K. Arthur Endsley

Curriculum Vitae

415 Interdisciplinary Science Building, 32 Campus Dr
University of Montana, Missoula, MT, 59801
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Education

Ph.D. Natural Resources and Scientific Computing, May 2019
University of Michigan (Ann Arbor, MI)

B.S. Applied Geophysics, December 2009
Michigan Technological University (Houghton, MI)
Department Scholar, Geological and Mining Engineering and Sciences, 2008

Awards and Funding

Grants

NASA (NNH23ZDA001N-SMAP), **SMAP Mission Science Team** (2024): **$810,632**
"Assimilation of SMAP global freeze-thaw (FT) products to improve the CASA ecosystem model and our understanding of northern latitude carbon fluxes and wildfire impacts"
Co-Investigator (Co-I); University of Montana, Missoula, MT

NASA (NNH23ZDA001N-ECIPES), **Early Career Investigator Program** (2024): **$292,161**
"Improving joint predictions of forest fluxes and flammability using satellite microwave data"
Principal Investigator (PI); University of Montana, Missoula, MT

NASA (NNH22ZDA001N), **Transform to Open Science Training** (2023): **$300,841**
"Satellite observations and models informing agriculture:
Training for Open Science under climate change"
Principal Investigator (PI); University of Montana, Missoula, MT

Rackham Predoctoral Fellowship (2018-19): **$44,394**
Awarded by Rackham Graduate School, Univ. of Michigan, to "outstanding doctoral students"

Environmental Sustainability Doctoral Fellowship (2016-17): **$50,000**
Awarded by Graham Sustainability Institute, Univ. of Michigan

Sloan & Moore Foundation and the University of Michigan (2014-16): **$67,500**
MCubed Diamond Big Data Challenge 3:
"Measuring the Pace of Neighborhood Change from Satellites"
Co-authored proposal with Dr. Dan Brown

British Columbia Centre for Disease Control (2015): **$26,000**
"Data Mining Tools for Assessing Public Health Targets in British Columbia"
Co-authored proposal; Michigan Tech Research Institute (MTRI), Ann Arbor, MI

NASA (NNX12AB90G), **Carnegie Inst. for Science** (2010): **$149,000**
"Assessing the impact of a combined in-situ and satellite CO2 monitoring network on constraining biospheric and anthropogenic fluxes for North America"
Principal Investigator (Sub-award); Michigan Tech Research Institute (MTRI), Ann Arbor, MI

Honors and Awards

2018 MIDAS Symposium "Best Overall" Poster
Poster: *Comparing and timing business cycles and land development trends across U.S. metropolitan housing markets*
2018 Michigan Institute for Data Science (MIDAS) Annual Symposium

Courtney Wilson First-Year PhD Student Award (2015)
School of Natural Resources and Environment, University of Michigan

Social Impact Challenge 2015 Winning Team ($2,500; February 2015)
Center for Social Impact, Ross School of Business, University of Michigan (Link)

2008 Department Scholar
Dept. of Geological and Mining Eng. and Sciences, Michigan Technological University

Appointments and Experience

Research & Professional Experience

Department of Ecosystem and Conservation Sciences, University of Montana
Assistant Research Professor (2025 - Present)

Numerical Terradynamic Simulation Group (NTSG), University of Montana
Research Scientist (2019 - Present)
Technical lead on maintenance and science applications for the operational NASA Soil Moisture Active/Passive (SMAP) Level 4 Carbon product. Comparing alternative soil respiration models and developing new light-use efficiency models that support both C3 and C4 photosynthesis.

Aspen Global Change Institute, Carbondale, CO
Consultant (2017 - 2021)
Maintained a data collection and management system for remote monitoring of snowpack and meteorological conditions in the Roaring Forks Valley.

University of Michigan, Ann Arbor, MI
Graduate Student Research Assistant (2014 - 2019)

Michigan Tech Research Institute, Ann Arbor, MI
Research Scientist I (2012 - 2014)
Assistant Research Scientist (2010 - 2012)
Research Intern (2008 - 2009)

Teaching & Mentoring Experience

University of Montana, Missoula, MT (2019 - Present)
Assistant Research Professor, “Programming for GIS”

University of Michigan, Ann Arbor, MI (2015 - 2018)
Graduate Student Instructor, “Natural Resource Statistics”
Graduate Student Instructor, “Urban Sustainability”

The Carpentries (2015 - Present)
Certified Instructor, Data Carpentry and Software Carpentry
Trained to teach Python, R, Git, Mercurial, and SQL to beginners, particularly scientists and students of science. Have taught workshops at Boston College, the Federal Reserve Board in Washington D.C., the Aspen Global Change Institute, West Virginia University, Lawrence Berkeley National Laboratory, the Woods Hole Oceanographic Institution, and NASA Langley.

