

# CHEYENNE LEI

Rm 2536, Samuel Trask Dana Building, 440 Church St, Ann Arbor, MI 48109 | cheylei@umich.edu | cheyenne@msu.edu

## EDUCATION

- Research Fellow** Aug 2022  
*University of Michigan, Institute for Global Change Biology*  
- Present  
Principal Investigators: Peter Reich, Ines Ibanez
- Ph.D. in Geography** Aug 2022  
*Michigan State University*  
Dissertation: “Albedo on Biofuel Ecosystems: Impact Assessment for Climate & Global Warming Impact”  
Guidance committee: Jiquan Chen; Philip Robertson; Joseph Messina; Lifeng Luo
- M.A. in Geography - Environmental & Resource Analysis** May 2016  
*Western Michigan University*  
Thesis: “Spatial, Temporal Variability & Trends Within the Tributaries of the Huron River: Effects on the Frequency of Flooding”  
Guidance committee: Laiyin Zhu; Kathleen Baker; David Lemberg
- Geographical Information Science Certificate** May 2016  
*Western Michigan University*
- Bachelor of Science - Earth Science** May 2014  
Northern Michigan University  
Major: Earth Science; Minor: Geomatics

## RESEARCH

- Research Fellow** Aug 2022  
*University of Michigan, School for Environment and Sustainability*  
*Institute for Global Change Biology*  
-Present
- Working group undergoing a synthesis on integrating albedo over multiple scales, landscape dynamics, and agronomic practices.
  - Investigation into precision of methods for measuring albedo and how albedo affects global warming potential over short-long scales.
- Graduate Research Assistant** Aug 2016  
*Michigan State University, Landscape Ecology & Ecosystem Science Lab (LEES)*  
– Aug 2022
- Assess global warming impact of biofuel crops using surface-induced reflectance and climate modelling.
  - Construct and maintain tower network at multiple biofuel crop ecosystems for the monitoring and analysis of albedo, climate and soil.
- Flux Tower Technician** June 2016  
*Michigan State University, Landscape Ecology & Ecosystem Science Lab (LEES)*  
– Present
- Construct, install and maintain eddy covariance and albedo towers in urban, agricultural, and forest ecosystems. Sites include W.K. Kellogg Biological Station (i.e. BCSE, Scale-Up), Michigan State University, W.K. Kellogg Experimental Forest, Battle Creek Math & Science Center and local farmsteads.
  - QA/QC and analyze data at multiple sites (i.e. LTER, Scale-Up, BCSE, KEF) for eddy covariance, solar/infrared radiation, atmosphere and climate.

**Graduate Research Assistant***Western Michigan University**W.E. Upjohn Center for the Study of Geographical Change*

- Imported raw map data, prepared master indices, verified data integrity. Created and published high resolution hybrid aerial and topographic maps distributed by Avenza Systems Inc.

Aug 2014 –  
Aug 2016*Western Michigan University**United States Department of Transportation Grant: Collaboration between Geography & Engineering Departments*

- Determined the equity of access to bike share programs in the United States.
- Sampled approximately 60 bike share programs, and examined factors such as socioeconomic status of the nearby areas, performance and quality of bikes, funding source, revenue, profit, and cost for consumer.

**Watershed Management Intern***Huron River Watershed Council*

- Monitored local water quality by recording stream depth, stream width, water temperature, water conductivity, and corresponding GPS and chronological metadata.
- Monitored and removed invasive species alongside the Huron River.

July 2013  
– Aug 2014**Watershed Management Intern***Alger County Conservation District*

- Monitored invasive plant species, and removed them with mechanical and herbicidal methods. All sightings and removals were recorded with time and GPS metadata.
- Collected water quality data (i.e. stream depth, stream width, water temperature, water conductivity) and inventoried micro invertebrate in streams.

May 2013  
– June  
2013**TEACHING****Keynote Speaker***United States-China Carbon Consortium, China University of Geosciences, Wuhan, China.*

- Title: “Understanding Global Warming Potential” (*Hybrid Meeting*)

Oct 2022

**Guest Lecturer***East China Normal University*

- Title: “Biophysical Models and Applications in Ecosystem Analysis” (*Virtual*)
- Short-term postgraduate course Nov 14-19, 2021. Taught class of approximately 600 consisting of students, faculty and scientists aspects of environmental modelling for ecosystem analysis.

