Connor Greenwell

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1 Research Profile

Dr. Greenwell is an applied computer vision and multimodal AI researcher with over a decade of experience specializing in remote sensing, geospatial foundation models, and human-environment modeling. He has been PI on $1M+ federal research programs (NGA, DOT, ARO), with publications across CVPR-adjacent venues and IEEE flagship conferences.

2 Education

Doctor of Philosophy Computer Science — *Lexington, KY*
University of Kentucky — 2016—2022
Advisor: Nathan Jacobs
Dissertation: "Image Geo-localization with Cross-Attention"

Bachelor of Science Computer Science & Mathematics — *Lexington, KY*
University of Kentucky — 2011—2016

3 Appointments

Kitware Inc. AI & Computer Vision Team — *Richmond, VA*
Staff Research Scientist — 2026—Present
Senior Research Scientist — 2022—2026
Research and Development Intern — Summer 2021

Oak Ridge National Laboratory Natl. Security Emerging Tech. Div. — *Oak Ridge, TN*
Graduate Student Researcher — Summer 2019
Advanced Short-Term Research Opportunity (ASTRO) Program

University of Kentucky Dept. of Computer Science — *Lexington, KY*
Graduate Research Assistant — 2016—2022
Undergraduate Research Assistant — 2014—2016

University of North Carolina at Charlotte — *Charlotte, NC*
Undergraduate Research Assistant — Summer 2014
NSF Research Experience for Undergraduates Program

4 Publications

(For the most up-to-date list, please refer to my Google Scholar page)

4.1 Dissertation

[1] Connor Greenwell. "Image Geo-localization with Cross-Attention". PhD thesis. University of Kentucky, 2022.

4.2 Journal Articles

[1] Gongbo Liang, Connor Greenwell, Yu Zhang, Xin Xing, Xiaoqin Wang, Ramakanth Kavuluru, and Nathan Jacobs. "Contrastive cross-modal pre-training: A general strategy for small sample medical imaging". In: *IEEE Journal of Biomedical and Health Informatics*. 2021.

[2] Mohammad T Islam, Connor Greenwell, Richard Souvenir, and Nathan Jacobs. "Large-Scale Geo-Facial Image Analysis". In: *EURASIP Journal on Image and Video Processing*. 2015.

4.3 Refereed Conference Papers

[1] Sanghyun Son, Laura Zheng, Brian Clipp, Connor Greenwell, Sujin Philip, and Ming C. Lin. "Gradient-based Trajectory Optimization with Parallelized Differentiable Traffic Simulation". In: *IEEE International Conference on Robotics & Automation*. 2025.

[2] Jon Crall, Connor Greenwell, David Joy, Matthew Leotta, Aashish Chaudhary, and Anthony Hoogs. "GeoWATCH for Detecting Heavy Construction in Heterogeneous Time Series of Satellite Images". In: *IEEE International Geoscience and Remote Sensing Symposium*. 2024.

[3] Connor Greenwell, Jon Crall, Matthew Purri, Kristin Dana, Nathan Jacobs, Armin Hadzic, Scott Workman, and Matt Leotta. "WATCH: Wide-Area Terrestrial Change Hypercube". In: *IEEE/CVF Winter Conference on Applications of Computer Vision*. 2024.

[4] Benjamin Brodie, Subash Khanal, Muhammad Usman Rafique, Connor Greenwell, and Nathan Jacobs. "Hierarchical Probabilistic Embeddings for Multi-View Image Classification". In: *IEEE International Geoscience and Remote Sensing Symposium*. 2021.

[5] Scott Workman, M. Usman Rafique, Hunter Blanton, Connor Greenwell, and Nathan Jacobs. "Single Image Cloud Detection via Multi-Image Fusion". In: *IEEE International Geoscience and Remote Sensing Symposium*. 2020.

[6] Tawfiq Salem, Connor Greenwell, Hunter Blanton, and Nathan Jacobs. "Learning to Map Nearly Anything". In: *IEEE International Geoscience and Remote Sensing Symposium*. 2019.

[7] Connor Greenwell, Scott Workman, and Nathan Jacobs. "What Goes Where: Predicting Object Distributions From Above". In: *IEEE International Geoscience and Remote Sensing Symposium*. 2018.

[8] Menghua Zhai, Tawfiq Salem, Connor Greenwell, Scott Workman, Robert Pless, and Nathan Jacobs. "Learning Geo-Temporal Image Features". In: *British Machine Vision Conference*. 2018.

[9] Ryan Baltenberger, Menghua Zhai, Connor Greenwell, Scott Workman, and Nathan Jacobs. "A Fast Method for Estimating Transient Scene Attributes". In: *IEEE Winter Conference on Applications of Computer Vision*. 2016.

