

# Mehdi Pourpeikari Heris

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## ACADEMIC POSITIONS

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**2020-  
Present**      **Assistant Professor**  
Hunter College of New York, Department of Urban Planning and Policy

- Urban Data Analytics
- Geospatial Science in Urban Contexts
- Advanced GIS for Environmental Planning
- Urban Ecology and Ecosystem Services

**2018-2020**      **Post-Doctoral Fellowship**  
University of Colorado Denver & US Geological Survey (NASA funded)

- Research Project: Earth Observation for Ecosystem Service Accounting Working with Natural Capital Accounting Working Group

**2015-2017**      **Instructor**  
University of Colorado Boulder, Program in Environmental Design

- GIS Analysis for Urban Planning and Design (Fall '15)
- Urban Planning Studio (Fall '16, Fall '17)

University of Colorado Denver, College of Architecture and Planning

- Urban Planning Studio (Fall '16)

Metropolitan State University of Denver, Environmental Studies

- Introduction to GIS (Fall '16)

## EDUCATION

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**2018**      **PhD Urban Planning and Design**  
University of Colorado Denver, College of Architecture and Planning

- **Dissertation:** The Influence of Design and Planning Policies on Urban Microclimate. I analyzed zoning and design guidelines to show how policies change airflow, solar radiation, and other microclimate variables and energy heat fluxes in urban areas.

**2008**      **MA Planning Research and Theory**  
University of Sheffield, UK, Department of Town and Regional Planning

- **Thesis:** A Comparative Study of Urban Intensification Policies in London, Auckland and Tehran.

**2007**      **MA Urban and Regional Planning**  
University of Tehran, Iran, Department of Urban and Regional Planning

- **Thesis:** The Simulation of Pedestrian Behavior Using Agent-Based Modeling Approach

**2004**      **BA Urban Planning**  
University of Tehran, Iran, Department of Urban and Regional Planning

- **Thesis:** Designing a Spatial Land Use Database Using Land Based Classification Standard (LBCS): Calibrating the LBCS standard provided by American Planning Association (APA) for the Iranian planning system.

## RESEARCH GRANTS

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2022 (Summer)	<b>(As PI) NASA: Earth Science Applications: Equity and Environmental Justice.</b> Developing an interactive data portal for connecting vulnerable communities to the science of urban heat mitigation.	\$250,000	Funded
2022 (Summer)	<b>(As Co-I) NASA: Earth Science Applications: Equity and Environmental Justice. Marcotullio, Peter (PI) et al.</b> Spatial and temporal variations in land surface temperature, vegetation, and socio-economic and health characteristics in frontline EEJ neighborhoods in New York City: Integrating Scientific Study with Community Perspectives	\$100,000	Funded
2022 (Summer)	<b>(As Co-I) NASA: Earth Science Applications.</b> Troy, Austin (PI) et al.. Socioeconomic Assessments. A scalable, multi-sector approach for characterizing socio-economic benefits deriving from remotely sensed Earth science information.	\$3.6 million	Not Funded
2022 (Summer)	<b>(As PI) CUNY PSU Grant:</b> Modeling NYC's Rooftops for Evaluating Solar and Green Roof Potential.	\$6000	Funded
2021 (Fall)	<b>(As Co-I) The Pennsylvania State University:</b> Flohr, Travis (PI) et al.. Connecting policies to actions for creating just biodiverse, and climate-resilient urban forests. 2021-2022 Penn State Institutes of the Energy and the Environment Seed Grant for Urban Systems Strategic Priority.	\$30,000	Funded
2021 (Spring)	<b>(As Co-I) National Institutes of Health (NIH):</b> Confluence of extreme heat and cold on aging and longevity.	\$80k/\$4million	Unfunded
2020 (Fall)	<b>(As PI) CUNY PSU Grant:</b> Measuring albedo impacts of building rooftops on urban heat island in New York City	\$12k	Funded
2020 (Fall)	<b>(As CO-I) The Pennsylvania State University, Ecology Plus Design Mini grant:</b> Assessing urban forest mosaic patterns impacts on urban surface temperature mitigation in Baltimore, Maryland and Denver, Colorado. (Co-Investigator).	\$14k	Funded
2018 (Fall)	<b>(As PI) University of Colorado Boulder Outreach Award:</b> Collaborative Community Resilience for Heat Mitigation through Trees.	\$8.5k	Funded