Dec 2020

**Guest Lecturer***Beijing Normal University*

- Title: “Understanding Global Warming Impact” (*Virtual*)

Feb 2020

**Guest Lecturer***Integrative Biology (IBIO) 357 - Global Change Biology*

- Title: “Albedo and eddy covariance: Effects on climate & land use change”

**Co-Guest Lecturer***Great Lakes Bioenergy Research Center (GLBRC) Environmental Sustainability Meeting*

- Title: “GLBRC BCSE: Albedo”

Oct 2019

### Guest Lecturer

W.K. Kellogg Biological Station LTER All Scientist Meeting

- Title: “Surface reflectivity: Spatiotemporal variability of albedo in bioenergy cropping systems”

Sept 2019

### Guest Lecturer

GLBRC REUs from MSU Main Campus & UW - Tour of the Kellogg Biological Station

- Title: “Albedo in bioenergy cropping ecosystems”

June 2019

### Educational Outreach - Interactive Science Exploration

University of Wisconsin Science Expeditions: Destination for Exploration

- Collaboration with Wisconsin Energy Institute outreach team on helping develop an interactive educational activity on land-use/albedo research.

Apr 2019

### Graduate Teaching Assistant

Integrative Biology (IBIO) 355 – Ecology

- Taught class of junior and senior undergraduates at the W.K. Kellogg Biological Station in evolutionary and community ecology, population biology and climate change.

May 2018  
– Aug 2018

### Guest Lecturer

Geography (GEO) 892 – Micrometeorological Instrumentation & Measurements

- Provided hands-on experience in sensor and weather tower construction, how to wire, write and process data from popular data-loggers, instruction on using LoggerNet.

Fall 2017

## PUBLICATIONS

- Shirkey, G., John, R., Chen, J., Dahlin, K., Abraha, M., Sciusco, P., **Lei, C.**, & Reed, D. E. (2022). Fine resolution remote sensing spectra improves estimates of gross primary production of croplands. *Agricultural and Forest Meteorology*, 326, 109175. <https://doi.org/10.1016/j.agrformet.2022.109175>
- Ouyang, Z., Sciusco, P., Jiao, T., Feron, S., **Lei, C.**, Li, F., ... & Chen, J. (2022). Albedo changes caused by future urbanization contribute to global warming. *Nature Communications*, 13(1), 1-9. <https://doi.org/10.1038/s41467-022-31558-z>
- Sciusco, P., Chen, J., Giannico, V., Robertson, G.P., Abraha, M., **Lei, C.**, Shirkey, G., Yuan, J. (In Press, Feb 2022). Albedo-induced global warming impact (GWI  $\Delta\alpha$ ) of an Upper Midwest USA watershed — A significantly undermined regulator in climate mitigations. *Land*, 11(2), 283. <https://doi.org/10.3390/land11020283>
- Abraha, M., Chen, J., Hamilton, S. K., Sciusco, P., **Lei, C.**, Shirkey, G., Yuan, J., Hamilton, S.K., & Robertson, G. P. (2021). Albedo-induced global warming impact of Conservation Reserve Program grasslands converted to annual and perennial bioenergy crops. *Environmental Research Letters*, 16(8), 084059. <https://doi.org/10.1088/1748-9326/ac1815>
- Lei, C.**, Abraha, M., Chen, J., & Su, YJ. (2021). Long term variability of root production in bioenergy systems using ingrowth cores and eddy covariance. *Journal of Plant Ecology*. <https://doi.org/10.1093/jpe/rtab018>
- Chen, J., **Lei, C.**, & Sciusco, P. (2021). Modeling Ecosystem Global Warming Potentials. In Chen J. (Author), *Biophysical Models and Applications in Ecosystem Analysis* (pp. 119-150). East Lansing: Michigan State University Press. <https://doi.org/10.14321/j.ctv1h1vc27.11>

