Jonathan Pando Ocón

Winter 2021

University of California, Los Angeles, Department of Geography jonocon@g.ucla.edu

Research Questions

How do socio-morphologies impact biodiversity presence? Do impediments to historical (a)biotic movement help or hurt conservation goals? Can coupling remote sensing with local ecological knowledge get us to this understanding?

Education

University of California, Los Angeles (UCLA) | Los Angeles, CA — Expected Jun 2023
Doctor of Philosophy, Geography

University of California, Los Angeles (UCLA) | Los Angeles, CA — Jun 2020
Master of Arts, Geography

University of Southern California (USC) | Los Angeles, CA — May 2013
Bachelor of Science, Policy, Planning, and Development

Honors and Awards

Spring 2021 Residency | Nature Art & Habitat *Residency* — Mar 2021
Graduate Dean's Scholar Award | Graduate Division, UCLA — Jun 2019, 2020
Geospatial @ UCLA Summer Fellowship | Geography, UCLA — Jun 2019
Mars Exploration Zone Map Competition, Second Place | ICA & NASA — Jan 2017
Distinguished Budget Award | Government Financial Office Association — Jun 2016
Student Recognition Award | Sol Price School of Public Policy, USC — May 2012

Research Experience

Los Angeles County Tree Inventory & Health Assessment Pilot Project | LA County — Dec 2020 – Present

Automate a process working with LiDAR and hyperspectral imagery to identify and assess the health of trees within Los Angeles County (LAC) to reduce the need of the client to perform this assessment in person.
Applies remote sensing and modeling methodologies:

- Produce a literature review covering the application of acquired data and machine learning to tree identification and forest structure and composition analysis. Target journal: *Scientific Reports.*
- Assemble and train model to identify and assess the health of trees in project areas. Validate results against a testing subset of the dataset.
- Incorporate fine resolution land cover classification and unmixing methodologies for heterogeneous urban cover.
- Package and deliver model code for sustained use by the client for future application across the entirety of LAC.

Global Analysis of Tropical Dry Forest Extent | Dr. Thomas W. Gillespie, UCLA — Aug 2018 – Sept 2020

Comparison of climatic definitions of tropical dry forest extent for conservation assessment using remote sensing and geospatial programming.
Applied remote sensing methodologies:

- Generation of ecological rasters for species distribution modeling using Worldclim (Fick and Hijmans 2017) and CHELSA (Krager et al. 2017) global climate datasets and processing in the Python and R environments.
- HDF5 file management and processing of IMERG (GPM) precipitation data in the Python environment.
- Forest Cover and change analysis using Global Forest Cover (Hansen et al. 2013) data in Google Earth Engine.

Impact of Urban Form on Thermal Comfort | Dr. V. Kelly Turner, UCLA — Aug 2019 – July 2020

Modeling mean radiant and land surface temperatures at fine resolutions to understand thermal comfort in underrepresented neighborhoods in California, and a new urbanist development in Tucson, Arizona using remote sensing, geospatial programming, and microclimate modeling.
Applied remote sensing and modeling methodologies:

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- Image calibration of NAIP (USDA) imagery and supervised classification of land cover using random forests in Google Earth Engine.
- Land surface temperature, albedo, and vegetation indices (NDVI and SAVI) generation using NAIP and Landsat 8 OLI imagery in Google Earth Engine, R, and QGIS environments.
- Individual tree estimation in urban areas using canopy height modeling and land cover classification with NAIP imagery and LARIAC4 (Los Angeles County) LiDAR point clouds in the R environment.
- Microclimate climate modeling at the neighborhood scale using the ENVI_MET 3-D modeling software. Surface and vegetation layers were ingested into the software to digitize fine resolution simulations of each site.

Housing Development and Design in Los Angeles | Liz Falleta, USC Aug 2012 – May 2013

Ascertained historical records and tenant data on three multi-unit, architecturally significant housing projects in Los Angeles to highlight the importance of well-designed, multi-unit housing for future development.
By-Right, By-Design: Housing Development versus Housing Design in Los Angeles (Falleta, 2019)

Teaching Experience

Cartography (GEOG-180) | Geography, UCLA Jun 2021 – Jul 2021
Instructor
GIS Programming and Development (GEOG-181C) | Geography, UCLA April 2021 – Jun 2021
Teaching Associate
Cartography (GEOG-167) | Geography, UCLA Aug 2020 – Sept 2020
Instructor
Introduction to GIS (GEOG-7) | Geography, UCLA Jan 2020 – March 2020
Teaching Assistant