## HONORS & AWARDS

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2016	<b>Jennifer Moulton Doctoral Fellowship (\$5,000)</b> Jennifer Moulton Foundation; Denver, CO
2009	<b>Excellence Award in Teaching</b> The Housing and Urban Development Institution (Tehran, Iran)
2007-2008	<b>Chevening Fellowship (£50,000)</b> A fellowship covering all expenses granted by the British Council for undertaking graduate studies in the UK.

## PUBLICATIONS (peer reviewed)

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- In preparation** Heris, M., George, R., Avila, D., Flohr, T., A dataset and its pipeline on roof reflectivity of building rooftops in New York City, Nature Scientific Data.
- In preparation** Heris, M., George, R., Avila, D., Flohr, T., Lundi, D., Pollans, L., Roof reflectivity Change of Building rooftops in New York City., Landscape and Urban Planning.
- In preparation** Bagstad, K., Heris, M., Lonsdorf, E., Ancona, Z., Troy, A. Modeling wild pollinator abundance and pollinator contributions to crop yields in the United States, Journal of Ecosystem Services.
- In preparation** Heris, M. P., McCurdy, M.\*, LaCourse A.\*, Wilson, A. Collaborative Community Resilience for Heat Mitigation through Trees. In preparation for: *Urban Forestry & Urban Greening*.
- Published in 2022** Flohr, T., Heris, M. P., Derycke, E. Urban tree canopy pattern impacts on urban microclimate, Journal of Digital Landscape Architecture, 7-2022.
- Published in 2022** Marando, F., Heris, M. P., Zulian, G., Udías, A., Mentaschi, L., Chrysoulakis, N., & Maes, J. (2022). Urban heat island mitigation by green infrastructure in European Functional Urban Areas. *Sustainable Cities and Society*, 77, 103564. <https://doi.org/10.1016/j.scs.2021.103564>
- Published in 2022** Pourpeikari Heris, M., Bagstad, K. J., Troy, A. R., & O’Neil-Dunne, J. P. (2022). Assessing the Accuracy and Potential for Improvement of the National Land Cover Database’s Tree Canopy Cover Dataset in Urban Areas of the Conterminous United States. *Remote Sensing*, 14(5), 1219. <https://doi.org/10.3390/rs14051219>
- Published in 2021** Heris, M. P., Bagstad, K. J., Rhodes, C., Troy, A., Middel, A., Hopkins, K. G., & Matuszak, J. (2021). Piloting urban ecosystem accounting for the United States. *Ecosystem Services*, 48, 101226. <https://doi.org/10.1016/j.ecoser.2020.101226>
- Published in 2021** Bagstad, K. J., Ingram, J. C., Shapiro, C. D., La Notte, A., Maes, J., Vallecillo, S., Casey C. F., Glynn, P. D., Heris, M. P., Johnson, J. A., Lauer, C., Matuszak, J., Oleson, K. L. L., Posner, S. M., Rhodes, C., Voigt, B. (2021) Lessons learned from development of natural capital accounts in the United States and European Union. *Ecosystem Services*, 52, 101359. <https://doi.org/10.1016/j.ecoser.2021.101359>
- Published in 2021** Mostafavi, N., Heris, M. P., Gándara, F., Hoque, S. (2021) The Relationship between Urban Density and Building Energy Consumption. *Buildings*, 11(10), 455. <https://doi.org/10.3390/buildings11100455>
- Published in 2020** Heris, M. P., Middel, A., & Muller, B. (2020). Impacts of form and design policies on urban microclimate: Assessment of zoning and design guideline choices in urban redevelopment projects. *Landscape and Urban Planning*, 202, 103870. <https://doi.org/10.1016/j.landurbplan.2020.103870>
- Published in 2020** Heris, M. P., Foks, N. L., Bagstad, K. J., Troy, A., & Ancona, Z. H. (2020). A rasterized building footprint dataset for the United States. *Scientific Data*, 7(1), 1–10. <https://doi.org/10.1038/s41597-020-0542-3>
- Published in 2020** Heris, M.P., Foks, N., Bagstad, K., and Troy, A., 2020, A national dataset of rasterized building footprints for the U.S.: U.S. Geological Survey data release, <https://doi.org/10.5066/P9J2Y1WG>.
- Published in 2020** Roudbari, S., Heris, M., Hakhamaneshi, M., & Dashti, S. (2020). Mediating Design Claims: The Social Media and Housing Disaster of the 2017 Halabja Earthquake. *Natural Hazards Review*, 21(2), 04020012. [https://doi.org/10.1061/\(ASCE\)NH.1527-6996.0000352](https://doi.org/10.1061/(ASCE)NH.1527-6996.0000352)