University of Michigan, Ann Arbor, MI (2017-2018)
Instructor, Wolverine Pathways Program, "Prove It!"
Over 2 summers, taught critical media and data analysis to under-represented High School Seniors from Southeast Michigan aspiring to enter college.

Michigan Tech Research Institute, Ann Arbor, MI (2012 - 2014)
Research Scientist I
Mentored and directly supervised undergraduate student interns on statistical computing projects.

Ontonagon Area Elementary School, Ontonagon, MI (2007)
After-School Science Educator
Western Upper Peninsula Center for Science, Mathematics, and Environ. Education

Courses Taught

"Programming for GIS" (2023-2024)
University of Montana, Missoula, MT
Course content: Python programming, Multi-dimensional arrays, Affine transformations, Machine learning, Spectral analysis, Scientific computing

"Integrated Systems Ecology" (2022)
University of Montana, Missoula, MT
Course content: Systems thinking, Modeling, Ecology, Systems dynamics modeling, Simulation, and Statistical computing.

"Natural Resource Statistics" (2018)
University of Michigan, Ann Arbor, MI
Course content: Elementary statistics, Linear models, R and statistical computing.

"Urban Sustainability" (2016)
University of Michigan, Ann Arbor, MI

Course content: Urban sustainability, Urban metabolism, Industrial ecology, Political ecology, Critical reading and discussion of the literature.

"Understanding the Earth" (2008 - 2009)
Michigan Technological University (MTU), Houghton, MI
Course content: GPS wayfinding and field mapping, Rock and mineral identification, Subsurface plumes, Erosional and depositional systems, Natural hazards, and Bedrock lithology and structural geology.

Field Experience

Bering Glacier, Alaska U.S.A. (2007 - 2012)
Experience in boreal and karst landscapes: August 2007 (geophysical surveys); August 2008 (field equipment maintenance); May 2010 (ablation monitoring installation); August 2010 (field equipment maintenance); May 2011 (installation); May 2012 (Eddie Bauer-funded surge research).

Fairbanks, Alaska, U.S.A. (2012)
Remote sensing field validation at Bonanza Creek LTER; soil moisture measurement.

Ngöbe-Bugle Comarca, Panama (2009)
Elevation surveying by transit and field interviews in preparation for designing a catchment for clean water provision.

PUBLICATIONS

Refereed Publications

2025 **Endsley, K.A.,** M. Zhao, J.S. Kimball, T. Albrethsen, S. Devadiga. (Submitted.) "Improved global estimates of terrestrial evapotranspiration using the MODIS and VIIRS sensors." *Journal of Hydrometeorology.*

R. Madelon, J.S. Kimball, **K.A. Endsley**, G. DeLannoy, O. Sonnentag, H. Alcock, A.M. Virkkala, A. Mavrovic, S. Williamson, E. Humphreys, A. Mialon, A. Roy. (Submitted.) "Assessing the SMAP Level-4 Carbon product over the arctic and sub-arctic zones." *IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing.*

Huang, J., V. Sehgal, J. Fisher, L. Alvarez, L. Brocca, S. Cai, R. Cheng, X. Cheng, J. Du, B. El Masri, **K.A. Endsley**, … (In Review.) "High-resolution soil moisture and evapotranspiration: Bridging the gap between science and society." *Water Resources Research.*

Xia, Y., J. Sanderman, J. Watts, M. Machmuller, A. Mullen, C. Rivard, **K.A. Endsley**, … (Submitted.) "Coupling remote sensing with a process model for the simulation of rangeland carbon dynamics." *Journal of Advances in Modeling Earth Systems.*

2024 Du, J., J.S. Kimball, J. Guo, S. Kannenberg, S. William, A. Feldman, **K.A. Endsley**. (2024.) "Enhanced satellite monitoring of dryland vegetation water potential through multi-source sensor fusion." *Geophysical Research Letters* **51**(21).