Publications

Ocón, J. P., Ibanez, T., Keppel, G., Pau, S., Franklin, J., Rivas-Torres, G., Shin, M., and Gillespie, T. W. (2021). Global tropical dry forest cover and extent: A comparative study of bioclimatic definitions. *PLOS ONE. Submitted for publication.*

Ordway, E. et al. (2021). Socio-Environmental Systems Research Opportunities Using the NEON Airborne Observation Platform. *Ecosphere. Submitted for publication.*

Madson, A. et al. (2021). A Four-Decade Time Series of NDVI for the Hawaiian Islands. *In preparation for publication.*

Presentations and Proceedings

Ocón, J. P. (2020, August). Bioclimatic definitions of tropical dry forest improve our ability to map this critically endangered biome. Contributed talk presented virtually at the Society for Conservation GIS annual meeting.

Ocón, J. P. (2020, August). A Global Bioclimatic Analysis of Tropical Dry Forest Extent and Cover. Contributed talk presented virtually at the Ecological Society of America annual meeting.

Ocón, J. P., and Turner, V. K. (2020, January). Transformative Climate Communities: Informing Adaptation Planning through Cool Urban Design Interventions in Southern California. Oral presentation given at the American Meteorological Society annual meeting, Boston, MA.

Conferences

Society for Conservation GIS | Virtual Conference Aug 2020
Ecological Society of America Annual Meeting | Salt Lake City, UT Aug 2020
American Meteorological Society Annual Meeting | Boston, MA Jan 2020
GIScience 2016 | Montreal, QC, CA Sept 2016

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Professional Service

DISES-RCN: Patterns, Places, People: A Network for Scalable Airborne Observation of Socio-Environmental Systems | Steering Committee Member — Mar 2020 – Present
AAG COVID-19 Rapid Response Subcommittee | Non-member Contributor — May 2020
President and Social Chair | Geography Graduate Student's Association, UCLA — Sept 2019 – Jun 2020
Graduate Student Rep, Geography | Graduate Student Advisory Board, UCLA — Sept 2019 – Jun 2020

Professional Development

Integrating Machine Learning into Geographic Research — Feb 2021

AAG Learning Series for Graduate Students, Virtual

- Five-day virtual workshop focused on the fundamental concepts and techniques related to machine learning's application in geographic research.
- Covered scikit-learn (Python) and cloud computing (Google CoLab), taught by Dr. Yingjie Hu, Ass. Professor, Geography, Univ. of Buffalo, NY.

People, Land, & Ecosystems: Leveraging NEON for Socio-Environmental Synthesis — Feb 2020

National Socio-Environmental Synthesis Center (SESYNC), Annapolis, MD

- Three-day workshop focused on use of National Ecological Observatory Network (NEON) Airborne Observation Platform (AOP) data in socio-environmental (S-E) synthesis and convergent research.

Machine Learning for Spatial and Temporal Analysis — Sept 2016

GIScience 2016, McGill University, Université Laval and University of Saskatchewan, Montreal, QC, CA

- Learned key machine learning concepts, including training and testing models in the R environment. Participants used real world datasets as examples for model building in support vector machines and random forests.

Professional Associations

Student Member, Political Ecology Working Group (PEWG) — Feb 2021 – Present
Member, American Geophysical Union (AGU) — Aug 2020 – Present
Member, Ecological Society of America (ESA) — Feb 2020 – Present
Member, American Association of Geographers (AAG) — Oct 2019 – Present
Student Member, Society for Conservation GIS (SCGIS) — Sept 2016 – Present
Explorer Member, The Planetary Society — Aug 2016 – Present

Professional Experience

Sole Proprietor | Concrete Couture Designs — Jan 2015 – Present
Assistant Administrative Analyst | City of Santa Monica, CA — Sept 2017 – Sept 2018
Administrative Technician | City of San Mateo, CA — Sept 2013 – Jun 2016
Planning Intern | City of West Covina, CA — Sept 2012 – Feb 2013
Planning Intern | Strategic Actions for a Just Economy, Los Angeles, CA — Jan 2011 – May 2011

Extracurricular Experience

Volunteer | So. Cal. Chapter, Planetary Society — Sept 2018 – Present
Sprints Coach, Track and Field | San Mateo High School — Nov 2014 – Jun 2016
Hawaiian Ecological and Cultural Immersion | APASA, USC — Mar 2011