Abhinav Shrestha
M.S. Student
Department of Earth and Spatial Sciences, College of Sciences
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Education

2021-current	**M.S.** Geography, Dept. of Earth and Spatial Sciences, University of Idaho, Moscow, ID.	GPA: 4.0 Thesis title: *Evaluating the utility of structure from motion-derived point cloud for detecting insect damage using drone imagery of forests in Northern Rockies, USA* Advisor: Dr. Jeffrey Hicke
2015-2019	**B.A.** Biology and Environmental Science, Coe College, Cedar Rapids, IA.	GPA: 3.93 Honors: *Magna Cum Laude,* Phi Beta Kappa, Phi Kappa Phi Senior Honors Thesis: GIS-based study on topographical preference of common tree species in Palisades-Kepler State Park, IA Advisor: Dr. Paula Sanchini, Dept. of Biology

Research Experience

2021-current **Graduate student researcher,** Dept. of Earth and Spatial Sciences, University of Idaho.

- Principle investigator, MS thesis project. Title: *Evaluating the utility of structure from motion-derived point cloud for detecting insect damage using drone imagery of forests in Northern Rockies, USA*. Advisor: Dr. Jeffrey Hicke, Dept. of Earth and Spatial Sciences, University of Idaho.
- Collaborative researcher, plant sciences and rangeland research project. Title: *A comparison and development of methods for estimating sagebrush shrub volume using unmanned aerial systems.* Principle Investigator: Georgia R. Harrison, Department of Plant Sciences, University of Idaho.

2022-current **Graduate Research Assistant**, NASA Commercial SmallSat Data Analysis (CSDA) project. Project title: *Using commercial satellite imagery to study insect outbreaks in the US: Outbreak characteristics and evaluation of Landsat-based algorithms*. This is a collaborative research project with researchers from the University of Idaho, Washington State University, and the US Forest Service Rocky Mountain Research Center. Principle Investigator: Dr. Arjan Meddens, School of the Environment, Washington State University, Pullman, WA.

2017-2019 **Undergraduate Researcher,** Dept. of Biology, Coe College.
Principle investigator, senior honors thesis. Title: *GIS-based study on topographical preference of common tree species in Palisades-Kepler State Park, IA*. Advisor: Dr. Paula Sanchini, Dept. of Biology, Coe College.

2018 **GIS Research Technician,** Dept. of Psychology, Coe College.
Project title: *How roadway design affects cyclist-motorist interactions*. Principle Investigators: Kei Yoshida and Dr. Benjamin Chihak, Dept. of Psychology, Coe College.

Professional Experience

2021-2022 **Graduate Teaching Assistant**, Dept. of Earth and Spatial Sciences, University of Idaho
Responsibilities: instruct Physical Geography Lab (GEOG 100L), develop online course for Intermediate GIS course (GEOG 475) through University of Idaho's Center for Excellence in Teaching and Learning (CETL) department

2019-2021 **Quality Control Lab Analyst,** Archer Daniels Midland (ADM), Cedar Rapids, IA
Responsibilities: perform daily analytical tests for process and final samples of products, perform maintenance, calibration, and troubleshooting of all analytical laboratory equipment, perform job cycle checks, blind sample testing, cross lab studies, and review and validate standard operating procedures (SOP)

2016-2019 **Lab Technician,** Dept. of Biology, Coe College
Responsibilities: prepare samples and solutions for quantitative analysis of genetic, tissue and microbiological experiments for all biology lab courses, maintain and update remote sensing equipment for field courses, maintain inventory of chemical stockroom, caretake of plants and animals used for lab courses and research

2018 **IT Technician.** Dept. of Information Technology, Coe College
Responsibilities: update and maintain hardware and software of all computers, printers, and servers under Coe College IT supervision, provide technical support via in-person drop-ins and phone/email IT helpline

2018 **Undergraduate Tutor,** Dept. of Biology, Coe College
Responsibilities: help students troubleshoot issues regarding remote sensing and field data integration with ArcGIS, answer any GIS related questions pertaining to the Spatial Ecology course (BIO 290)

Involvement, Service & Engagement

2016-2019	**Executive Board Member**, International Club, Coe College Roles: President (2018-2019), Vice President (2017-2018), and Public Relations Officer (2016-2017) Responsibilities: organize events that promote cultural diversity within the general student body and local community, act as liaisons that represent the international student body to work with the Office of International Student Affairs and the Office of Student Development at Coe College
2017-2019	**International student representative,** Diversity and Inclusion Collaboration Committee, Coe College Responsibilities: organize collaborative events with student leaders from identity-based student organizations at Coe College advocating for cultural diversity and minority representation
2016-2017	**Public Relations Officer,** Multicultural Fusion Club, Coe College Responsibilities: coordinate communications between members, general student body, and local communities to promote participation for events organized by the club
2016	**International Student Orientation Leader,** Office of International Student Affairs, Coe College Responsibilities: coordinate and oversee events that comprise of the International Student Orientation, mentor international students to ease their transition into a new environment

Publications & Presentations

Harrison, G. R., **A. Shrestha**, J. Karl, "Seeing shrubs from the sky: an exploration of using drone-based method to estimate shrub canopy volume", contributed talk, Ecological Society of America (ESA) Annual Conference, 6-11 August 2023, Portland, OR.