Dahlin, K. M., Akanga, D., Lombardozzi, D. L., Reed, D. E., Shirkey, G., **Lei, C.**, Abraha, M. & Chen, J. (2020). Challenging a Global Land Surface Model in a Local Socio-Environmental System. *Land*, 9(10), 398. <https://doi.org/10.3390/land9100398>

Sciusco, P., Chen, J., Abraha, M., **Lei, C.**, Robertson, G.P., Laforteza, R., Shirkey, G., Ouyang, Z., Zhang, R., & John, R. (2020). Spatiotemporal variations of albedo in managed agricultural landscapes: inferences to global warming impacts (GWI). *Landscape Ecology*, 35(6), 1385-1402. <https://doi.org/10.1007/s10980-020-01022-8>

**Lei, C.**, & Zhu, L. (2018). Spatio-temporal variability of land use/land cover change (LULCC) within the Huron river: effects on stream flows. *Climate Risk Management*, 19, 35-47. <https://doi.org/10.1016/j.crm.2017.09.002>

Scott-Smith, C., Oh, J.S., & **Lei, C.** (2015). Exploring the equity dimensions of US bicycle sharing systems (No. TRCLC 14-01). Western Michigan University. Transportation Research Center for Livable Communities. <https://doi.org/10.13140/RG.2.2.30941.72163>

#### *Under Review*

Reed, D., **Lei, C.**, Baule, W., Shirkey, G., Chen, J., Czajkowski, K. P., & Ouyang, Z. (Dec 2020). Impacts of an urban density gradient on land-surface thermodynamic fluxes across seasonal timescales. *International Journal of Climatology*.

#### *In preparation*

**Lei, C.**, Chen, J., & Robertston, P. (Final preparation). Climate Cooling Benefits of Cellulosic Bioenergy Crops due to Elevated Albedo. Submission to Global Change Biology: Bioenergy in November 2022.

**Lei, C.**, Chen, J., & Robertston, P. (Final preparation). Global warming impacts of converting forest into bioenergy croplands: Case study at the Kellogg Biological Station. Submission to Science of The Total Environment in December 2022.

**Lei, C.**, **Sciusco, P.**, Chen, J., Robertson, G. P., Lindback, E., Lei, M., Shirkey, G., & Arrocha, I. (Final preparation). Temporal variations of albedo on bioenergy crops: Effects on global warming potential during three cultivation seasons.

## INVITED TALKS

**Lei, C.**, Sciusco, P., Chen, J., Robertson, G. P., Lindback, E., Lei, M., Shirkey, G., & Arrocha, I. (2022). Land Cover and Climate alters surface albedo during cultivation seasons. *United States-China Carbon Consortium*. October 28-30, 2022. China University of Geosciences, Wuhan, China. Hybrid Meeting.

Chen, C., **Lei, C.**, Abraha, M., Robertson, G.P., Hamilton, S., Sciusco, P. (2020) Long-term changes in ecosystem carbon production and the role of albedo in regulating climate. *GLBRC Virtual Sustainability Meeting*. October 7-9, 2020, Virtual Conference.

Reed, D., **Lei, C.**, Baule, W.J., and Shirkey, G. (2019). Impacts of an urban density gradient on land-surface thermodynamic fluxes. February 2019, Wayne State University, MI.

**Stewart, C.** (2016). Spatial, temporal variability & trends within the tributaries of the Huron River: Effects on the frequency of flooding. *Landscape Ecology & Ecosystem Science Lab & Center for Global Change and Earth Observations*, March 2016, Michigan State University, East Lansing, MI.