- Published in 2019** Heris, M. P., Muller, B., & Wilson, A. M. (2019). Why Does Planning Matter in Microclimate Management and Urban Heat Mitigation? *Journal of Planning Education and Research*, 0739456X1988300. <https://doi.org/10.1177/0739456X19883000>
- Published in 2017** Heris, M. P. (2017). Evaluating metropolitan spatial development: A method for identifying settlement types and depicting growth patterns. *Regional Studies, Regional Science*, 4(1), 7–25. <https://doi.org/10.1080/21681376.2016.1266285>
- Published in 2015** Estiri, H., Krause, A., & Heris, M. P. (2015). “Phasic” metropolitan settlers: a phase-based model for the distribution of households in US metropolitan regions. *Urban Geography*, 36(5), 777–794. <https://doi.org/10.1080/02723638.2015.1005921>
- Published in 2013** Muller, Brian, Heris, M. P., and Flohr, T. (2013) Urban Morphology and Heat: Exploring the Relationships. In Francesco Moccia (ed.) Sustainable Stormwater Management Infrastructures: Principles and Guidelines. CLEAN Press.

## SELECTED PUBLICATIONS (others)

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- Heris, M. P., Bagstad, Troy, A., (2018) Using Earth Observation data in national-scale natural capital accounts for the United States. A Poster for NASA’s Earth Observation Work Program: Annual Meetings.
- Heris, M. P., Flohr, T., Muller, B., and Wessman, C. (2012) Phenology of Green Infrastructure in Cities: A window into ecosystem services in urban environments. *Front Range Student Ecology Symposium*. Colorado State University, Fort Collins, Colorado.
- Wessman, C., Muller, B., Heris, M. P. (2012) Phenology of Green Infrastructure in Cities: A window into ecosystem services in urban environments. Presentation. Cooperative Institute for Research in Environmental Sciences: Innovative Research Program Poster Session. University of Colorado Boulder, Boulder, Colorado.
- Heris, M. P., Ahmadian, R. (2010) Conceptual Synthetic Modeling of Iran’s ICZM Project. *9th International Conference on Coasts, Ports and Marine Structures (ICOPMAS 2010)*, ports and Maritime Organization, Tehran, Iran.
- Heris, M. P., and Mohammadbagher, M. (2010) A Study of Policies and Evidence of Urban Intensification. Comparison of London, Tehran and Auckland. *4th International Conference on Built Environment in Developing Countries (ICBED 2010)*, Penang, Malaysia.