M. Román, C. Justice, I. Paynter, P.B. Boucher, S. Devadiga, **K.A. Endsley**, … 2024. "Continuity between MODIS Collection 6.1 and VIIRS Collection 2 land products." *Remote Sensing of Environment* **302.**

2023 **Endsley, K.A.**, M. Zhao, J.S. Kimball, S. Devadiga. 2023. "Continuity of global MODIS terrestrial primary productivity estimates in the VIIRS era using model-data fusion." *Journal of Geophysical Research: Biogeosciences* **128**(9).

Watts, J.D., M. Farina, J.S. Kimball, Luke D. Shiferl, Zhihua Liu, …, **K.A. Endsley**, … 2023. "Carbon uptake in Eurasian Boreal forests drives the high-latitude net ecosystem carbon budget." *Global Change Biology* **29**(7).

2022 **Endsley, K.A.**, J.S. Kimball, R.H. Reichle. 2022. "Soil respiration phenology improves modeled phase of terrestrial net ecosystem exchange in northern hemisphere." *Journal of Advances in Modeling Earth Systems* **14**(2).

2021 N. Madani, N.C. Parazoo, J.S. Kimball, R.H. Reichle, A. Chatterjee, J.D. Watts, S. Saatchi, Z. Liu, **K.A. Endsley**, T. Tagesson, B.M. Rogers, A. Xu, J.A. Wang, T. Magney, C.E. Miller. 2021. "The impacts of climate and wildfire on ecosystem gross primary productivity in Alaska." *Journal of Geophysical Research: Biogeosciences* **126**(6).

Wurster, P., M.P. Maneta, J.S. Kimball, **K.A. Endsley**, S. Beguería. 2021. "Monitoring crop status in the Continental United States using the SMAP Level 4 Carbon product." *Frontiers in Big Data* **3**.

2020 **Endsley, K.A.**, J.S. Kimball, R.H. Reichle, J.D. Watts. 2020. "Satellite monitoring of global surface soil organic carbon dynamics using the SMAP Level 4 Carbon product." *Journal of Geophysical Research: Biogeosciences* **125**(12).

Seymour, E., **K.A. Endsley,** R. Franklin. 2020. "Differential drivers of cost burden in growing and shrinking cities." *Applied Geography* **125.**

2019 Osenga, E.C., J.C. Arnott, **K.A. Endsley**, J. Katzenberger. 2019. "Bioclimatic and soil moisture monitoring across elevation in a mountain watershed: Opportunities for research and resource management." *Water Resources Research* **55**(3): 2493-2503.

2018 **Endsley, K.A.**, D.G. Brown, E. Bruch. 2018. "Housing market activity is associated with disparities in urban and metropolitan vegetation." *Ecosystems* **21**(8): 1593-1607.

Endsley, K.A. 2018. "Remote Sensing of Socio-Ecological Dynamics in Urban Neighborhoods," in Reference Module in Earth Systems and Environmental Sciences, **9**: 90-105. Elsevier.

2016 Miller, M.E., W.J. Elliot, M. Billmire, P.R. Robichaud, **K.A. Endsley**. 2016. "Rapid-response tools and datasets for post-fire remediation: linking remote sensing and process-based hydrological models." *International Journal of Wildland Fire* **25**, 1061-1073.

Gonzalez, A., B.J. Cardinale, G.R.H. Allington, J. Byrnes, **K.A. Endsley**, D.G. Brown, D.U. Hooper, F. Isbell, M. Loreaue, M.I. O'Connor. 2016. "Estimating local biodiversity change: A critique of papers claiming no net loss of local diversity." *Ecology* **97**(8): 1949–1960.

Endsley, K.A., M.G. Billmire. 2016. "Distributed visualization of gridded geophysical data: the Carbon Data Explorer, version 0.2.3" *Geoscientific Model Development* **9**:383-392.

2014 French N.H.F., D. McKenzie, T. Erickson, B. Koziol, M. Billmire, **K.A. Endsley**, N.K.Y. Scheinerman, L. Jenkins, M.E. Miller, R. Ottmar, S. Prichard. 2014. "Modeling regional-scale fire emissions with the Wildland Fire Emissions Information System." *Earth Interactions* **18**(16).

Josberger, E.G., R.A. Shuchman, L.K. Jenkins, and **K.A. Endsley.** 2014. "Melt water input from the Bering Glacier Watershed into the Gulf of Alaska." *Geophysical Research Letters*. **41**(3): 886-890.