## ORAL PRESENTATION

- Lei, C.,** Chen, J., Robertson, G.P. (2022). Land Cover and Climate alters surface albedo during cultivation season. *2022 Great Lakes Bioenergy Research Center Annual Science Meeting*. May 17<sup>th</sup> – 19<sup>th</sup>, Lake Geneva, WI.
- Lei, C.,** Chen, J., Robertson, G.P. (2021). Global warming impacts of converting forest into bioenergy croplands: Case study at the Kellogg Biological Station. *KBS-LTER Annual Science Meeting*. September 23<sup>rd</sup>, Hickory Corners, MI.
- Lei, C.,** Chen, J., Robertson, G.P. (2020). The climate cooling impact of albedo in perennial bioenergy croplands. *KBS-LTER Midterm Meeting*. September 9<sup>th</sup>-11<sup>th</sup>. Virtual Conference.
- Lei, C.,** Chen, J., Robertson, G.P. (2020). The climate cool impact of albedo in perennial bioenergy croplands. *Ecological Society of America Conference*, August 3<sup>rd</sup> – August 8<sup>th</sup>, Virtual Conference. <https://eco.confex.com/eco/2020/meetingapp.cgi/Paper/84459>
- Lei, C.** (2019). Albedo induced global warming potential in bioenergy cropping systems. *9<sup>th</sup> Annual Geography Graduate Student Presentation Competition*. March 29<sup>th</sup>, Geography Building, East Lansing, MI.
- Lei, C.** (2017). Analysis of ingrowth cores and flux variables on the variability of root production within agricultural regions. *Association of American Geographers Conference*, April 4<sup>th</sup> – April 9<sup>th</sup>, Boston, MA.
- Lei, C.** (2017). Analysis of ingrowth cores and flux variables on the variability of root production within agricultural regions. *7<sup>th</sup> Annual Geography Graduate Student Presentation Competition*, March 31<sup>st</sup>, Michigan State University, East Lansing, MI.
- Lei, C.** (2016). Spatial, temporal variability & trends within the tributaries of the Huron River: Effects on the frequency of flooding. *Association of American Geographers: East Lakes & West Lakes Geography Conference*, October 13<sup>th</sup> – 15<sup>th</sup>, Marquette, MI.
- Stewart, C.** (2016). Spatial, temporal variability & trends within the tributaries of the Huron River: Effects on the frequency of flooding. *Association of American Geographers Conference*, March 30<sup>th</sup> – April 3<sup>rd</sup>, San Francisco, CA.

## POSTER PRESENTATION

- Lei, C.,** Chen, J., Robertson, G.P. (2022). Global warming potential of modelling the conversion of forest into bioenergy croplands: Case study at the Kellogg Biological Station. *2022 Great Lakes Bioenergy Research Center Annual Science Meeting*. May 17<sup>th</sup> – 19<sup>th</sup>, Lake Geneva, WI.
- Lei, C.,** Chen, J., Robertson, G.P. (2022). Global warming impacts of converting forest into bioenergy croplands: Case study at the Kellogg Biological Station. *2022 Great Lakes Bioenergy Research Center Sustainability Meeting*. Feb 14<sup>th</sup> – 16<sup>th</sup>. Virtual Conference.
- Lei, C.,** Chen, J., Robertson, P. (2022). Long-term variability of root production in bioenergy crops from ingrowth core measurements. *Department of Energy Annual Review*, Jan 19<sup>th</sup> – 21<sup>st</sup>. Virtual Conference.
- Lei, C.,** Chen, J., Robertson, G.P. (2021). Global warming impacts of converting forest into bioenergy croplands: Case study at the Kellogg Biological Station. *KBS-LTER All-Scientist Meeting*. September 23<sup>rd</sup>, Kellogg Biological Station, MI.

