

# HENRY R. SCHARF

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## CONTACT INFORMATION

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## RESEARCH EMPLOYMENT

*Assistant Professor* 2019–Current  
San Diego State University, San Diego, California

*Postdoctoral Fellow* 2018–2019  
Colorado State University, Fort Collins, Colorado

*Research Assistant* 2014–2017  
Colorado State University, Fort Collins, Colorado  
Supervisor: Mevin Hooten

*Research Assistant* 2013–2014  
National Renewable Energy Lab, Golden, Colorado  
Supervisors: Ryan Elmore, Jay Breidt

## EDUCATION

### Colorado State University, Fort Collins, Colorado USA

PhD in Statistics 2017  
Advisor: Mevin Hooten

MS in Statistics 2014

### University of Arizona, Tucson, Arizona USA

MEd in Teaching and Teacher Education 2008

BS in Mathematics and Physics 2007  
*Cum laude* with Honors

## PUBLICATIONS

**Scharf, H. R.** (In review). Statistical analysis of animal movement: Understanding behavior through hierarchical parametric models.

**Scharf, H. R.**, A. M. Raiho, S. Pugh, C. A. Roland, D. K. Swanson, S. E. Stehn, M. B. Hooten (In review). Multivariate Bayesian clustering using covariate-informed components with application to boreal vegetation sensitivity.

Reimer, J. R., J. Arroyo-Esquivel, J. Jiang, **H. R. Scharf**, E. M. Wolkovich, K. Zhu, C. Boettiger (In review). Long transient dynamics in the presence of noise.

**Scharf, H. R.**, X. Lu, P. J. Williams, M. B. Hooten (In review). Hierarchical approaches for flexible and interpretable binary regression models. (preprint)

**Scharf, H. R.**, F. Buderman (2020). Animal movement models for multiple individuals. *Wiley Interdisciplinary Reviews: Computational Statistics*, e1506. (pdf)

**Scharf, H. R.**, M. B. Hooten, R. R. Wilson, G. M. Durner, T. C. Atwood (2019). Accounting for phenology in the analysis of animal movement. *Biometrics*, 75: 810–820. (preprint)

Hooten, M. B, **H. R. Scharf**, J. M. Morales (2019). Running on empty: Recharge dynamics from animal movement data. *Ecology Letters*, 22, 377–389. (preprint).

Hooten, M. B., **H. R. Scharf**, T. J. Hefley, A. T. Pearse, M. D. Weegman (2018). Animal movement models for migratory individuals and groups. *Methods in Ecology and Evolution*, 9, 1692–1705. (pdf)

**Scharf, H. R.**, M. B. Hooten, D. S. Johnson, J. W. Durban (2018). Process convolution approaches for modeling interacting trajectories. *Environmetrics*, e2487. (pdf)

**Scharf, H. R.**, M. B. Hooten, D. S. Johnson (2017). Imputation approaches for animal movement modeling. *Journal of Agricultural, Biological and Environmental Statistics*, 22(3), 335–352. (pdf)

Hefley, T. J., K. M. Broms, B. M. Brost, F. E. Buderman, S. L. Kay, **H. R. Scharf**, J. R. Tipton, P. J. Williams, and M. B. Hooten. (2017). The basis function approach to modeling autocorrelation in ecological data. *Ecology*, 98(3), 632–646. (pdf)

**Scharf, H. R.**, M. B. Hooten, B. K. Fosdick, D. S. Johnson, J. M. London, and J. W. Durban. (2016). Dynamic social networks based on movement. *Annals of Applied Statistics*, 10(4), 2182–2202. (pdf)

<b>SPONSORED RESEARCH</b>	<i>Broadening the impact and accessibility of animal movement models</i> University Grants Program, SDSU. Total Award: \$10,000. Role: PI.	2020–2021
<b>INVITED CONFERENCE PRESENTATIONS</b>	<i>Multivariate Bayesian clustering using covariate-informed components with application to boreal vegetation sensitivity</i> Joint Statistical Meetings, Seattle, WA, USA	2021
	<i>Statistical models for dependent trajectories with application to animal movement</i> Joint Statistical Meetings, Denver, CO, USA Topic contributed session for ISBA Savage Award finalists	2019
	<i>Animal movement models for migratory individuals and groups</i> The Wildlife Society Annual Conference, Cleveland, OH Symposium: <i>Animal movement: Advances in movement modeling and their applications</i>	2018
	<i>Imputation approaches for animal movement modeling</i> Joint Statistical Meetings, Vancouver, BC, Canada Invited session	2018
	<i>Dynamic Social Networks Based on Movement</i> Joint Statistical Meetings, Chicago, IL Student paper award winner (ENVR)	2016
<b>DEPARTMENTAL SEMINARS</b>	<i>Multi-layered convolutional Gaussian process models for animal movement</i> Computational Sciences Research Center, San Diego State University	2020