2013 **Endsley, K.A.** and J.L. McCarty. 2013. "Mapping prescribed burns and wildfires from Twitter with natural language processing and information retrieval techniques." In Proceedings of the International Smoke Symposium. Hyattsville, Maryland, U.S.A.: International Association of Wildland Fire.

2012 Vaghefi, K., R.C. Oats, D.K. Harris, T.M. Ahlborn, C.N. Brooks, **K.A. Endsley**, C. Roussi, J.W. Burns, and R. Dobson. 2012. "Evaluation of commercially available remote sensors for highway bridge condition assessment." *Journal of Bridge Engineering* **17**(6):886-895.

Brooks, C.N., H. Kourous-Harrigan, M.G. Billmire, P. Metz, D.E. Keefauver, R.A. Shuchman, R. Dobson, **K.A. Endsley**, M. Taylor. 2012. "Expanding Alaska-Canada rail: Jointly visualizing revenue freight, development, mineral commodity value, and impact of carbon dioxide." *Transportation Research Record: Journal of the Transportation Research Board*, No. 2261, pp.95-105.

2010 Andrus, A.B., **K.A. Endsley**, S. Espino, J.S. Gierke. 2010. Mapping the Freshwater-Saltwater Interface in the Terminal Moraine of the Bering Glacier. Ch. 19. Bering Glacier: Interdisciplinary Studies of Earth's Largest Temperate Surging Glacier. Special Paper 462. Geological Society of America.

Invited Talks

Systems Ecology Seminar, University of Montana. **"Confronting global ecosystem models with data: Multi-decadal carbon-cycle trends and variability."** March 30, 2023.

Department of Mathematical Sciences Seminar, University of Montana. **"Neighborhood change and differential drivers in weak housing markets: Are shrinking cities exceptional?"** September 24, 2019.

Geography Week, Miami University Department of Geography, Oxford, Ohio. **"What are the social and economic drivers of uneven vegetation growth across U.S. metropolitan areas?"** November 15, 2018.

In the Press

Formation sur la gestion des défis environnementaux et agricoles: La NASA à l'honneur ("Training for managing environmental and agricultural challenges: NASA in the spotlight") *El Moudjahid.* June 29, 2024.

City, stakeholders look for ways to support travel beyond cars. *Missoulian.* January 2, 2024.

Software and Data

Endsley, K.A. 2024. `MOD16`: The MODIS MOD16 Evapotranspiration Model (Version 1.0.0, Python) DOI: `https://doi.org/10.5281/zenodo.12735274`

Endsley, K.A. 2023. `MOD17`: The MODIS MOD17 Terrestrial Productivity Algorithm (Version 1.0.0, Python) DOI: `https://doi.org/10.5281/zenodo.14019885`

Endsley, K.A. 2023. `agstack`: Field-Based Carbon Flux Model

Kimball, J. S., L. A. Jones, **K.A. Endsley**, T. Kundig, and R. Reichle. 2021. SMAP L4 Global Daily 9 km EASE-Grid Carbon Net Ecosystem Exchange, Version 6. Boulder, Colorado USA. NASA National Snow and Ice Data Center Distributed Active Archive Center.

Endsley, K.A. 2021. `suntransit` (Version 0.1.0): Simple, fast approximation of sunrise, sunset time on Earth. DOI: 10.5281/zenodo.5555109 Github

Endsley, K.A. 2021. `simsoil` (Version 0.1.0): Very simple, point-scale soil hydrology model. DOI: 10.5281/zenodo.4906830 Github

Endsley, K.A. 2021. `pyl4c`: Tools for working with SMAP L4C and Terrestrial Carbon Flux (TCF) Model data (Version 0.12.0.dev). DOI: 10.5281/zenodo.5156231 Github

Kimball, J.S., L.A. Jones, **K.A. Endsley**, T. Kundig, and R. Reichle. 2020. SMAP L4 Global Daily 9 km EASE-Grid Carbon Net Ecosystem Exchange, Version 5. Boulder, Colorado USA. NASA National Snow and Ice Data Center Distributed Active Archive Center.

Endsley, K.A. 2019. The unmixing library: Interactive tools for spectral mixture analysis of multispectral raster data in Python v0.2.4.dev. Zenodo. `https://zenodo.org/record/3585979` Github

Endsley, K.A., M. Billmire, N. Molen. 2015. The Carbon Data Explorer: A web-based visualization tool for multi-dimensional geospatial gridded datasets. Demo video.

