Blair Mirka, MS

Curriculum Vitae

Email: bmirka@unm.edu | Website: https://mirkab.github.io/

EDUCATION

Expected Fall 2025 — **Ph.D. Geography**
Museum Studies Minor
The University of New Mexico
The Department of Geography and Environmental Studies
Dissertation Title: America's Next Top Model: 3D Modeling of Museum Specimens for Automated Ground Beetle Identification
Major Professor: Dr. Christopher Lippitt

June 2020 — **MS Geography (GIScience)**
San Diego State University
The Department of Geography
Thesis Title: Evaluation of Thermal Infrared Imaging from Unmanned Aerial Vehicles for Arboreal Wildlife Surveillance
Major Professor: Dr. Douglas Stow

May 2018 — **BS Geography (GIS: Environmental Science and Policy)**
University of Northern Iowa
The Department of Geography
Graduated Cum Laude

Certificates:

Remote Pilot (Part 107) | *Federal Aviation Administration (2024)*
Geographic Information Systems (GIS) and Cartography | *University of Northern Iowa (2018)*
PADI Open Water Diver | *Professional Association of Diving Instructors (2016)*

TECHNICAL SKILLS

Programming

Bootstrap, CSS, HTML, JavaScript (D3, jQuery), Python, R, R Studio, SQL

AI Framework & Tools

TensorFlow, PyTorch, YOLO, Grounding DINO, Segment Anything Model (SAM)

Software and Programs

Adobe Illustrator, Adobe Photoshop, Adobe InDesign, Agrisoft Metashape, Arc Catalog, ArcMap, ArcGIS Online, ArcGIS Pro, Blender, CloudCompare, eMotion 2, ENVI, ERDAS IMAGINE, Helicon Remote, Helicon Focus, Pathfinder Office, Pix4D, MeshLab, Microsoft Office, QGIS, TerrSet, Visual Studio Code

PUBLICATIONS

Blair Mirka, Christopher Lippitt "Labeled 2D images from 3D models of museum specimens; The impact of Structure from Motion modeling parameters on rendered 2D images" ZooKeys *(In Review, 2025)*

Mirka B., Lippitt C.D., Harris G.M, Converse R.L, Gurule M., Sesnie, S.E, Bulter M.J., Stewart D.R., and Rossman Z. (2024). "Towards Fully Automated Wildlife Population Density Monitoring and Distance Estimation in Camera Trap Images:" A Photogrammetric Approach. Ecological Informatics. *(2025)*

Theodros Woldeyohannes, Yan Lin, Xiaoyang Zhang, John Doyle, Margaret Eggers, Liu Zhuoming, Al Ekram Hridoy, El Mehdi Bimaghra, Tadiwanashe Bizure,

Blair Mirka, Latasha James, Joseph Hoover. "Waste fire surveillance using remote sensing and air contaminant monitoring" Journal of Waste Management. *In Review (2024)*

Mirka, B.A., Stowe, D., Paulus, G., Loerch, A., Coulter, L., An, L., Lewison, R., and Pfülger, L. "Evaluation of Thermal Infrared Imaging from Unmanned Aerial Vehicles for Arboreal Wildlife Surveillance". Environmental Monitoring and Assessment. March 2022

Leadership and Service Roles

ASPIRE Center: UAS Services Manager (2024 - Present) | *The University of New Mexico*
ASPRS Student Chapter Secretary (2024 - Present) | *The University of New Mexico*
ASPIRE Center: Lab Manager (2022 - 2023) | *The University of New Mexico*
ASPIRE Center: ASPIREational Talk Coordinator (2022 - 2023) | *The University of New Mexico*
ASPIRE Center: ASPIRE Open House Coordinator (2022 - 2023) | *The University of New Mexico*
ASPRS Student Chapter President (2021- 2023) | *The University of New Mexico*
Graduate Student Computing Liaison (2019-2022) | *San Diego State University*
ASPRS Student Chapter Vice President (2019-2022) | *San Diego State University*