[10] Scott Workman, Connor Greenwell, Menghua Zhai, Ryan Baltenberger, and Nathan Jacobs. "DeepFocal: A Method for Direct Focal Length Estimation". In: *International Conference on Image Processing*. 2015.

4.4 Workshop Papers

[1] Hunter Blanton, Connor Greenwell, Scott Workman, and Nathan Jacobs. "Extending Absolute Pose Regression to Multiple Scenes". In: *CVPR Joint Workshop on Long-Term Visual Localization, Visual Odometry and Geometric and Learning-based SLAM*. 2020.

[2] Connor Greenwell, Scott Workman, and Nathan Jacobs. "Implicit Land Use Mapping Using Social Media Imagery". In: *IEEE Applied Imagery and Pattern Recognition*. 2019.

[3] Connor Greenwell, Scott Spurlock, Richard Souvenir, and Nathan Jacobs. "GeoFaceExplorer: Exploring the Geo-Dependence of Facial Attributes". In: *ACM SIGSPATAL International Workshop on Crowdsourced and Volunteered Geographic Information (GEOCROWD)*. 2014.

4.5 Abstracts

[1] Connor Greenwell, Tanmay Ambadkar, Sourav Panda, Shreyash Kale, Abhinav Verma, Jonathan Dodge, Brianna Major, Aashish Chaudhary, and Brian Hu. "MIXTAPE: Middleware for Interactive XAI with Tree-Based AI Performance Evaluation". In: *NATO STO Research Symposium on AI Security and Assurance for Military Systems (IST-210)*. 2025.

[2] Connor Greenwell, Eric Smith, and Matthew Leotta. "Leveraging Foundation Models to Perform Open-Vocabulary 2D-to-3D Semantic Segmentation". In: *MSS Parallel (BSD, Materials & Detectors, and Passive Sensors) Conference*. 2025.

[3] Matthew Leotta, Jon Crall, and Connor Greenwell. "Fusing Heterogeneous Satellite Imagery Using AI to Detect Man-made Activity for the IARPA SMART Program". In: *MSS Parallel (BSD, Materials & Detectors, and Passive Sensors) Conference*. 2024.

4.6 Datasets

[1] Mohammad T Islam, Connor Greenwell, and Nathan Jacobs. *GeoFaces: A large database of geolocated face patches*. URL: https://mvrl.cse.wustl.edu/datasets/geofaces/.

5 Funding

5.1 Active

Generative Unbiased 3D Semantic Segmentation $1,100,000
National Geospatial Intelligence Agency, SBIR 2024—2027
Co-PIs: **Connor Greenwell** (Kitware), Eric Smith (Kitware)

Middleware for Interactive XAI with Tree-based AI Performance Eval. $1,100,000
Army Research Office, STTR 2024—2026
PI: **Connor Greenwell** (*) (Kitware)
Co-I(s): Brian Hu (Kitware), Abhinav Verma (PSU), Jonathan Dodge (PSU)
(*) *My PI role was appointed post-award.*

5.2 Complete

Complete Urban to Rural Balanced Streets by AI Design $200,000
Department of Transportation, SBIR 2024—2025
PI: **Connor Greenwell** (Kitware)
Co-I(s): Claudio Silva (NYU), Jaclyn Hakes (MJ Engineering)

Multi-scale Imitation and Robust Recognition of Obfuscated Routes $6,000,000
Intelligence Advanced Research Projects Activity, HAYSTAC Program 2023—2024
PI: Brian Clipp (Kitware)
Co-I(s): Mubarak Shah (UCF), Chen Chen (UCF), Ming Lin (UMD), Feng Chen (UTD), Apurva Kumar (CityData)
Chief Scientist: **Connor Greenwell** (*) (Kitware)
(*) *My Chief Scientist role was appointed post-award.*

6 Talks

Middleware for Interactive XAI with Tree-based AI Performance Eval. *McLean, VA*
NATO STO Research Symposium on AI Security and Assurance for Military Systems Oct., 2025

Implicit Land Use Mapping Through Geotagged Imagery *Washington, DC*
IEEE Applied Imagery and Pattern Recognition Workshop October, 2019

GeoFaceExplorer: Exploring the Geo-Dependence of Facial Attributes *Dallas, TX*
ACM SIGSPATAL GEOCROWD Workshop November, 2014

7 Professional Service

7.1 Reviewing

IEEE/CVF Conference on Computer Vision and Pattern Recognition 2019—2026
IEEE Winter Conference on Applications of Computer Vision 2019—2025
EarthVision: Large Scale Computer Vision for Remote Sensing Imagery 2021—2023
ISPRS Journal of Photogrammetry and Remote Sensing 2020—2021
AAAI Conference on Artificial Intelligence 2021
British Machine Vision Conference 2020