

M. Ny Aina Rakotoarivony

Ph.D. candidate, Department of Geography, Oklahoma State University

352 Social Sciences and Humanities
Stillwater, Oklahoma 74078
Tel: (405) – 268 – 6538

Email: ny_aina.rakotoarivony@okstate.edu
Google Scholar: [M. Ny Aina Rakotoarivony](#)
Webpage: <https://nyainarakoto.github.io/>

My research interest focuses on using remote sensing, particularly imaging spectroscopy (also known as hyperspectral remote sensing), coupled with *in situ* observations and modeling to answer ecological questions. My current research aims to advance the capability of airborne, spaceborne, and unmanned aerial system-based imaging spectroscopy in mapping the spatial distribution of invasive plants and assessing their ecological impacts on grassland ecosystems. In my research, I integrate concepts of remote sensing, landscape ecology, plant ecology, and soil sciences to contribute to the large-scale understanding of the ecosystem.

EDUCATION

Ecole Supérieure des Sciences Agronomiques	Antananarivo, Madagascar	Forestry and Environment	Agronomy Engineering	B.S.	2016
Ecole Supérieure des Sciences Agronomiques	Antananarivo, Madagascar	Environment–Territory and Development	Agronomy Engineering	Master 2	2018
Hungarian University of Agriculture and Life Sciences (former SZIE)	Gödöllő, Hungary	Soil and Water Conservation	Environmental Engineering	M.Sc.	2020
Oklahoma State University	Stillwater, Oklahoma, US		Geography	Ph.D.	Anticipated May 2026

FUNDED GRANTS

Future Investigators in NASA Earth and Space Science and Technology (FINESST) program	Assessing the impacts of invasive plants on ecosystem characteristics using multi-scale imaging spectroscopy, Future Investigator (FI) M. Ny Aina Rakotoarivony , PI Hamed Gholizadeh, 01/01/2025 – 12/31/2027, \$148,526.
Nebraska Chapter’s J.E. Weaver Competitive Grants Program	Using drone imagery to assess the impact of invasive plants on plant and soil communities and characteristics across scales, M. Ny Aina Rakotoarivony , 04/17/2025 – 03/31/2026, \$1,500.
Nebraska Chapter’s J.E. Weaver Competitive Grants Program	Impact of invasive species on plant diversity in tallgrass prairies, M. Ny Aina Rakotoarivony , 04/17/2023 – 03/31/2024, \$1,500.

APPOINTMENTS

Research Assistant Gholizadeh Lab, Department of Geography, Oklahoma State University, Stillwater, Oklahoma	08/2021 – <i>present</i>
Teaching Assistant Department of Geography, Oklahoma State University, Stillwater, Oklahoma Courses: Remote Sensing (Fall semester) and Geospatial Applications of Unmanned Aerial Systems (Spring semester).	08/2024 – 05/2025
Graduate Student Researcher Hungarian University of Agriculture and Life Sciences, Gödöllő, Hungary	01/2020 – 06/2020

PUBLICATIONS

- Rakotoarivony, M. N. A.**, Hassani, K., Fuhlendorf, S. D., Bachelot, B., Hamilton, R.G., & Gholizadeh, H. (2026). Airborne and spaceborne imaging spectroscopy capture belowground microbial communities and physicochemical characteristics in invaded grasslands. *Remote Sensing of Environment*, 335, 115250. <https://doi.org/10.1016/j.rse.2026.115250>
- Islam, M. S., Gholizadeh, H., **Rakotoarivony, M. N. A.**, Hamilton, R. G., Fuhlendorf, S.D., Zhou, Y., & Shrestha, S. (2026). A phenology-guided approach for mapping grassland invasive species using satellite image time series. *Remote Sensing Applications: Society and Environment*, 101945. <https://doi.org/10.1016/j.rsase.2026.101945>
- Rakotoarivony, M. N. A.**, Gholizadeh, H., Hassani, K., Zhai, L., & Rossi, C. (2025). Mapping the spatial distribution of species using airborne and spaceborne imaging spectroscopy: A case study of invasive plants. *Remote Sensing of Environment*, 318, 114583. <https://doi.org/10.1016/j.rse.2024.114583>
- Rakotoarivony, M. N. A.**, Gholizadeh, H., Hassani, K., McMahan, S., Struble, E., Fuhlendorf, S. D., Hamilton, R.G., & Bachelot, B. (2024). Using imaging spectroscopy to assess the impacts of invasive plants on aboveground and belowground characteristics. *GIScience and Remote Sensing*. 61(1). <https://doi.org/10.1080/15481603.2024.2399388>.
- Gholizadeh, H., **Rakotoarivony, M. N. A.**, Hassani, K., Johnson, K. G., Hamilton, R. G., Fuhlendorf, S. D., Schneider, F. D., & Bachelot, B. (2024). Advancing our understanding of plant diversity-biological invasion relationships using imaging spectroscopy. *Remote Sensing of Environment*, 304, 114028. <https://doi.org/10.1016/j.rse.2024.114028>.
- Rakotoarivony, M. N. A.**, Gholizadeh, H., Hammond, W. M., Hassani, K., Joshi, O., Hamilton, R. G., Fuhlendorf, S. D., Trowbridge, A. M., & Adams, H. D. (2023). Detecting the invasive *Lespedeza cuneata* in grasslands using commercial small satellite imagery. *International Journal of Remote Sensing*, 44(21), 6802–6824. <https://doi.org/10.1080/01431161.2023.2275321>.
- Barros, V.D.D., Waltner, I., **Rakotoarivony, M. N. A.**, Halupka, G., Sándor, R., Kaldybayeva, D., Gelybó, G. (2022). SpatialAquaCrop, an R Package for Raster-Based Implementation of the AquaCrop Model. *Plants* 11, 2907. <https://doi.org/10.3390/plants11212907>.
- Rakotoarivony, M. N. A.**, Omkar, J., Adhikari, A., & Gholizadeh, H. (*under review*). Assessing the economic impacts of *Lespedeza cuneata* spread: A case study of Oklahoma. *Rangeland Ecology and Management*.

