

# Curriculum Vitae

## Chao Fan

Department of Geography  
University of Idaho  
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### Education

- Ph.D.**                      **Geography**  
Arizona State University, USA, 2016
- M.A.**                      **Geography**  
Arizona State University, USA, 2013
- B.E.**                      **Geographic Information Systems and Remote Sensing**  
Wuhan University, China, 2010

### Professional Appointments

- 08/2017 –                      **Assistant Professor**  
Department of Geography  
University of Idaho, Moscow, ID
- 08/2016 – 07/2017              **Postdoctoral Research Scientist**  
Keller Science Action Center  
The Field Museum, Chicago, IL
- 08/2010 – 08/2016              **Graduate Research/Teaching Assistant**  
School of Geographical Sciences and Urban Planning, Arizona  
State University, Tempe, AZ

### Research Interests

- Geographic information science, spatial analysis and modeling
- Remote sensing, landscape ecology, vegetation modeling, crop mapping, urban heat island
- Spatial analytical methods, spatial econometrics

### Publications

#### Refereed Journal Articles

- 2017 **Fan, C.,** S.W. Myint, S. Kaplan, A. Middel, B. Zheng, A. Rahman, H.-P. Huang, A.J. Brazel, & D.G. Blumberg. “Understanding the impact of urbanization on surface urban heat islands—A longitudinal analysis of the oasis effect in subtropical desert cities”. *Remote Sensing*, 9, 672.
- 2017 **Fan, C.,** S.W. Myint, S.J. Rey, & W. Li. “Time series evaluation of landscape dynamics using annual Landsat imagery and spatial statistical modeling: Evidence from the Phoenix metropolitan region”. *International Journal of Applied Earth Observation and Geoinformation*, 58, 12-25.
- 2016 **Fan, C.,** S.J. Rey, & S.W. Myint. “Spatially filtered ridge regression (SFRR): A regression framework to understanding impacts of land cover patterns on urban climate”. *Transactions in GIS*. doi: 10.1111/tgis.12240
- 2016 Wang, Z.-H., **C. Fan,** S.W. Myint, & C. Wang. “Size matters: What are the characteristic source areas for urban planning strategies?” *PLoS ONE*, 11(11): e0165726. doi: 10.1371/journal.pone.0165726
- 2015 **Fan, C.,** W. Li, L.J. Wolf, & S.W. Myint. “A spatiotemporal compactness pattern analysis of congressional districts to assess partisan gerrymandering: A case study with California and North Carolina”. *Annals of the Association of American Geographers*, 105(4), 736-753.
- 2015 **Fan, C.,** S.W. Myint, & B. Zheng. “Measuring spatial arrangement of urban vegetation and its impacts on seasonal surface temperatures”. *Progress in Physical Geography*, 39(2), 199-219.
- 2015 Zhao, Q., S.W. Myint, E.A. Wentz, & **C. Fan.** “Rooftop surface temperature analysis in urban residential environment”. *Remote Sensing*, 7(9), 12135-12159.
- 2015 Myint, S.W., B. Zheng, E. Talen, **C. Fan,** S. Kaplan, A. Middel, M. Smith, H. Huang, & A.J. Brazel. “Does the spatial arrangement of urban landscape matter? Examples of urban warming and cooling in Phoenix and Las Vegas”. *Ecosystem Health and Sustainability*, 1(4): art15.
- 2014 **Fan, C.** & S.W. Myint. “A comparison of spatial autocorrelation indices and landscape metrics in measuring urban landscape fragmentation”. *Landscape and Urban Planning*, 121, 117-128.
- 2014 **Fan, C.,** B. Zheng, S.W. Myint, & R. Aggarwal. “Characterizing changes in cropping patterns using sequential Landsat imagery: An adaptive threshold approach and application to Phoenix, Arizona”. *International Journal of Remote Sensing*, 35(20), 7263-7278.
- 2014 Li, W., T. Chen, E.A. Wentz, & **C. Fan.** “NMMI: A mass compactness measure for spatial pattern analysis of areal features”. *Annals of the Association of American Geographers*, 104(6), 1116-1133.
- 2014 Zheng, B., S.W. Myint, & **C. Fan.** “Spatial configuration of anthropogenic land cover impacts on urban warming”. *Landscape and Urban Planning*, 130, 104-111.

- 2014 Kaplan, S., S.W. Myint, **C. Fan**, & A.J. Brazel. “Quantifying outdoor water consumption of urban land use/land cover: Sensitivity to drought”. *Environmental Management*, 53, 855-864.

#### Articles In Preparation

**Fan, C.**, Johnston, M., Darling, L., Scott, L., & Liao, F.H.F. “Urban forest in the Chicago region: A socioeconomic perspective”.

**Fan, C.**, W. Li, & E.A. Wentz. “Measuring spatial and temporal pattern of urban morphology through compactness pattern analysis: A case study in the Phoenix metropolitan area”.

Rindfuss, R.R., S.W. Myint, A.J. Brazel, **C. Fan**, B. Zheng, & K. Seto. “Urban heat islands: Global variation and determinants in hot desert and hot semi-arid desert cities”.