- Lei, C.,** Chen, J., Robertson, G.P. (2021). Temporal variations of albedo on bioenergy crops: Effects of agronomic practices during three cultivation seasons. *Great Lakes Bioenergy Research Center Annual Science Meeting*. May 6<sup>th</sup>-10<sup>th</sup>. Virtual Conference.
- Lei, C.,** Chen, J., Robertson, P. (2020). Spatiotemporal variability in albedo of biofuel cropping systems. *Department of Energy Annual Review*, Jan 14<sup>th</sup> – 16<sup>th</sup>, Madison, WI.
- Lei, C.,** Chen, J., Robertson, P. (2019). Albedo induced global warming potential in bioenergy cropping systems. *Great Lakes Bioenergy Research Center Annual Science Meeting Poster Session*, May 21<sup>st</sup> – 23<sup>rd</sup>, Lake Geneva, WI.
- Lei, C.,** Chen, J., Robertson, P. (2019). Albedo induced global warming potential in bioenergy cropping systems. *Department of Energy Annual Review*, Jan 22<sup>nd</sup> – 24<sup>th</sup>, Madison, WI.
- Arrocha, I., **Lei, C.,** & Chen, J. (2019). Albedo on perennial versus annual biofuel croplands. Poster Presentation. *Mid-Michigan Symposium for Undergraduate Research Experiences*, July 24<sup>th</sup>, Michigan State University, East Lansing, MI.
- Lindback, E., **Lei, C.,** & Chen, J. (2018). Comparing albedo, foliar nitrogen content, and global warming potential of fertilized and unfertilized croplands at the Great Lakes Bioenergy Research Center. Poster Presentation. *Kellogg Biological Station Annual Symposium*, August 1<sup>st</sup>, Kellogg Biological Station, MI
- Shirkey, G., Sciusco, P., John, R., Reed, R., O'Brien, K., **Lei, C.,** Cooper, L., Chen, J., Dahlin, K. (2018). Integrating historical land cover and land management in Michigan's Kalamazoo Watershed: A story of carbon flux impact. *Great Lakes Bioenergy Research Center Annual Science Meeting Poster Session*, May 7<sup>th</sup> – 9<sup>th</sup>, Lake Geneva, WI.
- Lei, C.,** Abraha, M., Kahmark, K., Chen, J. Robertson, P., Hamilton, S. (2018). Spatiotemporal variability of albedo in diverse biofuel cropping systems. *Great Lakes Bioenergy Research Center Annual Science Meeting Poster Session*, May 7<sup>th</sup> – 9<sup>th</sup>, Lake Geneva, WI.
- Lei, C.** (2017). Analysis of ingrowth cores and flux variables on the variability of net ecosystem exchange and root production within ecosystem regions. *Council of Graduate Students Academic Conference*, February 25<sup>th</sup>, Michigan State University, East Lansing, MI.
- Scott-Smith, C., Oh, J.S., **Stewart, C.** (2015). Explorations into the equitable performance of U.S. bicycle sharing systems. *Association of American Geographers Conference*, April 21<sup>st</sup> – 25<sup>th</sup>, Chicago, IL.

## TECHNICAL ACKNOWLEDGEMENTS

- Carneiro, P. A., Zimpel, C. K., Pasquatti, T. N., Silva-Pereira, T. T., Takatani, H., Silva, C. B., ... & Kaneene, J. B. (2021). Genetic Diversity and Potential Paths of Transmission of *Mycobacterium bovis* in the Amazon: The Discovery of *M. bovis* Lineage Lb1 Circulating in South America. *Frontiers in Veterinary Science*, 8. <https://doi.org/10.3389/fvets.2021.630989>
- Compiled geographic data, provided GIS support and cartographic design services for research.

## PROFESSIONAL SERVICE

- Panelist** July 2022  
*Great Lakes Bioenergy Research Center (GLBRC) Graduate School Panel*
- Dialogue with undergraduate students on advice to pursuing advance degrees in geography, ecology and chemistry fields. Sept 2021
- Panelist**  
*Great Lakes Bioenergy Research Center (GLBRC) National Clean Energy Week 2021*
- Title: “Power From Plants: How Bioenergy Benefits the World”
  - <https://energy.wisc.edu/events/power-plants-how-bioenergy-benefits-world>
- Rapporteur** Apr 2020  
*LTAR Annual Science Meeting Program*
- Title: “Great Plains and Florida Rangelands”
  - Title: “Ecosystem Exchanges of Carbon, Water, and Energy across Diverse Agricultural Systems”
- Evaluator** July 2019  
*Mid-Michigan Symposium for Undergraduate Research Experiences Conference*
- Vice President** June 2019  
– Dec 2019  
*Geography Graduate Group*  
*Department of Geography, Environment & Spatial Sciences*
- Foster community and a unified voice for graduate students within a diverse department.
- Chairperson** 2018 - 2019  
*Geography Graduate Group Colloquium Committee*  
*Department of Geography, Environment & Spatial Sciences*
- Develop an annual seminar series for hosting professionals from multiple disciplines to promote professional connections for undergraduates, graduates and faculty.
- Panelist** July 2018  
*Kellogg Biological Station Undergraduate Career Panel*
- Dialogue with undergraduate students about their research and offer advice to pursuing advance degrees in geography, ecology and chemistry fields.
- Evaluator** Apr 2018  
*University Undergraduate Research and Arts Forum (UURAF)*
- Exam Proctor** Sept 2016  
- Present  
*Michigan State University*  
*Department of Geography, Environment & Spatial Sciences*
- Oversee classes (20 to 100) of undergraduate and graduate students through temporary teaching, exam proctoring, media and classroom supervision.
- Membership**
- Gamma Theta Upsilon – Honorary Society in Geography
  - Association of American Geographers
  - American Geophysical Union
  - Ecological Society of America
  - American Society of Agronomy
  - Crop Science of America