Hicke, J. A., **A. Shrestha**, A. Meddens, A. Stahl, B. Bright, A. Hudak, R. Hanavan, "Using Remote Sensing to Study Tree Damage from Insects", keynote speaker, Western Forest Insect Work Conference, 25-27 April 2023, Seattle, WA.

Shrestha, A. (2019). GIS-Based Study on Topographical Preference of Common Tree Species in Palisades-Kepler State Park, IA. Defended and submitted as an honors thesis to the Coe College Dept. of Biology.

Shrestha, A., & Sanchini P. (2019). A Geographic Information System (GIS)-based study on topographical preference of common tree species in Palisades-Kepler State Park. Presentation given at Coe College Student Research Symposium 2019.

Obiesie, C., **Shrestha, A.**, & Sanchini, P. (2018). Distribution of Oaks (Quercus spp.) in Forests of Palisades-Kepler Park, Linn County, Iowa. Poster presented at Coe College Student Research Symposium 2018.

Yoshida, K**., Shrestha, A.**, & Chihak, B. (2018). How Roadway Design Affects Cyclist-Motorist Interactions. Poster presented at 2018 Tri-State Undergraduate Psychology Research Conference at Loras College, Dubuque, IA.

Honors & Awards

2021-current	**Graduate Assistantship**, Dept. of Earth and Spatial Sciences, University of Idaho, Moscow, ID ($94,389)
2015-2019	**Global Leadership Full-tuition Scholarship**, Coe College, Cedar Rapids, IA ($155,000)
2019	**DeJong Biology Research Award** for outstanding honors research in biology, Dept. of Biology, Coe College, Cedar Rapids, IA
2019	**Phi Beta Kappa**, National Honors Society
2019	**Phi Kappa Phi**, National Honors Society

Relevant Courses & Skills

University of Idaho, Moscow, ID (2021-current)

Courses: GIS Programming, Remote Sensing with UAS, Data Wizardry in Environmental Science (R-programming course), Remote Sensing/GIS Integration, Global Climate Change, Advanced Forest Entomology, Fire Ecology, Statistical Analysis

Coe College, Cedar Rapids, IA (2015-2019)

Courses: Urban Ecology, Environmental Microbiology, Analytical Chemistry, Behavior and Ecology of Vertebrates, Field Botany

Programming Languages & Software

R, RStudio, Python, Jupyter Notebooks, ArcPy, ArcGIS Pro, QGIS, ERDAS Imagine, Agisoft Metashape, CloudCompare, Emlid Studio, Forest Vegetation Simulator (FVS), VSCode, VIM, NeoVIM

Instruments

Trimble GeoX7 GPS receiver, ProMark 220 GPS receiver, TruPulse Laser Rangefinder, High Performance Liquid Chromatography (HPLC), Gas Chromatography (GC), Combustion Analyzer, Ion Chromatography (IC)

Languages

English (Native), Nepali (Native), Hindi (Native), Urdu (Intermediate)

Professional References

Dr. Jeffrey Hicke, Professor (Advisor)**,** Dept. of Earth and Spatial Sciences, University of Idaho, Moscow, ID. Email: jhicke@uidaho.edu

Dr. Jason Karl, Associate Professor of Rangeland Ecology and Harold F. and Ruth M. Heady Endowed Chair of Rangeland Ecology, Dept. of Forestry, Rangeland, and Fire Sciences, University of Idaho, Moscow, ID. Email: jkarl@uidaho.edu

Dr. Arjan Meddens, Assistant Professor, School of the Environment, Washington State University, Pullman, WA. Email: arjan.meddens@wsu.edu

Christine Bielema, Laboratory Supervisor, Archer Daniels Midland (ADM) Carbohydrate Solutions, Cedar Rapids, Email: Christine.Bielema@adm.com, Tel: (319)-398-4343

Dr. Paula Sanchini, Henry and Margaret Haegg Professor of Biology and Environmental Science Administrative Coordinator, Dept. of Biology, Coe College, Cedar Rapids, IA. Email: psanchin@coe.edu