Myint, S.W., T. Zhu, B. Zheng, & **C. Fan**. “The WAVE-Class algorithm to identify land use and land cover classes using medium- and high-resolution satellite imagery”.

#### Refereed Conference Proceedings

- 2014 Myint, S.W., B. Zheng, **C. Fan**, & M. Smith. “The impact of spatial arrangements of built land cover types on urban warming”. *Proceedings of the 2014 Asian Conference on Remote Sensing*, Nay Pyi Daw, Myanmar, Oct 27-31, 2014.

#### **Honors and Awards**

- 2016 **Completion Fellowship Award**, Arizona State University
- 2014 **Anthony J. Brazel Research Award**, Arizona State University
- 2014 **Finalist**, Remote Sensing Specialty Group Honors Paper Competition, Annual Meeting of the Association of American Geographers, Tampa, Florida
- 2012 **Graduate Student Travel Award**, Arizona State University
- 2012 **Graduate JumpStart Research Award**, Arizona State University
- 2008 **The National English Competition (3<sup>rd</sup> place)**, Wuhan, Hubei, China
- 2006-2010 **Outstanding Student Scholarship**, Wuhan University

#### **Invited Talks**

**Fan, C.** “Urban Forest Composition Modeling over the Chicago Metropolitan Region”, The Field Museum Brown Bag Series, Jun 27, 2017, Chicago, IL, USA.

**Fan, C.** “Urban Forest Composition Modeling over the Chicago Metropolitan Region”, The Morton Arboretum Tree Talk Brown Bag Series, Jun 26, 2017, Lisle, IL, USA.

- Fan, C.** “A Spatial Econometric Framework for Evaluating Land Cover Impacts on Urban Climate”, Department of Geography Research Seminar, University of Wisconsin-Madison, Mar 6, 2017, Madison, WI, USA.
- Fan, C.** “A Spatial Econometric Framework for Evaluating Land Cover Impacts on Urban Climate”, Department of Geography Research Seminar, University of Idaho, Feb 14, 2017, Moscow, ID, USA.
- Fan, C.,** L. Darling, & M. Johnston. “Urban Forest Composition Mapping over the Chicago Region”, The Morton Arboretum Tree Talk Brown Bag Series, Jan 30, 2017, Lisle, IL, USA.
- Fan, C.** “Urban Forest Composition Modeling and Prediction: A Case Study over the Seven-county Chicago Metropolitan Region”, Chicago Region Trees Initiative Executive Advisory Council Meeting, Jan 13, 2017, Chicago, IL, USA.
- Fan, C.** & M. Johnston. “Urban Forest Composition Mapping: Variables of Interest and Hyperspectral Data Analysis”, Chicago Region Trees Initiative All Work Group Meeting, Dec 1, 2016, Lisle, IL, USA.
- Fan, C.** “A Spatial Statistical Framework for Evaluating Landscape Pattern and its Impacts on the Urban Thermal Environment”, Department of Atmospheric Sciences Research Seminar, University of Alabama at Huntsville, May 12, 2016, Huntsville, AL, USA.

### Conference Presentations

- Fahey, R., **C. Fan**, M. Johnston, B. Hardiman, L. Darling, L. Scott, C. Rollinson. “Modeling forest composition and biomass across large urbanized landscapes: A case study from the Chicago metropolitan region”, *Annual Meeting of the US International Association of Landscape Ecology*, Baltimore, MD, USA, Apr 9-13, 2017.
- Fan, C.,** M. Johnston, L. Darling, & L. Scott. “Urban forest composition mapping and modeling: Understanding our trees and making them grow better”, *Annual Meeting of the American Association of Geographers*, Boston, MA, USA, Apr 5-9, 2017.
- Fan, C.,** S.J. Rey, & S.W. Myint. “Spatially Filtered Ridge Regression (SFRR): A regression framework for evaluating land cover impacts on urban climate”, *Annual Meeting of the American Association of Geographers*, San Francisco, CA, USA, Mar 29-Apr 2, 2016.
- Fan, C.,** S.J. Rey, S.W. Myint, & W. Li. “A continuous approach to evaluating vegetation and built-up dynamics in a fast growing desert city”, *18th Annual CAP LTER Poster Symposium and All Scientists Meeting*, Scottsdale, AZ, USA, Jan 15, 2016.
- Myint, S.W., B. Zheng, **C. Fan**, S. Kaplan, A.J. Brazel, A. Middel, & M. Smith. “Exploring the influence of built and vegetative features on urban warming and cooling: Does spatial arrangement matter?”, *95<sup>th</sup> Annual Meeting of the American Meteorological Society*, Phoenix, AZ, USA, Jan 4-8, 2015.
- Fan, C.,** B. Zheng, S.W. Myint, & R. Aggarwal. “Monitoring cropping patterns using sequential

Landsat imagery: An adaptive threshold approach and its application in Phoenix, AZ”, *American Geophysical Union Fall Meeting*, San Francisco, CA, USA, Dec 15-19, 2014.

