

# Yu Jade Zhang

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305 Hilgard Hall, University of California, Berkeley, CA94720  
510-612-5488 · fax 510-632-5438 · yzh828@berkeley.edu

## EDUCATION

- 2012 – Pres. **University of California**, Berkeley, CA  
*Ph.D. candidate in Environmental Science, Policy and Management*  
*Designated Emphasis in Communication, Computation and Statistics, advised*  
*by John Harte*  
Dissertation: Population demographics and species coexistence derive from resource allocation statistics
- 2010 – 2012 **China Center for Economic Research**, Beijing, China  
*B.A. Economics, advised by Wen Hai, Ph.D.*  
Thesis: Cost analysis of wind vs fossil fuel energy in Northern China
- 2008 – 2012 **Peking University**, Beijing, China  
*B.S. Ecology, advised by Wei Wang, Ph.D.*  
Thesis: Global pattern of litter decomposition influencing factors: biotic, abiotic and spatial effects

## RELEVANT SKILLS

Main expertise: Statistics, predictive modeling, machine learning  
Programming language: R, Python, Matlab/Octave  
Other tools: GitHub, ArcGIS, Microsoft Office, SQL

## EXPERIENCE

- 2014 - present **University of California**, Department of Environmental Science, Policy and Management, Berkeley, CA  
*Data Analyst and Model Designer, Cross-scale and dynamic pattern of species abundance distribution (SAD)*
- Collected and preprocessed 19 macroecological datasets from three continents.
  - Conducted stochastic simulation using dynamic programming with different theoretical models (in R).
  - Extracted and compared empirical patterns in SAD with model predictions (in Python).
- 2012- present **University of California**, Energy and Resource Group, Berkeley, CA  
*Graduate student researcher, Development and testing of Maximum Entropy Theory of Ecology*
- Apply stochastic simulation and combinatorics to existent theoretical framework to predict community dynamics, species interactions and spatial distributions.

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- 2013 - 2014 ● Conduct empirical test with field data from online open sources (in R).  
**Rocky Mountain Biological Lab**, Crested Butte, CO  
*Principal Investigator, Macroecological patterns of subalpine meadow plant species*
- Designed and set up sample transects
  - Collected, compiled and compared data with multiple statistical models with Macroeco package in Python
- 2010 – 2012 ● **Peking University**, Department of Ecology, Beijing, China  
*Research assistant, Global patterns of litter decomposition*
- Established and analyzed a global database of leaf litter decomposition: biotic and abiotic factors considering spatial autocorrelation

## TEACHING & MENTORING EXPERIENCE

- 2014 ● **Rocky Mountain Biological Lab**, Crested Butte, CO
- Volunteered as instructor for undergraduate R and ArcGIS tutorials in the computer lab
- 2013 ● **University of California**, Geospatial Innovation Facility, Berkeley, CA
- Led tutorials for Maximum Entropy Modeling in Spatial and Dynamic Modeling workshop

## RELEVANT PUBLICATIONS

**Yu J. Zhang**, John Harte, 2015. “*Demographics and competitive outcomes derive from resource allocation statistics: the governing influence of distinguishability of individuals*”, *Theoretical Population Biology*

## RELEVANT PRESENTATIONS

**Zhang, Y.J.**, Harte John Ecological Society of America 2015, “Resource-constrained population dynamics derive from maximizing allocation microstates”, Baltimore Convention Center, MD (invited) **Zhang, Y.J.** Berkeley Initiative of Global Change Biology Workshop 2014. “From atom to ecosystem: population demographics and species coexistence based on Bose-Einstein statistics” Berkeley, CA

## RECENT ACTIVITIES

- Profile model, Kickstarter project “Women who love math and science” (2014) <http://www.girlsseeitbeit.com/>
- Member, Berkeley Institute of Data Science (2014)
- Secretary of Public Relation, Chinese Graduate Student and Scholar Association (2013-2014) <http://cgpsa.net/>

## PERSONAL WEBSITE (INCLUDING PROJECT SHOWCASE)

<http://jade-yu.com/>