PRESENTATIONS

BioSymposium, The University of New Mexico Art Museum (2024), *America's Next Top Model: 3D Modeling of Museum Specimens for Automated Ground Beetle Identification*

ASPIREational Talk, ASPIRE Lecture Series, University of New Mexico (2024) *America's Next Top Model: 3D Modeling of Museum Specimens for Automated Ground Beetle Identification*

AAG, Honolulu, Hawaii, (2024) *Automated Distance Sampling from Camera Traps using Structure from Motion*

International Conference on Advances in Geographic Information Systems (2023) *Automated Distance Sampling from Camera Traps using Structure from Motion*

NRT Annual Meeting (2023) Poster Presentation: *3D Modeling of Museum Specimens for Automated Ground Beetle Identification.*

AAG, Denver, Colorado, (2023) *Automated Distance Sampling from Camera Traps using Structure from Motion*

Team Research Symposium, University of New Mexico, Finalist (2022, April) *A Methodological Approach to Next-Gen Science Sharing through 3D Modeling*

AAG RSSG Student Honors Paper Competition, 3rd Place (2022, Feb.) *Evaluation of Thermal Infrared Imaging from Unmanned Aerial Vehicles for Arboreal Wildlife Surveillance*

UNM Shared Knowledge Conference (2021, Nov.) *Evaluation of Thermal Infrared Imaging from Unmanned Aerial Vehicles for Arboreal Wildlife Surveillance.*

SWAAG Graduate Student Poster Competition, 3rd Place (2021, Oct.) *Evaluation of Thermal Infrared Imaging from Unmanned Aerial Vehicles for Arboreal Wildlife Surveillance.*

CSBS Student Research and Engagement Conference Cedar Falls, IA (2018, April) *Predicting the future habitat range of invasive lionfish, Pterois volitant using ecological niche modeling.*

SCHOLARSHIPS and AWARD

- 2025 Doctoral Conference Presentation Award | *The University of New Mexico*
- 2024 Selected Participant, Beetlepalooza, Imageomics Institute | *The Ohio State University*
- 2024 Graduate Supplement Award | *The University of New Mexico*
- 2023 Levings Graduate Fellowship in Science and Technology | *The University of New Mexico*
- 2023 ACM SIGSPATIAL NSF Travel Award | *ACM SIGSPATIAL*
- 2023 Rodman E. Snead Scholarship| *The University of New Mexico*
- 2023 GPSA Professional Development Grant (PDG) | *The University of New Mexico*
- 2023 GPSA Student Research Grant (SRG)| *The University of New Mexico*
- 2022 AAG GeoBowl Championship Team Member | *American Association of Geographers Annual Meeting*
- 2022 GTU Travel Award Recipient | *Gamma Theta Upsilon*
- 2021 NRT Museum Research Traineeship | *The University of New Mexico*
- 2020 Rodman E. Snead Scholarship |*The University of New Mexico*
- 2019 Marshall Plan Foundation Scholarship Recipient |*Austrian Marshall Plan Foundation*
- 2019 Alvena Storm Memorial Scholarship | *San Diego State University*
- 2019 Presidential Graduate Research Fellowship | *San Diego State University*
- 2018 Department of Geography Recognition of Distinguished Service Recipient |*University of Northern Iowa*
- 2018 Outstanding Undergraduate Research in Geography Award |*University of Northern Iowa*
- 2018 Award of Excellence Scholarship |*National Council for Geographic Education*
- 2017/2018 Geography Honor List| *University of Northern Iowa*

RESEARCH EXPERIENCE

Aug 2024 – Present **ASPIRE Center**, The University of New Mexico, NM
Role: *UAS Services Manager*

- Oversaw the ASPIRE UAS Services Programing, providing consultation on flight planning, UAS maintenance and compliance, and operating drones in field environments.
- Performed geometric calibration and alignment of Sea-Bird boresight cameras for U.S. Fish and wildlife

Oct 2023 – April 2024 **New Mexico Museum of Natural History and Science**, Albuquerque, NM
Role: *Museum Tech Conservator - Operational*

- Imaged Rodent teeth. Edited and prepped images for upload to Arctos.
- Created 3D models of fossils using photogrammetry which were then 3D printed. These prints were then used to enhance accessibility for blind and visually impaired visitors by facilitating tactile interaction within exhibits and educational materials.