## SERVICE

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### Student Mentoring

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2022	Doctoral dissertation committee member for Robert Taylor.
2020-2022	Advising students in the Master of Urban Planning program at Hunter College, City University of New York. PyFAST, Co-Founder
2019	University of Colorado Denver Student club for Python and Geospatial Analysis skill development, bi-weekly
2018-present	Collaborative Community Resilience for Heat Mitigation through Trees Three undergraduate Research Assistants for CU Boulder Outreach grant
2019-2020	Urban Heat Island Effect and Social Vulnerability in Athens, Greece Constantine Chrisafis; CU Boulder ENVD undergraduate thesis, committee member
2017-2018	Patterns of Disparity in Cycling Infrastructure: A Comparison of Neighborhood Access in Denver Abraham Proffitt; CU Boulder ENVD undergraduate thesis, committee member
2017-2018	Prioritizing Urban Greening Efforts for the Metro Denver Area in the Context of Elevated Surface Temperature and Locations of Vulnerable Populations Byron Schuldt; University of Denver Master's thesis, mentor
2014-2016	GeoENVD, Founder Program in Environmental Design, University of Colorado Boulder Student club for Data-aided Design

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### Professional Service

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2019	ACSP Roundtable, Discussant. <i>Urban Heat: How can we know and what can we know?</i> Association of Collegiate Schools of Planning Annual Conference. Greenville, South Carolina. Oct 24–27.
2018	ACSP Roundtable, Organizer. <i>Who Benefits from “Smart City” Technologies? How Can They be a Piece of the Puzzle Toward Social and Environmental Justice?</i> Association of Collegiate Schools of Planning Annual Conference. Buffalo, New York. Oct 25–28.
2016-present	Reviewer for: Journal of Planning Education and Research (JPER), Land Use Policy, and Landscape and Urban Planning.

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## TEACHING EXPERIENCE (as an instructor)

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2020-present	<b>Intro to GIS for Urban Planners</b> <b>Advanced GIS for Environmental Planning</b> <b>Urban Data Analysis</b> <b>Designing Resilient Cities</b> Hunter College, City University of New York.
Fall 2019	<b>Urban Planning Studio (GIS component)</b> College of Architecture and Planning, University of Colorado Denver
Fall 2019 & 2019	<b>GIS for Careers in Sustainability (short course)</b> Environmental Center, University of Colorado Boulder Two day-long workshops for undergraduate & graduate students
Fall 2017	<b>ENVD 3100 Planning Studio</b> Environmental Design Program, University of Colorado Boulder
Fall 2017	<b>ENVD 3100-2 GIS Analysis for Urban Planning and Design</b> Environmental Design Program, University of Colorado Boulder

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- Fall 2016**      **GIS 2250 Introduction to GIS and Geospatial Technologies**  
Earth and Atmospheric Science Department, Metropolitan State University of Denver
- Fall 2016**      **ENVD 3100 Planning Studio**  
Environmental Design Program, University of Colorado Boulder
- Fall 2016**      **URPL 6000 Planning Studio**  
College of Architecture and Planning, University of Colorado Denver
- Fall 2015**      **ENVD 3152-103: Introduction to GIS Applications in Planning and Design**, Environmental Design Program, University of Colorado Boulder
- Summer 2012**      **ENVD 3152: The Applications of GIS in Measuring Urban Form and Morphology**, Environmental Design Program, University of Colorado Boulder
- 2009 & 2006 & 2005**      **Applications of GIS in Urban Planning and Conducting Urban Databases Workshop**. The Ministry of Housing and Urban Development, Tehran, Iran.  
Four One-week workshops for senior managers
- 2006**      **GIS Analysis in Urban & Regional Planning (Basics and Advanced)**  
University of Tarbiat Moddares, Tehran, Iran.  
A summer course
- 2005 & 2004**      **GIS Analysis in Urban & Regional Planning (Basics and Advanced)**  
University of Tehran: The Centre of Excellence in Sustainable Urban Planning, Tehran, Iran  
Two summer courses
- 2009 & 2006 & 2005**      **Applications of GIS in Urban Planning and Conducting Urban Databases**  
The Ministry Of Housing and Urban Development, Tehran, Iran  
Four One-week workshops for senior managers