- Soil Science Society of America

## JOURNAL REVIEW

- Journal of Geophysical Research – Biogeosciences (Group peer review) (12/2017, 02/2018)
- Environmental Systems Research (02/2018)
- International Journal of Applied Geospatial Research (02/2019, 12/2019)
- The International Journal of River Basin Management (02/2019, 04/2019, 07/2019)
- The Journal of Mountain Science (07/2019)
- Ecological Indicators (02/2020, 07/2020)
- International Journal of Applied Geospatial Research (07/2020)
- International Journal of Applied Geospatial Research (02/2022)

## OTHER SERVICE

### Special Events Support Services

*Michigan State University Police & Public Safety*

Sept 2019-  
Aug 2022

- Civilian law enforcement providing leadership and assistance, and assisting emergency personnel as needed during events and emergencies.

### Moderator

*FunPlus Kings Group – State of Survival*

Apr 2020 –  
Oct 2021

- Provide discussion topics, remove inappropriate content, answer questions, and update the platform for State of Survival official Discord consisting of 180,000 members.

### Canvasser

*Clean Water Action*

May 2016 -  
Aug 2016

- Mobilized the community to raise awareness on environmental and public health issues, through the use of public education and organizing.

## NEWS

WEI. “Propelling Women in Power: Highlighting the stories of women in Research”. *Wisconsin Energy Institute*. 26 October, 2022. (Link forthcoming)

GLBRC. “Bioenergy Crops Create Local Cooling That Can Increase Climate Benefit.” *Great Lakes Bioenergy Research Center*, 1 Oct. 2021, <https://www.glbrc.org/research/highlights/bioenergy-crops-create-local-cooling-can-increase-climate-benefit>

WEI. “Power from Plants: How Bioenergy Benefits the World.” *Wisconsin Energy Institute*, 4 Aug. 2021, <https://energy.wisc.edu/events/power-plants-how-bioenergy-benefits-world>

Griffin, Mark E. “A Geographer's-Eye View with Cheyenne Lei.” *Great Lakes Bioenergy Research Center*, 23 June. 2021, <https://www.glbrc.org/news/geographers-eye-view-cheyenne-lei>

## MENTORSHIP

### Kaitlyn O’Brien

*Department of Community Sustainability, Michigan State University, East Lansing, MI.*

Apr 2017  
–May 2018

### Kaylee Peterson

*Department of Community Sustainability, Michigan State University, East Lansing, MI.*

Apr 2018  
– July 2019



**Pedro Kuyenga** May 2018  
*Department of Geography, Environment & Spatial Sciences, Michigan State University, East Lansing, MI.* – July 2018

**Emily Lindback** May 2018  
*Department of Earth and the Environment, Franklin & Marshall College, Lancaster, PA.* – Aug 2018

- Project: “Comparing albedo, foliar nitrogen content, and global warming potential of fertilized and unfertilized croplands at the Great Lakes Bioenergy Research Center”.
- Citation: Lindback, E., **Lei, C.**, & Chen, J. (2018). Comparing albedo, foliar nitrogen content, and global warming potential of fertilized and unfertilized croplands at the Great Lakes Bioenergy Research Center. Poster Presentation. *Kellogg Biological Station Annual Symposium*, August 1<sup>st</sup>, Kellogg Biological Station, MI.