**Fan, C.** & S.W. Myint. “A comparison of spatial autocorrelation indices and landscape metrics in measuring urban landscape fragmentation”, *Annual Meeting of the American Association of Geographers*, Tampa, FL, USA, Apr 8-12, 2014.

**Fan, C.**, B. Zheng, S.W. Myint, & R. Aggarwal. “Mapping spatio-temporal patterns of cropping intensity using multi-temporal Landsat imagery”, *Water Resources Research Center 2014 Annual Conference*, Tucson, AZ, USA, Apr 8, 2014.

**Fan, C.**, B. Zheng, S.W. Myint, & R. Aggarwal. “Changes in cropping intensity in Phoenix, Arizona and its implications for future agricultural water use”, *16th Annual CAP LTER Poster Symposium and All Scientists Meeting*, Scottsdale, AZ, USA, Jan 17, 2014.

**Fan, C.** & S.W. Myint. “Scaling effects on landscape fragmentation characterized by two approaches: Spatial autocorrelation and landscape metrics”, *Annual Meeting of the American Association of Geographers*, Los Angeles, CA, USA, Apr 9-13, 2013.

Wentz, E.A. & **C. Fan**. “Small area urban environmental indicators of energy-water dynamics in a desert city”, *Annual Meeting of the American Association of Geographers*, Los Angeles, CA, USA, Apr 9-13, 2013.

**Fan, C.**, B. Zheng, & S.W. Myint. “Spatial arrangement of vegetation in relation to surface temperatures and UHI effect”, *Remote Sensing and Water Utilities Workshop*, Tempe, AZ, USA, Feb 28, 2013.

**Fan, C.** & S.W. Myint. “Characterizing landscape fragmentation in an urban environment: Comparing spatial autocorrelation indices and landscape metrics”, *Phenology Research and Observations of Southwest Ecosystems Symposium*, Tucson, AZ, USA, Oct 12, 2012.

**Fan, C.** & S.W. Myint. “Characterizing landscape fragmentation in an urban environment: Comparing spatial metrics and Getis statistic”, *Annual Meeting of the American Association of Geographers*, New York, NY, USA, Feb 24-29, 2012.

## Graduate Research Grants

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| 2016      | <b>Fan, C.</b> “A continuous and multiscale approach to characterize landscape pattern and its impacts on the urban thermal environment”. Graduate College, Arizona State University, \$9,500. |
| 2015-2016 | <b>Fan, C.</b> “Compact or sprawl? Impacts of urban form on climate change”. Central Arizona-Phoenix Long-Term Ecological Research (CAP LTER) Graduate Grant, \$4,000.                         |
| 2013-2014 | <b>Fan, C.</b> “Impacts of vegetation cover on urban warming: Does spatial arrangement matter?” CAP LTER Graduate Grant, \$4,000.  |
| 2012-2013 | <b>Fan, C.</b> “Developing urbanization models for Phoenix, AZ”. Graduate and  |

Professional Student Association, Arizona State University, \$230.

2011-2012 Kaplan, S. & Fan, C. "Actual evapotranspiration estimation for different land use and land cover in a desert city". CAP LTER Graduate Grant, \$4,000.

## Teaching Experience

Department of Geography, University of Idaho

Fall 2017 **Full Teaching Responsibility**  
Course: GIS Programming (GEOG 479)

School of Geographical Sciences and Urban Planning, Arizona State University

Fall 2014 **Guest Lecturer**  
Course: Advanced Digital Analysis (GPH 598)  
School of Geographical Sciences and Urban Planning  
Arizona State University

2010-2013 **Lab Instructor/ Teaching Assistant**  
Courses: Geographic Information Technologies (GPH 370)  
Geographic Information Science II (GPH 473)  
Quantitative Methods Geography and Planning (GCU 495)  
Introduction to Geographic Information Systems (GIS 601)

## Service to University and Community

### University

Arizona State University  
Grant Reviewer for CAP LTER Graduate Grant (Spring 2014)

### Profession

Spatial Analysis and Natural Resources, session chair, 2013 Annual Meeting of the Association of American Geographers, Los Angeles, CA, USA, April 9-13, 2013.

### Community

Cartographic design for the 17<sup>th</sup> Annual Calumet Heritage Conference: Calumet National Heritage Area: The Proposal (Oct 2016)  
GIScience Lecture Series at Brophy College Preparatory, Phoenix, AZ (Spring 2012)

### Journal Reviewer

Journal of Environmental Management (1)  
International Journal of Geographical Information Science (2)  
Transactions in GIS (3)  
Computers, Environment and Urban Systems (1)  
ISPRS International Journal of Geo-Information (2)

Annals of the Association of American Geographers (1)  
Professional Geographer (1)  
Remote Sensing (1)  
International Journal of Remote Sensing (2)  
GIScience and Remote Sensing (1)  
Landscape Ecology (1)  
Sustainability (1)  
Science of the Total Environment (1)  
Southeastern Geographer (1)  
Acta Geographica Slovenica (1)  
Sensors (1)  
Applied Spatial Analysis and Policy (1)  
Ambio (1)

**Professional Memberships**

The Association of American Geographers  
American Society for Photogrammetry and Remote Sensing  
American Geophysical Union