## **TEACHING EXPERIENCE (as a teaching assistant)**

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- Fall 2014**      **Issues in the Planning History**, , Environmental Design Program, University of Colorado at Boulder
- Spring 2014**      **Natural and Built Environment course**, College of Architecture and Planning, University of Colorado at Denver
- Spring 2014**      **Introduction to Environmental Design Methods course**, Environmental Design Program, University of Colorado at Boulder
- Fall 2013**      **Environmental Management course**, College of Architecture and Planning, University of Colorado at Denver
- Fall 2013**      **Human Behavior in Design and Planning course**, Environmental Design Program, University of Colorado at Boulder
- Spring 2013**      **History of Landscape Architecture course**, Environmental Design Program, University of Colorado at Boulder
- Fall 2012**      **Planning Studio course**, Environmental Design Program, University of Colorado Boulder
- Fall 2012**      **Introduction to Planning History and Issues course**, College of Environmental Design, University of Colorado Boulder
- Spring 2012**      **Urban Spatial Analysis course**, College of Architecture and Planning, University of Colorado Denver, graduate level.
- Fall 2011**      **Planning Studio course**, College of Environmental Design, University of Colorado Boulder.

## SELECTED RESEARCH PROJECTS

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- 2018-2020**      **US Geological Survey & University of Colorado Denver**  
Geospatial Modeling for Ecosystem Service Accounting
- 2017**            **Urban Tree Canopy Mapping**  
In this project, I produced the GIS urban tree canopy layer of Denver. This dataset is available on [Denver Open Data Catalog](#).
- 2016**            **Community Engagement, Design and Research Center (CEDaR)**
- 2011-2015**      **Urban Futures Lab, Environmental Design, University of Colorado at Boulder**  
**Research assistant** in the following research studies:
- Urban Green Infrastructure and Hazard (flood and urban heat) Mitigation in Denver.
  - Urban morphology and its Impacts on heat island effect in Denver metro area. In this research I measured land surface temperature using ASTER satellite images and explored whether it is related to built-environment and socio-economic variables.
  - Phenology of Green Infrastructures in the Denver Metro Area. In this research we looked at seasonality patterns and its relationship with growth patterns in Denver metro area.
  - ‘Measuring Sustainable Urban Form: developing metrics and indicators for the City of Boulder, CO’. In this research we developed some indicators for measuring sustainability including compactness, walkability, diversity, and connectivity.
  - Developing a GIS tool for identification of different settlement and morphological types using housing density profile and satellite image processing methods. I used Python to run an algorithm which uses 2000 and 2010 census blocks and Landsat images.
- 2014-2015**      **University of Colorado Denver, College of Architecture and Planning**  
Research assistant in “The Influence of Tree Canopy Patch Geometry and Spatial Distribution on Urban Heat Mitigation: a comparative study in Denver and Baltimore metropolitan areas”.
- July 2011**      **Place Matters, Colorado Code for Communities Hackathon, Denver, Co**  
I contributed in developing a web application providing more information about the bike routes for cyclists in Denver. OpenBike collects crowd source information about bike routes on qualitative measures such as route safety, difficulty, and scenery from riders. For more information see [www.OpenBike.co](http://www.OpenBike.co)
- May-Oct. 2010**      **University of Tehran, College of Agricultural and Natural Resources, Tehran, Iran**  
**Research assistant** in ‘The Comprehensive Plan of Karaj Green Spaces’ project:  
Conducting remote sensing and spatial analysis in relation to evaluation of development on green-field and brown-field areas.
- Mar.-Jun. 2008**      **University of Sheffield, Department of Town and Regional Planning, Sheffield, UK.**  
**Research assistant** in ‘The Sustainable Issues in Housing Development in New Zealand’:  
Conducting GIS and spatial analyses to identify various housing types, morphological categories and urban patterns.

