Keenan Ganz

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github.com/s-kganz </>
Seattle, WA 🧭

Research Interests: Forest mortality. Satellite remote sensing. Open-source software.
Skills: Geospatial Python & R. Machine learning. Science communication.

Education

Environmental & Forest Sciences Ph.D. (3.98 / 4.0 GPA)　　　**October 2022 – December 2026 (expected)**
Remote Sensing and Geospatial Analysis Laboratory, University of Washington
Advisor: L. Monika Moskal
Dissertation focus: Remote sensing of forest stress

Environmental Science & Computational Biology B.S. (4.0 / 4.0 GPA)　　　**August 2018 – May 2022**
Rensselaer Polytechnic Institute
Astrobiology Minor; Geoinformatics Concentration

Publications

1. *In Review.* **Ganz, K.**, van Wagtendonk, L., Khatri-Chhetri, P., Moskal, M., 2026. Spatially explicit forest mortality forecasts are driven by autocorrelation, not ecological context.

2. Fischer, S., Zobolas, J., Sonabend, R., Becker, M., Lang, M., Binder, M., Schneider, L., Burk, L., Schratz, P., Jaeger, B.C., Lauer, S.A., Kapsner, L.A., Mücke, M., Wang, Z., Pulatov, D., **Ganz, K.**, Funk, H., Harutyunyan, L., Camilleri, P., Kopper, P., Bender, A., Bischl, B., Zhou, B., German, N., Koers, L., Nazarova, A., 2025. mlr3extralearners: Expanding the mlr3 Ecosystem with Community-Driven Learner Integration. Journal of Open Source Software 10, 8331.

3. **Ganz, K.**, Still, C.J., Rastogi, B., Moskal, L.M., 2025. Understory and overstory leaves warm faster than air in evergreen forests. Agricultural and Forest Meteorology 364.

4. **Ganz, K.,** Glines, M.R., Rose, K.C., 2024. The distribution of depth, volume, and basin shape for lakes in the conterminous United States. Limnology and Oceanography 69, 22–36.

Software

1. **Ganz, K.**, Kalauni, N. Xbatcher for Deep Learning. Project Pythia Cookbook.
   https://projectpythia.org/xbatcher-deep-learning/

2. **Ganz, K.**, 2023. scutr: Balancing Multiclass Datasets for Classification Tasks. R package version 0.2.0.
   https://CRAN.R-project.org/package=scutr

3. Safanelli, J.L., **Ganz, K.**, 2022. Terrain Analysis in Google Earth Engine. Python package version 0.2.0.
   https://pypi.org/project/tagee/

Service

University of Washington Libraries (Seattle, WA)   **October 2024 - Present**
GIS Laboratory Assistant

- Tutored students on assignments and software errors in ArcGIS and QGIS.
- Developed an ArcGIS Experience Builder application to display aerial imagery in the library catalog.
- Converted a catalog of GIS data stored on physical media to a cloud-based storage solution with command-line tools.

Cascadia Users of Geospatial Open Source (Seattle, WA)   **January 2025 - Present**
Secretary

- Identified speakers and secured a meeting space for monthly meetings
- Organized the Fall Fling, a conference for GIS professionals across Cascadia.

Earth Science Information Partners (Remote)   **December 2024 – November 2025**
Community Fellow

- Coordinated monthly teleconferences for Interoperability and Information Technology cluster.
- Organized an online ESIP January conference and in-person session at ESIP July conference.
- Presented forest mortality research at both conferences.

Teaching Experience

Course	Quarters Taught	Evaluation Score
Pre-doctoral Instructor		
CENV 500: Communicating science to the public	Winter 2024, Spring 2024	Overall: 4.4/5.0 Challenge/Engagement Index: 4.3/7.0
Academic support staff		
ENVIR 310: Data analysis in environmental studies	Summer 2024	NA
SEFS 250: Geographic information systems in forest resources	Spring 2024	NA

Research Experience

Aquatic Ecosystem Research & Technology Lab (Troy, NY)   **August 2021 – May 2022**
Undergraduate Research Assistant

- Developed a random forest model of lake depth for 500,000 unmeasured lakes in the United States.
- Generated a training dataset in Google Earth Engine from terrain metrics, optical imagery, and water surface temperature in the vicinity of each lake.
- Improved model performance by 60% over prior research and verified this metric with spatial cross-validation.
- Compiled results in a peer-reviewed publication and an open-source Python package.

Oak Ridge National Laboratory (Oak Ridge, TN)   June – August 2021 & 2022
Science Undergraduate Laboratory Intern

- Assessed tree health with thermal and multispectral drone imagery in an artificially warmed peat bog.
- Developed Python scripts to align drone images taken at different altitudes and orientations.
- Determined that green chromatic coordinate best identified divergent responses to warming between larch and spruce trees.
- Presented results at lab-wide poster session. Developed a short form talk for the public which was selected as 1st place in the Department of Energy Ignite Off competition.

Environmental Science Associates (Seattle, WA)   May 2020 – January 2021
Geospatial Analysis Intern

- Generalized limited field data with random forest models of vegetation type and wetland presence in R. These results supported the recertification of Ross Lake dam, Seattle's largest source of hydroelectric power.
- Implemented a class balancing procedure for classification that was released as an open-source R package (scutr).
- Produced time-series maps of phosphate mine settlement ponds in the Alafia estuary in Florida using satellite imagery in Google Earth Engine. Demonstrated that mine waste accumulated near municipal water supplies.
- Delivered a company-wide presentation on applications of data science to environmental management.

Awards

Grand Prize Winner. AGU Michael M. Freilich Data Visualization Contest. December 2023.
NSF Graduate Research Fellowship. National Science Foundation. 2022 – 2025.
Class of 1902 Research Prize. Rensselaer Polytechnic Institute. May 2022.
Kenneth J. Osborn Scholarship. American Society of Photogrammetry and Remote Sensing. March 2021.