**Isabel Arrocha** June 2019  
*Department of Biological and Agricultural Engineering, University of Arkansas, Fayetteville, AR.* – Aug 2019

- Project: “Albedo on perennial versus annual biofuel croplands”.
- Citation: Arrocha, I., **Lei, C.**, & Chen, J. (2019). Albedo on perennial versus annual biofuel croplands. Poster Presentation. *Mid-Michigan Symposium for Undergraduate Research Experiences*, July 24<sup>th</sup>, Michigan State University, East Lansing, MI.

**Ezequiel Mussambe** June 2019  
*Department of Geography, Environment & Spatial Sciences, Michigan State University, East Lansing, MI.* – Aug 2019

**Maximilian Mihaylov** June 2019  
*Interdisciplinary Studies in Social Science, Michigan State University, East Lansing, MI* – Aug 2019

**Michael Collins** May 2022  
*Department of Environment and Sustainability, Michigan State University, East Lansing, MI.* – Aug 2022

**AWARDS & SCHOLARSHIPS**

**Dissertation Completion Fellowship** \$7,500 Dec 2020  
*Graduate College, College of Social Science, Michigan State University*

**Graduate Office Fellowship** \$1,200 Mar 2020  
*Graduate College, Michigan State University*

**The Charles P. and Linda A. Thompson Endowment for Social Science Research** \$1,000 Apr 2019  
*College of Social Science, Michigan State University*

**Research Scholars Award** \$3,367 Apr 2019  
*College of Social Science, Michigan State University*

**W.K. Kellogg Biological Station LTER Fall 2019 Fellowship** \$6,500 Mar 2019  
*National Science Foundation & Michigan State University*

**Graduate Office Fellowship** \$550 Feb 2019  
*Graduate College, Michigan State University*

<b>W.K. Kellogg Biological Station Graduate Teaching Assistantship</b> <i>W.K. Kellogg Biological Station</i>	\$9,000	SU 2018
<b>Graduate Office Fellowship</b> <i>Graduate College, Michigan State University</i>	\$1,000	Apr 2018
<b>Research Scholars Award</b> <i>College of Social Science, Michigan State University</i>	\$5,814	Apr 2018
<b>Kenneth E. and Marie J. Corey Research Endowment Fund</b> <i>College of Social Science, Michigan State University</i>	\$1,000	Apr 2018
<b>W.K. Kellogg Biological Station Summer Fellowship</b> <i>W.K. Kellogg Biological Station &amp; Michigan State University</i>	\$2,500	Mar 2018
<b>Academic Achievement Graduate Assistantship Award</b> <i>Graduate College, Michigan State University</i>	\$8,000	SP 2017
<b>Geography Scholarship</b> <i>Department of Geography, Michigan State University</i>	\$250	Sept 2017
<b>Department of Geography Travel Fund</b> <i>Department of Geography, Michigan State University</i>	\$400	Jan 2017
<b>Graduate Student Affairs Travel Fund</b> <i>Associate Dean, Michigan State University</i>	\$300	Jan 2017
<b>Graduate College Travel Fellowship</b> <i>Graduate College, Michigan State University</i>	\$200	Jan 2017
<b>Lucius Harrison Geography Travel Fund</b> <i>Department of Geography, Western Michigan University</i>	\$1,000	Apr 2016
<b>Michigan Department of Transportation Grant Travel Fund</b> <i>College of Engineering, Western Michigan University</i>	\$750	Apr 2015
<b>Scholarship</b> <i>Track &amp; Field, Northern Michigan University</i>	\$60,000	2012-2014
<b>Scholarship</b> <i>Track &amp; Field, Missouri State University</i>	\$36,000	2010-2011

## NOMINATIONS

<b>2021 Department of Energy Research Publication Highlight</b> <i>Great Lakes Bioenergy Research Center Year 4 Narrative</i> • <a href="https://academic.oup.com/jpe/article-abstract/14/5/757/6167841?redirectedFrom=fulltext">https://academic.oup.com/jpe/article-abstract/14/5/757/6167841?redirectedFrom=fulltext</a>	Oct 2021
<b>MSU BFSAA Historical and Emerging Leaders Recognition</b> <i>Black Faculty, Staff and Administrators Association (BFSAA), Michigan State University</i>	Mar 2021
<b>GLBRC Early Career Women in Bioenergy Science</b> <i>W.K. Kellogg Biological Station</i>	Feb 2020

## TECHNICAL SKILLS & WORKSHOPS

### **Clery Act Campus Security Authority Role**

*Michigan State University, (May 2021 – Present)*

- Responsibilities for meeting the Clery Act requirements as a Campus Security Authority (CSA).

