, data processing, and user interfaces for statistical analysis software.

Game Designer
International Game Technology (IGT), Reno, NV **2008-2010**

- Designed and calculated math for casino games
- Led a diverse team of 20+ artists and engineers to develop and deliver games in record time.

ACADEMIC SERVICE AND OUTREACH

2019-2020 Chair of the Graduate Student Advisory Committee, School of Biological Sciences, University of Utah

2019	Graduate Student Representative for School of Biological Sciences to SACNAS (Society for the Advancement of Chicano and Native American Students) Conference, Honolulu, Hawaii
2018-2019	Graduate Student Invited Speaker Organizer, School of Biological Sciences, University of Utah
2018-2019	Graduate Student Admissions Committee, School of Biological Sciences, University of Utah
2017	STEM Ambassador, University of Utah
2017	8th Grade Science Fair Student Mentor, Salt Lake Center for Science Education
2017	Lead Instructor, Empowering Through Stem Outreach, Glendale Public Library, Salt Lake City

FIELD EXPERIENCE

2019 **Study of microbial growth near industrial sites (Stirling, Scotland)**
Funded by Diageo
Surveyed microbial growth on man-made surfaces in an urban/suburban setting.

2019 **Loyo mushroom collecting expedition (Valdivia, Chile)**
Funded by a Global Change and Sustainability Center Grant to E. Arehart, with additional support from the Natural History Museum, University of Utah
Collected specimens of a rare mushroom; used for first genome sequencing of the species, and data used to achieve IUCN Red List status for the species.

2018 **Collecting Expedition (Dja Preserve, Cameroon)**
Funded by the University of Utah
Collected specimens in remote areas of Congo Basin rainforest.

2017 **Beekeeping Documentary (Camaguey, Cuba)**
Funded by National Geographic
Consulted on beekeeping techniques and honeybee biology for a documentary film crew.

2006-2007 **Wetland Restoration (various sites across Nevada)**
Otis Bay Ecological Consultants
Led amphibian and plant surveys on public and private wetland restoration sites, including Ash Meadows National Wildlife Refuge, Soldier Meadows, and McCarran Ranch.

SELECTED TRAINING

2018	Workshop: Data-Driven Modeling of Collective Behavior, Mathematical Biosciences Institute, Ohio State University, Columbus, OH
2017	Workshop: Data-Driven Modeling of Collective Behavior and Emergent Phenomena in Biology, Statistical and Applied Mathematical Sciences Institute, Durham, NC