

Diyang Cui

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EDUCATION

- University of Maryland, College Park**, College Park, MD Sept 2017-Present
Ph.D. in Geographical Sciences
Overall GPA: 3.7 Total Credit: 37
Selected Courses: Biogeography and Environmental Change, Remote Sensing Instruments and Observations, Biophysics of Optical Remote Sensing, Introduction to Earth System Science
- Beijing Normal University**, Beijing, China Sept 2013-Jun 2017
Bachelor of Science: Geographic Information Sciences
Overall Grade: 91.4 Total Credit: 185
Selected Courses: Geology and Geomorphology, Hydrology, Meteorology and Climatology, Remote Sensing Experiments, Digital Processing of Remote Sensing Image, Principles and Application of Digital Cartography
- University of California, Santa Barbara**, Goleta, CA Sept 2015–Jun 2016
Undergraduate Study Abroad Program
Overall GPA: 3.9 Total Credit: 42
Selected Courses: Remote Sensing of the Environment 1, Remote Sensing of the Environment 3, Introduction to Environmental Optics in Physical Geography, Environmental Conceptual Modeling and Programming for Geo-Science, Introduction to GIS, GIS Design and Applications, Technical Issues in GIS

RESEARCH EXPERIENCE

- “A plant-by-plant assessment of accelerated coal power phase-out in China under the Paris climate goals”**, University of Maryland, College Park Summer 2019
Research that couples unit-level data and a global integrated assessment model with sub-national details (GCAM-China) to investigate the feasibility and potential plant-by-plant pathways for accelerated coal power phase-out in China consistent with the Paris climate goals.
- “Observed and projected changes of global climate zones”**, University of Maryland, College Park Fall 2018
Research that adopts the climate classification method using available observations and CMIP5 model simulations with multiple experiments and scenarios to examine the observed and projected climate zone shifts and the relative roles of anthropogenic forcing and natural forcing as well as the changes in mean and seasonal mean precipitation and temperature in the changes of climate regions, with the aim to help investigate the impacts of climate zone changes on ecological systems.
- “Observations of Northern Hemisphere tropical belt expansion in 1979-2010 and its potential impacts on tropical biodiversity”**, University of Maryland, College Park Fall 2017
Course project that analyzes two modern climate reanalysis NECO Climate Forecast System Reanalysis (CFSR) and NOAA-CIRES 20th Century Reanalysis (20CR) using an ensemble of objective tropical belt width metrics, including jet stream and mass stream function metrics, to examine the trends of the two observations and investigate relationships of the two tropical belt width metrics.
- “Assessment of multi-instrument record of vegetation state in savanna: Sentinel-2 and MODIS intercomparison”**, University of Maryland, College Park Fall 2017
Course project that characterizes the vegetation states in savannas using a suite of vegetation indices (VIs) to indicate photosynthetic pigments, vegetation and landscape water content, senescent vegetation and soil and herbaceous biomass of

savanna systems in Senegal and generate annual time series of the vegetation indices to evaluate the seasonal and meridional variation of savannas.

“Deep learning based indoor point cloud classification framework”, Beijing Normal University Nov 2016–May 2017

Graduation project that implements PointNet, a 3D deep learning network for point cloud classification and semantic parsing.

- Trained and tested the framework on ModelNet40 and Stanford Large-Scale Indoor Spaces 3D Dataset on NVIDIA K40 GPU.
- Improved the spatial transformer and multi-layer perceptron modules in the framework with Python.
- Preprocessed and visualized point cloud data with PDAL and Python.

“Monitoring drought and water balance in the Guanacaste Province to enhance decision making and response planning in Costa Rica”, NASA DEVELOP Jun–Aug 2016

NASA DEVELOP Project that utilizes NASA earth observations to develop a comprehensive water budget for arenal-tempisque irrigation district of Costa Rica.

- Collected and processed precipitation, soil, DEM and satellite images for drought index calculation and SWAT model inputs.
- Improved AVHRR land cover classification with Landsat images and other reliable data sources.
- Used ArcSWAT and SWATCUP to create and calibrate results for water balance assessment.
- Wrote part of the project technical paper and project summary, presented in a poster session at AESAS on August 10th, 2016.

“Detect trajectory of post-fire forest recovery with SAR and Landsat data in Los Padres National Forest”, University of California, Santa Barbara Apr–Jun 2016

Course Final Project that uses SAR and Landsat data to analyze temporal trajectories of post-fire forest patterns and structures.

- Outlined team project and organize group meetings.
- Collected and processed SAR data and other ancillary data with ENVI, SARscape and ArcGIS.
- Presented in a poster session at spatial@ucsb.local conference on June 2nd and in power point in UCSB GEOG115C.

“SEIR Model-based Estimation of ZIKA Infections in 2016 Rio Olympics Visitors”, University of California, Santa Barbara Apr–Jun 2016

Course Final Project that builds ZIKA case occurrence probability model and applies it to predict 2016 Olympics influence.