Conference Presentations and Talks

"Sensitivity analysis of the phase of terrestrial net ecosystem exchange in northern hemisphere using chamber measurements and satellite data" (Talk A11D-09) at American Geophysical Union 2021 in New Orleans, LA, December 13, 2021.

"Satellite monitoring of global soil health attributes using the SMAP Level 4 Carbon product" (Talk H53E-04) at American Geophysical Union 2019 in San Francisco, CA, December 13, 2019.

"Understanding the processes of neighborhood change in Detroit through a satellite-based land-cover change proxy." April 8, 2017. American Association of Geographers Annual Meeting. Boston, MA.

"Assessment of urban socio-economic change in southeast Michigan neighborhoods through a land-cover change proxy." April 1, 2016. American Association of Geographers Annual Meeting. San Francisco, CA.

"Visualization of XCO2 and flux data with applications for the web." January 30, 2014. OCO-2 Algorithm and Science Team Meeting. Caltech, Pasadena, CA.

"Mapping prescribed burns and wildfires on Twitter with data mining and information retrieval techniques." International Association of Wildland Fire (IAWF)'s 2013 International Smoke Symposium. October 23, 2013. University of Maryland, MD.

"Prescribed burn and wildfire communication on Twitter: Identifying and mapping with data mining techniques." Association for Fire Ecology (AFE) Fire Congress. December 5, 2012. Portland, OR.

"Utilization of remote sensing data for bridge condition in operational decision support" at the ASNT Nondestructive Evaluation/Nondestructive Testing (NDE/NDT) for Highways and Bridges: Structural Materials Technology (SMT) 2012 Conference. American Society for Nondestructive Testing (ASNT). August 23, 2012. New York, NY.

"Measurements of velocity and ablation from Bering Glacier During the recent surge" (Session C41G, Talk 7, Glacier Surging and Ice Streaming: Fast Flow and Instabilities II) at

American Geophysical Union 2011 in San Francisco, CA, December 8, 2011. (Presentation.)

"Real-time web-based satellite tracking" at Free and Open Source Software for Geospatial (FOSS4G) 2011 in Denver, CO, September 15, 2011. (Abstract.)

"Clarus road-weather routing for crash risk aversion" at the Road Weather Management Stakeholder Meeting in Albuquerque, NM, September 7, 2011. (Presentation.)

Other Publications

Endsley, K.A., Kimball, J. S., T. Kundig, R. H. Reichle, and J. V. Ardizzone. 2023. "Validation Assessment for the Soil Moisture Active Passive (SMAP) Level 4 Carbon (L4_C) Data Product Version 7," in Technical Report Series on Global Modeling and Data Assimilation, NASA/TM–2023–104606/Vol. 65, National Aeronautics and Space Administration, Goddard Space Flight Center, Greenbelt, Maryland, USA, 41pp.

Endsley, K.A., J. Glassy, J. S. Kimball, L. A. Jones, R. H., Reichle, J. V. Ardizzone, G.-K. Kim, R. A. Lucchesi, E. B. Smith, and B. H. Weiss, 2022: Soil Moisture Active Passive (SMAP) Mission Level 4 Carbon (L4_C) Product Specification Document. GMAO Office Note No. 11 (Version 2.2), 71 pp, NASA Goddard Space Flight Center, Greenbelt, MD, USA. Available from http://gmao.gsfc.nasa.gov/pubs/office_notes.

Kimball, J. S., **K.A. Endsley**, T. Kundig, J. Glassy, R. H. Reichle, and J. V. Ardizzone. 2022. "Validation Assessment for the Soil Moisture Active Passive (SMAP) Level 4 Carbon (L4_C) Data Product Version 6," in Technical Report Series on Global Modeling and Data Assimilation, NASA/TM-2022-104606, Vol. 61, National Aeronautics and Space Administration, Goddard Space Flight Center, Greenbelt, Maryland, USA, 41pp.

Kimball, J.S., **K.A. Endsley**, T. Kundig, J. Glassy, R.H. Reichle, J.V. Ardizzone. 2021. "Validation Assessment for the Soil Moisture Active Passive (SMAP) Level 4 Carbon (L4_C) Data Product Version 5," in Technical Report Series on Global Modeling and Data Assimilation, Volume 56. NASA/TM-2021-104606/Vol. 56. NASA Goddard Space Flight Center, Greenbelt, Maryland, U.S.A.

