RYAN AVERY

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EDUCATION

University of California – Santa Barbara
Ph.D. student in Geography **2017-2022 anticipated**
Advisor: Dr. Kelly Caylor
Research Interests: remote sensing of vegetation, climate hazards, modeling ecohydrological processes

University of California – Berkeley
B.S. in Environmental Sciences: Concentration in the Biological Sciences **2016**
Thesis: "Effects of Digital Elevation Model Source on Hydrology Network Accuracy"

RESEARCH AND PROFESSIONAL EXPERIENCE

Clark Labs, **Clark University**
Graduate Research Assistant **January 2018 – present**
Programming a platform and researching novel methods for object detection of smallholder
agriculture with active learning and high resolution remotely sensed imagery (Planet Labs).
Developing a Python Flask API to pass geospatial data between computing instances. Developing the
machine learning component with Tensorflow and for a production environment to run on AWS.
Project funded by Omidyar Foundation

NASA Langley Research Center, **NASA DEVELOP National Program – SSAI**
Geoinformatics and Project Coordination Fellow **September 2016 – August 2017**
Instructed researchers on topics ranging from GIS to version control. Reviewed technical papers and
advised on code development. Developed a web-enabled slippy map for the DEVELOP program.
Released a light pollution modeling tool and a time series of forest disturbance maps for regional
managers in the National Park Service

NASA Langley Research Center, NASA DEVELOP National Program – SSAI
Lead Team Researcher **June 2016 – August 2016**
Conducted supervised and unsupervised classifications and data analysis of cheatgrass presence and
extent for NPS's Exotic Plant Management Team

Berkeley Energy and Climate Institute, Cal Energy Corps
Undergraduate Research Fellow **May 2015 – December 2015**
Debugged existing python program to calculate hydropower energy potential from DEMs. Processed
Landsat time series to reduce the effect of clouds with the Google Earth Engine API. Composed
detailed documentation of geospatial processing tasks

Kelly Research and Outreach Lab, UC Berkeley
Undergraduate Researcher **May 2015 – December 2015**
Reviewed literature and synthesized reports on the relationship between topography, recreation,
park policy and social trail use

PUBLICATIONS

Avery, R., V. Warda, S. Chu, S. Chao. 2017. "Detecting Changes in Nighttime Sky Brightness over Grand Teton National Park with the Suomi NPP VIIRS Sensor". Technical Report.

Pampalone, C. R. Avery, W. Turner. 2017. "Enhancements to Visualization of CALIPSO (VOCAL) through Case Studies of Saharan Dust". Technical Report. https://github.com/NASA-DEVELOP/VOCAL

Avery, R., Mays, C., Alvarado A. 2017 "A Threshold-Based Decision Tree Approach to Mapping Landscape Disturbance in Glacier National Park". Technical Report.

Avery, R., K. Landesman, T. Whaley. 2016. "Mapping Invasive Species to Efficiently Monitor Southwestern National Park Areas". Technical Report.

PRESENTATIONS

NASA DEVELOP's Interactive Mapper: for Dr. Nancy Searby – Director of Capacity Building. NASA Headquarters, Washington D.C. August 11 2017
Looking Ahead: DEVELOP's 20th Anniversary. Applied Earth Science Applications Showcase, NASA Headquarters, Washington D.C. August 11 2017
Enhancements to CALIPSO: for Dr. Chip Trepte – Lead Researcher CALIPSO Science Team. NASA Langley Research Center, VA. August 8 2017
A Threshold Based Decision Tree Approach to Mapping Landscape Disturbance in Glacier National Park. NASA Langley Closeout NASA Langley Research Center, VA. March 15 2017
Mapping Invasive Species to Efficiently Monitor Southwestern National Park Areas. George Wright Society Conference. Norfolk, VA. April 3 2017
Mapping Invasive Species to Efficiently Monitor Southwestern National Park Areas. Applied Earth Science Applications Showcase, NASA Headquarters, Washington D.C. August 12 2016
Effects of Digital Elevation Model Source on Hydrology Network Accuracy. Environmental Sciences Thesis Showcase. Berkeley, CA. May 12 2016
Expanding Clean Energy Use in Brazil. 2015 Cal Energy Corps Symposium. Berkeley, CA. September 29 2015
Social Trails and their Impact on Recreation and Invasive Species Propagation. 2015 College of Natural Resource Advisory Board Meeting. Berkeley, CA. April 2015

TEACHING EXPERIENCE

Positions

University of California – Santa Barbara, Geography Department
Graduate Teaching Assistant, Geography 3A: Oceans and Atmosphere   **September 2017 – March 2017**
Three sections each week, covering core earth system science concepts and leading students in field measurements and computer lab exercises

Software Carpentry
Software Carpentry Instructor   **9/1/2017**
Completed pedagogy training and live coding teaching demos. Certified to teach official workshops that cover basic computing skills for researchers

Short Courses/Workshop Series

Programming with Python. NASA Langley Research Center. January 26-27 2017
Version Control with Git, Programming with Python. NASA Langley Research Center. June 8-9 2017
Version Control with Git, The Unix Shell. NASA DEVELOP – Wise County Node. June 12-13 2017
The Unix Shell, Version Control with Git, Batch Processing with GDAL. NASA Jet Propulsion Laboratory. September 18-19 2017
The Unix Shell, Version Control with Git, Programming with Python. CSU Monterey Bay. January 19-20 2018

SERVICE

A Brighter Side to ASD – Hampton, VA
Event Organizer   **March 2017 – August 2017**
Led nature walks for children with autism spectrum disorders and their families at Sandy Bottom Nature Park. Provided logistical support for neighborhood outreach

E-Soccer – Berkeley, CA
Head Coach   **August 2012 – May 2016**
Led an age group of 11-18 year olds with and without developmental and physical disabilities in soccer games and peer bonding exercises. Trained coaches on one-on-one mentorship

Autism Speaks U at Berkeley – Berkeley, CA
VP of Volunteering   **August 2012 – May 2016**
Elected by members each year to coordinate volunteering events and partnerships, including logistics and staffing for E-soccer and the Annual Autism Awareness 5K Run/Walk

Special Needs Aquatic Program – Berkeley, CA
Volunteer Mentor   **August 2013 – December 2013**
Assisted children and young adults with cerebral palsy in aquatic games and exercises

Berkeley Student Cooperative Association – Berkeley, CA
WERM – Waste and Energy Reduction Manager   **August 2012 – May 2016**
Elected by members of Ridge House Cooperative to coordinate the sorting and proper disposal of house waste. Improved house energy efficiency by educating members and installing flow gauges