	<i>Statistical models for heterogeneous animal movement</i> Department of Statistics & Data Science, University of Texas at Austin	2019
<b>CONTRIBUTED PRESENTATIONS</b>	<i>Accounting for phenology in the analysis of animal movement</i> International Statistical Ecology Conference, University of St. Andrews, Scotland	2018
	<i>Process convolution approaches for modeling interacting trajectories</i> Joint Statistical Meetings, Baltimore, MD	2017
	<i>Process convolution approaches for modeling interacting trajectories</i> Statistics Department at Colorado State University, Fort Collins, CO. Poster	2017
	<i>Dynamic Social Networks Based on Movement</i> International Statistical Ecology Conference, Seattle, WA	2016
	<i>Spatiotemporal Models for Animal Social Structure</i> Joint Statistical Meetings, Seattle, WA	2015
	<i>Spatiotemporal Models for Animal Social Structure</i> Statistical and Applied Mathematical Sciences Institute ECOL: Transitional Workshop Research Triangle Park, NC	2015
	<i>Dynamic social networks based on movement</i> Graduate Student Showcase, Fort Collins, CO. Poster	2015
	<i>Spatiotemporal models for animal social structure</i> Statistics Department at Colorado State University, Fort Collins, CO. Poster	2015
	<i>Novel visualization and analysis for extreme-scale wind turbine simulations</i> Conference on Data Analysis, Santa Fe, NM. Poster	2014
<b>TEACHING</b>	<i>Applied Spatio-Temporal Statistics</i> (SDSU: STAT 596/696) Instructor	Spring 2021, Spring 2020
	<i>Statistical Computing</i> (SDSU: STAT 580) Instructor	Fall 2020
	<i>Introduction to Statistical Learning</i> (SDSU: STAT 596) Instructor	Fall 2019
	<i>Statistics for Business Students</i> (CSU: STAT 204) Instructor	Spring 2013
	<i>Statistics for Business Students</i> (CSU: STAT 204) Teaching Assistant	Fall 2012
	<i>Geometry and intermediate algebra</i> Teacher Tucson High Magnet School, Tucson, Arizona	2009–2010

	<i>Intermediate algebra</i>	2009
	Teacher Flowing Wells High School, Tucson, Arizona	
<b>WORKSHOPS &amp; SHORT COURSES</b>	<i>Workshop: Statistical Models for Animal Movement</i> Co-instructor Day-long workshop on animal movement modeling with examples in R	
	EURING Analytical Meeting & Workshop Québec City, PQ, Canada	2021
	International Association for Landscape Ecology annual meeting Fort Collins, CO, USA	2019
	International Statistical Ecology Conference University of St. Andrews, Scotland	2018
	<i>Training in Bayesian Modeling for Practicing Ecologists.</i> Co-instructor NSF-supported two-week workshop Intensive training in Bayesian modeling Colorado State University, Fort Collins, CO	2016
	<i>R Workshop</i> Co-instructor Day-long tutorial on R for ecologists Colorado State University, Fort Collins, CO	2015
	<i>Tutorial on Parallel Programming in R</i> Co-Developer Workshop on Parallel Computing, UC Boulder/CSU	2015
	<i>Tutorial on Parallel Programming in R</i> Co-Developer Conference on Statistical Practice 2015, New Orleans, LA	2015
<b>AWARDS</b>	ISBA Savage Award - Applied Methodology <i>The Savage Award, named in honor of Leonard J. "Jimmie" Savage, is bestowed each year to two outstanding doctoral dissertations in Bayesian econometrics and statistics.</i> Amount: \$750 + \$500 travel support	2018
	James L., M. Leslie, & Edna Madison Memorial Award <i>This award is given each year to the student selected by the statistics faculty at Colorado State University as the outstanding graduate student in the Department of Statistics and/or the Department of Mathematics</i> Amount: \$675	2017
	J.E. Moyal Award for Applied Probability <i>This award, which is not given annually, is given in recognition of academic excellence in applied probability by the statistics faculty at Colorado State University.</i> Amount: \$500	2016