McCarty, J.L., E. Levin, **K.A. Endsley**, S.T. Aden, J. Bialas. 2015. "Relating big data to local natural hazards: Lessons learned from data mining the Twitter API for volunteered geographic information on earthquakes, wildfires, and prescribed fires in the contiguous United States." in Proceedings of ISPRS WG IV/2 Workshop, "Global Geospatial Information and High

Resolution Global Land Cover/Land Use Mapping." April 21, 2015, Novosibirsk, Russian Federation.

Miller, M.E., M.G. Billmire, W.J. Elliot, **K.A. Endsley**, P.R. Robichaud. 2015. "Rapid response tools and datasets for post-fire modeling: Linking Earth Observations and process-based hydrological models to support post-fire remediation." The International Archives of the Photogrammetry, Remote Sensing and Spatial Information Sciences, Volume XL-7/W3, 2015. 36th International Symposium on Remote Sensing of Environment, 11-15 May 2015, Berlin, Germany.

Endsley, K.A., C.N. Brooks, T.M. Ahlborn, K. Vaghefi. "Decision support system for integrating remote sensing in bridge condition assessment and preservation." *SPIE Proceedings, NDE/NDT for Highways and Bridges: Structural Materials Technology (SMT)* 2012. March 11-15, 2012, San Diego, CA, U.S.A.

Ahlborn, T.M., D.K. Harris, C.N. Brooks, **K.A. Endsley**, D.C. Evans, R.C. Oats. 2010. "Evaluation of remote sensing technologies for detecting bridge deterioration and condition assessment." p.498-505. *NDE/NDT for Highways and Bridges.* Structural Materials Technology. 16-20 August 2010. New York City, New York, U.S.A.

Service and Outreach

Co-Lead, GPP/NPP Focus Area, Land Product Validation (LPV) subgroup of the Committee on Earth Observation Satellites (CEOS) Working Group on Calibration and Validation (2024-Present)

Member, NASA Soil Moisture Active Passive (SMAP) Science Team (2024-Present)

Reviewer: *Global Biogeochemical Cycles* (2022); *Remote Sensing* (2021-2023); *Agricultural and Forest Meteorology* (2021); *Ecological Indicators* (2021); *Forest Ecosystems* (2021); *Earth System Science Data* (2021); *Landscape and Urban Planning* (2016-2019); *Journal of Environmental Planning and Management* (2016); *Journal of Environmental Management* (2018-2022); *Environment and Planning B: Urban Analytics and City Science* (2018); *Sustainability* (2020); *ISPRS Journal of Photogrammetry and Remote Sensing* (2019); *ISPRS International Journal of Geo-Information* (2020-2021); *Land* (2020-2021); *Cities* (2021); *Journal of Open Source Software* (2021); *PyOpenSci* (2021); *Earth's Future* (2023)

Reviewer (Grant Proposals): *Canadian Space Agency* (2020)

Editorial Board: *Michigan Journal of Sustainability* (2016-18)

Chair, Doctoral Organizing Committee, School of Natural Resources and Environment (Univ. Michigan, 2017)

Member, National Ecological Observing Network (NEON) Data Standards Technical Working Group (2021-2022)

Students Advised

Serving as committee member, primary advisor, or mentor

Tyler Albrethsen, M.S., Systems Ecology, Univ. of Montana (2024-Present)

Brooke Bannerman, Ph.D., Systems Ecology, Univ. of Montana (2023-Present)

Walid Ouaret, Ph.D. Department of Geography, Univ. of Maryland (2022-Present)

Nasiru Ajibade, Ph.D. Department of Geography, Univ. of Lagos, Nigeria (2019-2020)

Yang Zijun, M.S. Natural Resources, University of Michigan (2016-18)

Other Service

President's Diversity Advisory Council (DAC), Univ. Montana (2021-Present)

Esri GeoMentor (2016 - Present)

Educator, Web Designer for U.P. Seismology (www.geo.mtu.edu/UPSeis/)

MichiganView (2010-14, www.MichiganView.org) Design, develop, and maintain web-based educational resources on remote sensing for K-12 and post-secondary students.

Professional Memberships

American Society for Photogrammetry and Remote Sensing (ASPRS)

American Geophysical Union (AGU)

The Rocky Mountaineers, Missoula, Montana