

Yunyi Shen

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Education

- 2022 – **Massachusetts Institute of Technology**, Cambridge, MA, United States
PhD, Computer Science
- 2019 – 2021 **University of Wisconsin-Madison**, Madison, WI, United States
MSc, Statistics
- 2018 – 2021 **University of Wisconsin-Madison**, Madison, WI, United States
MSc, Wildlife Ecology
- 2014 – 2018 **Peking University**, Beijing, China
BSc, Integrated Science/Physics & Biology

Publications and Preprints

Working papers

Yunyi Shen, Sameer K. Deshpande, and Claudia Solís-Lemus. Sparse gaussian chain graph learning using the spike-and-slab LASSO. *in prep*, 2022+

Yunyi Shen, Amber Medina, Joshua Speagle, Vianey Leos-Barajas, and Gwendolyn Eadie. Simultaneous detrending and flare detection from photometrical data using Gaussian process combined with hidden Markov model. *in prep*, 2022+

Preprints

Yunyi Shen and Claudia Solís-Lemus. The effect of the prior and the experimental design on the inference of the precision matrix in gaussian chain graph models. *arXiv preprint arXiv:2107.01306*, 2021

Yunyi Shen and Claudia Solís-Lemus. Bayesian conditional auto-regressive LASSO models to learn sparse microbial networks with predictors. *arXiv preprint arXiv:2012.08397*, 2020

Peer reviewed

Yunyi Shen, Mingzhang Liu, Dajun Wang, Xiaoli Shen, and Sheng Li. Using an integrative mapping approach to identify the distribution range and conservation needs of a large threatened mammal, the asiatic black bear, in china. *Global Ecology and Conservation*, 31:e01831, 2021

Yunyi Shen, Erik R Olson, and Timothy R Van Deelen. Spatially explicit modeling of community occupancy using markov random field models with imperfect observation: Mesocarnivores in apostle islands national lakeshore. *Ecological Modelling*, 459:109712, 2021

Jianping Yu, **Yunyi Shen**, Xiaoyou Song, Xiaonan Chen, Sheng Li, and Xiaoli Shen. Evaluating the effectiveness of functional zones for black muntjac (*muntiacus crinifrons*) protection in qianjiangyuan national park pilot site. *Biodiversity Science*, 27(1):5, 2019

Awards and Honor

- 2020 Finalist of Janice Lee Fenske Memorial Award of TWS
- 2019 Conservation Leader for Tomorrow Scholarship
- 2017 Peking University Annual Award in Social Works

Grants Funded

Co-PI

- 2024-2024 National Park Services PMIS 322581, National Park Services (pending final approval), PI: Timothy Van Deelen

Co-Investigator

- 2020-2022 Hatch 142 Formula Fund 1023699, USDA, PI: Claudia Solís-Lemus
- 2021-2023 DSI Catalyst Fund, University of Toronto, PI: Gwendolyn Eadie

Invited Talks

- 2022 JSC 270/370 Seminar, University of Toronto DoSS. "Stellar flare detection using HMMs"

Selected Conference Talks

Yunyi Shen, Fan Fan, Sheng Li, and Claudia Solís-Lemus. Direct (conditional) and net (marginal) effects of environmental predictors in multivariate normal and autologistic models for multispecies modeling. 2022 International Statistical Ecology Conference, 2022

Yunyi Shen, Dwayne Etter, and Timothy Van Deelen. Age structure effects and population control in urban/suburban white-tailed deer, Chicago, IL 1992-2006. 2020 Midwest Fish and Wildlife Conference, 2020

Dwayne Etter, Timothy R Van Deelen, John Humphreys, Gary Roloff, and **Yunyi Shen**. Managing white-tailed deer under an evolving paradigm: Effects of density-dependence. In *American Fisheries Society & The Wildlife Society 2019 Joint Annual Conference*. AFS, 2019

Software

R packages CARlasso: Conditional autoregressive LASSO and extensions, CRAN
linconGaussR: Sampling multivariate Gaussian under linear constraint, CRAN
robustcov: Collection of robust precision estimation, CRAN
Stan CeleriteQFD: Stellar flare detection using Gaussian process combined with HMM, GitHub

Teaching

2018-2019 Chemistry 103-104 TA, UW-Madison
2016-2017 Evolution of Human Intelligence TA, Peking University

Services

Reviewing Ecosphere, Biodiversity & Conservation
Consulting Statistical consulting, Qianjiangyuan National Park, Zhejiang, China, 2019-2020

Outreach

2021 PBS WI meet the lab "data decoder", as "data scientist", see website
2018 Peking University Biology Museum, as docent
2016 *Bo Wo*, Chinese National Geography Magazine, as editor