Student paper award: Section on Statistics and the Environment <i>This award includes travel assistance to present in an invited session at the Joint Statistical Meetings 2016 in Chicago, IL.</i> Amount: \$1000	2016
Joint Statistical Meetings travel award from the ASA Amount: \$900	2014
SAMSI Program on Mathematical and Statistical Ecology opening workshop travel award Amount: \$470 + lodging	2014
Pan-American Advanced Study Institute travel award from STATMOS Amount: \$4000	2014
Graybill Award for Excellence in Linear Models <i>This award was established in 1975 to honor the many contributions of Frank Graybill, founder and former chairman of the Statistics Department at Colorado State University. It is awarded annually to a graduate student who is selected as the top student in linear models.</i> Amount: \$1000	2014
James S. Williams Scholarship <i>This scholarship was established in 1991 in memory of Professor James S. Williams to encourage new students to join the graduate program in Statistics at Colorado State University.</i> Amount: \$1,500	2013
Design and Analysis of Experiments Conference travel award Amount: \$700	2012

**SERVICE**

Reviewer for the following journals: <i>Annals of Applied Statistics</i> <i>Computational Statistics and Data Analysis</i> <i>Environmetrics</i> <i>Journal of Agricultural, Biological, and Environmental Statistics</i> <i>Journal of Computational and Graphical Statistics</i> <i>Ecological Monographs</i> <i>Ecology</i> <i>Methods in Ecology and Evolution</i> <i>Network Science</i> <i>Proceedings of the Royal Society: Series B</i> <i>PLOS ONE</i>	
Secretary: American Statistical Association Section on Statistics and the Environment (ENVR)	2020
Treasurer: American Statistical Association Section on Statistics and the Environment (ENVR)	2019
Session chair: Joint Statistical Meetings <i>Statistical Models in Ecology</i>	2018
<i>Spatio-Temporal Methods in Ecology and Epidemiology</i>	2017
<i>Advances in Ecological Modeling</i>	2014

	Colorado State University Department of Statistics chair search Committee member	2016
	Leader of discussion group composed of graduate students from departments of Statistics, Ecology, and Fish, Wildlife, and Conservation Biology. In coordination with the CSU Statistics department seminars.	2015–2018
	Undergraduate researcher advisor <i>Modeling Vegetation Structure on Department of Defense Lands with Remote Sensing Data</i>	2013
<b>R PACKAGES</b>	<b>Scharf, H. R.</b> (2020). <i>anipaths</i> : Animation of observed trajectories using spline-based interpolation. R package version 0.9.8.	
<b>COMMITMENT TO DIVERSITY</b>	Panelist: 2019 Career Issues Panel Women in Science Symposium	2019
	Panel moderator, organizer: Women in Science Symposium Topics of discussion included: <i>Practical suggestions for recruiting, retaining, and promoting women Insight into implicit and explicit bias Tips to initiate your own Career Issues small group Networking opportunities with men and women from academic, industry and the Front Range community to promote gender equality</i>	2018
	<i>Career issues</i> Graduate student-initiated discussion group made up of students, and junior, mid-career, and senior faculty from multiple departments. Topics included: strategies for career advancement for women, awareness of systemic sexism in academia, and increasing participation of women in academia and STEM fields in particular.	2015–Current
<b>OTHER CONFERENCES &amp; WORKSHOPS</b>	Participant in NIMBioS Investigative Workshop <i>Transients in Biological Systems</i> .	2019
	Member of the working group <i>Network Models</i> in the SAMSI 2014-15 Program on Mathematical and Statistical Ecology (ECOL).	2014–2015
	Pan-American Advanced Studies Institute (Buzios, Brazil) Workshop focused on spatiotemporal statistics, with a special emphasis on international collaboration.	2014
	Design and Analysis of Experiments Conference	2012
<b>PROFESSIONAL AFFILIATIONS</b>	International Biometric Society WNAR region	2017–Current
	International Society for Bayesian Analysis	2017–Current
	Institute of Mathematical Statistics	2015–Current