### **Diversity, Equity and Inclusion**

*Michigan State University, (May 2020 – Present)*

- Concepts related to identity, bias, power, privilege and oppression, the benefits of being part of a diverse community, develop skills related to ally behavior, self-care, and creating inclusive spaces.

### **Medical Waste Management**

*Michigan State University, (May 2019 – Present)*

- Required for employees who generate, handle, treat, or dispose of biohazardous waste (including sharps).

### **Blood borne Pathogen Initial**

*Michigan State University, (May 2019 – Present)*

- Required for employees with a reasonable anticipated risk of exposure to bloodborne pathogens or human blood/bodily fluids, including human cell lines.

### **Aerial Boom Lift**

*Michigan State University, (May 2018 – Present)*

- Required for employees using a personal lift, scissor lift, or boom lift, including truck mounted lifts. Inclusive of fall protection, hands on training, in class safety harness training, ladder safety and non-regulated vehicles.

### **Agricultural Worker Protection Standard**

*Michigan State University, (May 2018 – Present)*

- United States Environmental Protection Agency federal EPA-approved videos (PST00026 & PST00028) on safe storage, application, and disposal of pesticides in an agricultural setting that meets the Worker Protection Standard (WPS)

### **Unmanned Aerial Systems**

*Department of Geography, Environment & Spatial Sciences, Michigan State University (2017)*

- FAA Part 107 Drone Test Prep & Beyond (Specialization course) Remote Pilot Training Level 1 & 2: UAS components, multi-copter control, principles of flight and hands-on flight.

### **Unmanned Aerial Systems**

*Department of Geography, Environment & Spatial Sciences, Michigan State University (2017)*

- FAA Part 107 Drone Test Prep & Beyond (Specialization course) Drone to GIS Level 1& 2: Multi-spectral processing using Pix4D, mobile GIS tools, drone data GIS processing.

### **Bayesian Statistical Analysis**

*Dr. Song S. Qian, Michigan State University, (2017)*

- Introduction to Bayesian statistical analysis. Creation of Bayesian models through the statistical tool R.

### **Mandarin Chinese**

Conversational – Beginner

Writing – Beginner

## REFEREES

**Peter Reich** (Professor)

Director of programs  
School for Environment and Sustainability  
University of Michigan  
440 Church Street, Dana Building  
Ann Arbor MI 48109  
preich@umich.edu

**Ines Ibanez** (Professor)

School for Environment and Sustainability  
University of Michigan  
440 Church Street, 2546 Dana Building  
Ann Arbor MI 48109  
iibanez@umich.edu

**Jiquan Chen** (Professor)

Center for Global Change and Earth Observations (CGCEO) and Department of Geography, Environment & Spatial Sciences  
Michigan State University  
1405 S. Harrison Road, Manly Miles Building, Room 218  
East Lansing, MI 48823  
jqchen@msu.edu

**Philip Robertson** (Distinguished Professor)

W.K. Kellogg Biological Station, Department of Plant & Microbial Sciences  
Michigan State University  
3700 E. Gull Lake Dr.  
Hickory Corners, MI, 49060  
robert30@msu.edu

**Ashton Shortridge** (Chairperson)

Department of Geography, Environment & Spatial Sciences  
Michigan State University  
673 Auditorium Rd, Room 235  
East Lansing, MI 48824  
ashton@msu.edu

**Nathan Moore** (Graduate Student Director)

Department of Geography, Environment & Spatial Sciences  
Michigan State University  
673 Auditorium Rd, Room 206  
East Lansing, MI 48824  
moorena@msu.edu