## SELECTED PROFESSIONAL WORK EXPERIENCE

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- 2008 – 2011**      **Director, Department of Research and Development (R&D), Maab Consulting Engineers, Tehran, Iran** (full-time)
- Undertaking creative work on a systematic basis in order to increase the stock of knowledge
  - Conducting workshops to enhance the employees' theoretical and methodological knowledge in urban and regional planning, environmental planning and design.
  - Evaluation and modification of work flow and management processes
  - Publishing the firm's outcomes and projects
- 2009 – 2010**      **Consultant, Tehran Urban Development and Planning Institute, Tehran, Iran**
- Consultant on improving and rebuilding of the available GIS data for city of Tehran GIS database to establish Tehran SDI (Spatial Data Infrastructure)
- 2008 – 2009**      **Consultant, Carbon Studio, Tehran, Iran**
- GIS consultant on building 3D models of old historical cities
- 2005 – 2007**      **Manager, Maab Consulting Engineers, Tehran Iran** (part-time)
- Managing the GIS lab consisting of 8 technicians

## SELECTED PROFESSIONAL PROJECTS

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- 2010-2011**      **GIS Manager and Planner, Tehran City Center Pedestrian Network Design**, Negin-Shahr Consulting Engineers, Tehran, Iran
- In this project we built a database for street networks attributed by qualitative measurements. We developed some scenarios to find the best alternative.
- 2010**      **GIS Manager and Planner, Tehran's Suburban Area Growth Management Policy Evaluation Project**, Maab Consulting Engineers, Iran
- In this project I involved in regional policy evaluation and land use scenario planning. We built a comprehensive database, analyzed the growth patterns, marked the critical issues and their distribution, and evaluated natural disaster risks.
- 2009**      **GIS Manager and Planner, Feasibility Assessment of Tehran Comprehensive Plan**, Maab Consulting Engineers, Iran
- GIS data compiling director for preparing the required layers, spatial variables and running economic models to evaluate the prospect impacts of the Tehran's new comprehensive plan and its zoning policies on developing areas, brown-field and green-field sites and housing market.
- 2008**      **GIS Manager and Planner, Integrated Coastal Zone Management (ICZM), Synthesizing of Disciplinary Outcomes**, Maab Consulting Engineers, Iran
- Managing the GIS department to prepare process, analyze and present geospatial data.
  - Designing and programming a decision support system (DSS) using Arc Object for exploring and evaluating of coastal zones
  - Running a fuzzy suitability analysis model for national coastal zones.
- 2006**      **GIS Manager and Planner, Integrated Coastal Zone Management (ICZM), Coastal Land Use Planning**, Maab Consulting Engineers, Iran
- Managing the GIS department to prepare process, analyze and present geospatial data.
- 2005**      **GIS and Data Manager, Shiraz Strategic Plan**, Maab Consulting Engineers, Tehran, Iran
- 2003**      **GIS Analyst, Tehran Strategic Management Plan**, Naghshe Piravash Consulting Engineers, Tehran, Iran



## COMPETENCIES

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### Microclimate simulation

- Envi-met
  - Rhino-Grasshopper (3D modeling of climate variables)
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### GIS

- Competent in using ArcGIS Desktop (3D and Surface Analyses, Spatial Analyses, Spatial Statistics, GeoStatistical Analyses, Network Analyses, LiDAR analysis, etc.)
  - Competent in using PostGIS for spatial database management for big data
  - Competent in using open source GIS (QGIS, GrassGIS)
  - Competent in using IDRISI for raster modeling
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### Data Science

- Competent in statistics and spatial statistics (using Python)
  - Competent in using data mining and modeling algorithms
  - Competent in using machine learning algorithms (using Python)
  - Competent in programming for data analysis (using scientific libraries in Python)
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### Remote Sensing

- Competent in interpreting multi spectral satellite images, change detection, land cover classification, thermal remote sensing and image processing using ENVI
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### Programming

- Proficient in writing Python scripts for GIS workflows including geospatial data science, raster and vector processing.
- Proficient with writing Python scripts for remote sensing, image processing, machine learning, Object-based classification, and pattern recognition