SELECTED CONFERENCE PRESENTATIONS

- Rakotoarivony, M. N. A.**, Hassani, K., Fuhlendorf, S. D., Bachelot, B., Hamilton, R.G., Gholizadeh, H. (2025). “Airborne and Spaceborne Imaging Spectroscopy Capture Belowground Microbial Communities and Physicochemical Characteristics in Invaded Grasslands.” American Geophysical Union (AGU) Fall Meeting, December 15–19, New Orleans, US.
- Gholizadeh, H., **Rakotoarivony, M. N. A.**, Bachelot, B. (2025). “Using Commercial Earth Observation Data to Monitor Grassland Biodiversity.” American Geophysical Union (AGU) Fall Meeting, December 15–19, New Orleans, US.
- Islam, M. S., **Rakotoarivony, M. N. A.**, Hamilton, R. G., Zhou, Y., Shrestha, Gholizadeh, H. (2025). “A phenology-guided approach for mapping grassland invasive species using satellite image time series.” American Geophysical Union (AGU) Fall Meeting, December 15–19, New Orleans, US.
- Rakotoarivony, M. N. A.**, Gholizadeh, H. (2025). “Assessing the impacts of invasive plants on ecosystem characteristics using multi-scale imaging spectroscopy,” NASA Biological Diversity & Ecological Conservation Team Meeting (BDEC), May 27–29, Washington D.C., US.

CERTIFICATE

FAA Part 107 Remote Pilot Certificate – Federal Aviation Administration (FAA), November, 2024.

AWARDS, SCHOLARSHIPS, AND HONORS

2025	Norris Conference Travel Award, Department of Geography, Oklahoma State University (\$1,000)
2024	Norris Conference Travel Award, Department of Geography, Oklahoma State University (\$1,500)
2023	Norris Conference Travel Award, Department of Geography, Oklahoma State University (\$1,000)
2023	Delores and Jerry Etter Graduate Research Scholarship, Tulsa Community Foundation (\$10,000)
2022	Norris Conference Travel Award, Department of Geography, Oklahoma State University (\$500)
2022	Robert F. Norris Scholarship for Outstanding First-Year Graduate Student, Department of Geography, Oklahoma State University (\$2,500)
2022	Delores and Jerry Etter Graduate Research Scholarship, Tulsa Community Foundation (\$10,000)
2018	Food and Agriculture Organization (FAO) Scholarship and the Ministry of Agriculture of Hungary
2010	English Access Microscholarship Program, US Embassy in Madagascar

PROFESSIONAL DEVELOPMENT ACTIVITIES

- Advanced Low-altitude Earth Observing System (ALEOS) with Hyperspectral and Lidar Drone Training, Stillwater, Oklahoma, August 2024.
- Graduate Teaching Assistant Conference, Empowering Effective Teaching, Institute for Teaching and Learning Excellence, Oklahoma State University, Stillwater, Oklahoma, August 2024.
- Spectral Ecology Summer School (SPEC School), March – July 2023.
- Environmental Data Science Summit, National Center for Ecological Analysis and Synthesis, February 2023.

SYNERGISTIC ACTIVITIES

- Reviewer for *Remote Sensing of Environment*, *Ecological Informatics*, *GIScience & Remote Sensing*, *Ecological Solutions and Evidence*, *Science of Remote Sensing*, and *Scientific Reports* journals.
- Judge for undergraduate poster competition for GIS Day, Oklahoma State University, 2025.
- Judge for Oklahoma Science and Engineering Fair Competitions, 2025.
- Reviewer for AGU Outstanding Student Presentation Awards (OSPA), 2023 – 2024.
- Member, *Ikala STEM-Chapter America*, 2021 – present: Empowering the current and next generation of Malagasy students in STEM.
- Volunteer, Department of Geography, Oklahoma State University, 2023, for the *Outdoor Day at Skyline Elementary School* in Stillwater, Oklahoma: Demonstrated weather data collection techniques using a kite to elementary school students, promoting STEM engagement through hands-on learning.
- Volunteer, *Southwest American Association of Geographers* conference meeting (SWAAG), 2021: Assisted with attendee registration and provided logistical support during the conference meeting.
- Mentor, *Stipendium Hungaricum Mentorship program*, *HOOK Hungary*, 2019 – 2020: Assisted ten first-year students with their administrative and academic integration into the Hungarian university system.
- Member, *Ikala STEM-Chapter Europe*, 2019 – 2021.
- Volunteer, *Malagasy Youth Biodiversity Network-Global*, 2016 – 2021: Promoted biodiversity awareness and education through initiatives such as “Trees Project” implemented in public primary schools in Antananarivo, Madagascar.
- Leader, *KOLO EPP Project*, *Teach for Madagascar*, 2018: Directed and supervised English teaching activities of Teach for Madagascar.
- Volunteer, *Street Project*, *Teach for Madagascar*, 2017: Provided basic literacy instruction to underserved children (ages 4–13) with no access to formal education.

PROFESSIONAL MEMBERSHIPS

American Geophysical Union (AGU)	2022 – present
Ecological Society of America (ESA)	2022 – 2023
International Association for Landscape Ecology (IALE) – North America	2024 – present
American Society for Photogrammetry and Remote Sensing (ASPRS)	2022 – 2023