- Outlined the team project and organized the group meetings.
- Collected and processed microcephaly data, population, temperature and mosquito data.
- Created the spatial SEIR model in ArcGIS with Python and the traditional SEIR model with JavaScript.
- Presented in a poster session at spatial@ucsb.local conference on June 2nd, 2016 and in power point and wrote final report.

“Review and model assessment of polar bear population models”, University of California, Santa Barbara Apr–Jun 2016

UCSB Project of Undergraduate Research that involves assessment of the Bayesian, demographic and matrix models, which was presented in a poster session at UCSB Undergrad Research Colloquium on April 1st, 2016.

“Influence of field cognitive style, gender and spatial terminology on geographical spatial orientation ability: based on experiments in virtual space”, Beijing Normal University Aug 2015–Apr 2016

BNU undergraduate research project that explores effects of individual variables on orientation which was published in the Journal of Geo-Information Science.

WORK EXPERIENCE

Research Assistant in School of Public Policy, College Park, University of Maryland, College Park, MD May 2019–present
Worked with the CGS and affiliated Joint Global Change Research Institute (JGCRI) team to conduct an integrated quantitative analysis of accelerated coal power phase-out in China consistent with global climate goals.

Teaching Assistant in Department of Geographical Sciences, University of Maryland, College Park, MD Jan-May 2019
TA in course GEOG473, GIS and Spatial Analysis, for winter and spring 2019. Responsibility is to lead lab sections, which are designed to provide students with hands-on experience of spatial analysis using GIS software ArcGIS.

Teaching Assistant in Department of Geographical Sciences, University of Maryland, College Park, MD Sept 2017-2018
TA in course GEOG306, Introduction to Quantitative Methods for the Geographic and Environmental Sciences, for three semesters. Responsibility is to lead lab sections, which are devoted to solve additional problem sets in statistics and learn practical mechanics of using R.

Intern in Appraisal Centre for Environment and Engineering, Ministry of Environment Protection Oct 2016- Apr 2017
Processed UAV data with final products of bio mass map, panorama, 3D model et al, serving the need of environmental project

appraisal.

Consultant Intern in NASA DEVELOP National Program, NASA DEVELOP Jun–Aug 2016
Worked in Costa Rica Water Resources on drought and water balance monitoring for the arenal-tempisque irrigation district of Costa Rica.

VOLUNTEER EXPERIENCE

Volunteer in the 33rd International Geographical Congress, the International Geographical Union Aug 2016
Volunteer in Mexico Environmental Research Program, International Volunteer HQ Dec 2015
Volunteer in Edelweiss Psychological Hotline, University Psychological Counselling Center Mar 2014–Jun 2015
Volunteer in Melting Love Support Center for Mental Disorders, Beijing Volunteer Association Sept 2014–Jun 2015

PUBLICATION

Cui, R., N. Hultman, K. Jiang, H. McJeon, S. Yu, **D. Cui**, M. Edwards, A. Sen, K. Song, C. Bowman, L. Clarke, J. Kang, F. Yang, J. Yuan, W. Zhang, "A High Ambition Coal Phaseout in China: Feasible Strategies through a Comprehensive Plant-by-Plant Assessment." Center for Global Sustainability: College Park, Maryland. 37 pp.

Gao, X., Y. Tong, & **D. Cui**, (2016), Influence of field cognitive style, gender and spatial terminology on geographical spatial orientation ability: based on experiments in virtual space, *Journal of Geo-Information Science*, 18(11): 1513-1521.

SCHOLARSHIPS & AWARDS

Behavioral and Social Sciences Dean's Fellowship, University of Maryland, College Park Sept 2017-present
Award for Outstanding Project of Undergraduate Research, Beijing Normal University Aug 2016
Meritorious Winner in Interdisciplinary Contest in Modeling, Consortium for Mathematics and Its Application Feb 2015
"Evaluation system for country sustainability and its application on Nepal development planning"
Built an evaluation system for countries' sustainability based on the index system designed by UNCSD and other researches.
The First Prize Scholarship, Beijing Normal University Sept 2014, Sept 2015
Merit Student, Beijing Normal University Sept 2014

TECHNICAL SKILLS & CERTIFICATION

Remote Sensing Software and Tools

ENVI, ERDAS, SARscape, Pix4DMapper

Geographic Information System Software and Tools

ArcGIS, QGIS

Programming Languages

IDL, R, Java, Python, MATLAB

ENVI/IDL Training, Esri China Information Technology Co.

Jul–Aug 2015

Mastered advanced technologies and knowledge on ENVI/IDL and Geo-Modeling.

Machine Learning Related Tools

TensorFlow, Linux operation

Geospatial Hardware

ASSISTII, LAI2000, ASD FieldSpec, SVC HR-1024I, eBee SQ, DJI Inspire, Trimble GPS

Geospatial Hardware Design and Publishing Software and Tools

LaTeX Publication Processing, Tableau, Adobe Dreamweaver, Premiere