Jan 2023 – Aug 2023 **New Mexico Museum of Natural History and Science**, Albuquerque, NM
Role: *Consultant*

- Developed and implemented a comprehensive digitization protocol for museum objects in geoscience and biological collections, incorporating 2D images, 3D laser scanning, and photogrammetry.

Feb 2022 – March 2025 **ASPIRE Center**, The University of New Mexico, NM
Role: *Graduate Research Assistant, Lead Author*

- Provided a workflow that would enable the automated distance estimation of animals from camera trap imagery using Structure from Motion (SfM)

Aug 2022 – Aug 2023 **ASPIRE Center**, The University of New Mexico, NM
Role: *Lab Manager*

- Oversaw the ASPIRE UAS Services Programing, providing consultation on flight planning, UAS maintenance and compliance, and operating drones in field environments.
- Performed geometric calibration and alignment of Sea-Bird boresight cameras for U.S. Fish and wildlife

May 2021 – Aug 2022 **ASPIRE Center**, The University of New Mexico, NM
Role: *Graduate Research Assistant,*

- Work to detect small fires associated with trash burning using high-resolution satellite imagery on the tribal lands of the Navajo Nation, Cheyenne River Sioux, and Apsáalooke.

Aug 2018 – Aug 2020 **NSF Complex Human-Environmental Systems Project**, San Diego State University, CA
Role: *Graduate Researcher*

- Developed and tested techniques for using drones equipped with thermal infrared sensors to detect and locate monkeys in a forested environment.
- Adapted Structure from Motion (SfM) 3D modeling techniques to generate models from thermal infrared imagery.
- Located and mapped afforested plots in the Fanjingshan National Nature Reserve, China

May 2019 – Aug 2019 **Marshall Plan Foundation Scholar**, Carinthia University of Applied Sciences, Austria

- Designed and executed flight plans to test the viability of different methods of primate detection using unoccupied aerial vehicles equipped with thermal cameras.

Aug 2017 – May 2018 **Geographic Alliance of Iowa (GAI),** Cedar Falls, IA
Role: *Undergraduate Research Assistant*

- Reviewed articles from National Geographic's Pristine Oceans Initiative Provided summaries for educators in Iowa to utilize in the classroom.

June 2017 – May 2018 **GeoTree,** Cedar Falls, IA
Role: *Undergraduate Assistant*

- Worked on variable contract jobs which ranged from creating maps for publications to digitizing water bodies in Iowa using ArcMap.

Fall 2017 **University of Northern Iowa,** University of Northern Iowa, IA
Role: *Undergraduate Research Assistant*

- Collected data using an ASD spectrometer and GPS Units
- Provided real-time ground measurements for 30m Russian RESURS-P Hyperspectral images

TEACHING EXPERIENCE

Spring 2025 **The University of New Mexico,** Albuquerque, NM
Instructor of Record
- **MSST 485/585:** Digital Approaches in Museums

Fall 2023 **The University of New Mexico,** Albuquerque, NM
Instructor of Record
- **GEOG 1160:** Home Planet: Land, Water, Life: Intro to Physical Geography

Fall 2023 **The University of New Mexico,** Albuquerque, NM
Course Developer, Co-Instructor of Record
- **MSST 485/585:** Digital Approaches in Museums

Fall 2020 **The University of New Mexico,** Albuquerque, NM
Graduate Teaching Assistant
- **GEOG 483/583L:** Remote Sensing Fundamentals
- **GEOG 484L/584L:** Applications of Remote Sensing

Fall 2018 – Spring 2020 **San Diego State University,** San Diego, CA
Graduate Teaching Assistant
- **GEOG 104:** Geographic Information Science and Spatial Reasoning
- **GEOG 303:** Severe Weather
- **GEOG 385:** Spatial Data Analysis
- **GEOG 591:** Remote Sensing of the Environment