

# Grace C. Wu

[erg.berkeley.edu/people/wu-grace/](http://erg.berkeley.edu/people/wu-grace/)  
[grace.cc.wu@berkeley.edu](mailto:grace.cc.wu@berkeley.edu) | 626.388.5257

Environmental and Spatial Scientist working at the intersection of conservation, energy, and climate change

## EDUCATION

### UNIVERSITY OF CALIFORNIA AT BERKELEY | PHD IN ENERGY AND RESOURCES

2013 - 2018 | Berkeley, CA, USA

Dissertation Committee: [Margaret Torn](#), [Duncan Callaway](#), [Jeff Chambers](#)

### UNIVERSITY OF CALIFORNIA AT BERKELEY | M.S. IN ENERGY AND RESOURCES

2011 - 2013 | Berkeley, CA, USA

### UNIVERSITY OF CAMBRIDGE | M.PHIL. IN ZOOLOGY

2008 - 2009 | Cambridge, England

Emphasis in Evolutionary Genetics and Bioinformatics • Adviser: [Chris Jiggins](#)

### POMONA COLLEGE | B.A. IN BIOLOGY, MINOR IN HISTORY

2004 - 2008 | Claremont, California, USA

Magna Cum Laude • Phi Beta Kappa

## EXPERIENCE

### UNIVERSITY OF CALIFORNIA AT DAVIS | UC PRESIDENT'S POSTDOCTORAL FELLOW

07/2018 - present | Davis, CA | Dr. Susan Ustin

- Developing long term sustainable land use pathways for the U.S. that meet climate change mitigation, food, and biodiversity needs using partial equilibrium modeling within an Integrative Assessment Modeling framework. This work will continue under a Smith Conservation Fellowship with The Nature Conservancy North America and The Lawrence Berkeley National Laboratory in 2019.
- Identifying opportunities for renewable energy development and ecological restoration for endangered species in the Central Valley that may be enabled by the Sustainable Groundwater Management Act.

### THE NATURE CONSERVANCY, CALIFORNIA CHAPTER | TECHNICAL ADVISER

03/2015 - present | San Francisco, CA, USA | Erica Brand and Richard Cameron

- Advised the Renewable Energy Program team on analysis to incorporate conservation value in the electricity planning process within California.
- Advised TNC and other environmental stakeholders on developing a modeling and analytical framework for evaluating the land impacts of various scenarios to meet California's 50% renewable energy by 2030 target.

### ELECTRICITY SECTOR MANAGEMENT ASSISTANCE PROGRAM (ESMAP), WORLD BANK |

#### TECHNICAL CONSULTANT

12/2016 - present | Washington D.C., USA | Oliver Knight

- Performing resource mapping and solar energy zoning for Vietnam using the MapRE tool.
- Advising the ESMAP team on data collection efforts and stakeholder engagement.

### INTERNATIONAL RENEWABLE ENERGY AGENCY | TECHNICAL CONSULTANT

08/2015 - 12/2015 | Abu Dhabi, UAE | Tijana Radojicic and Kudakwashe Ndhlukula

- Designed and programmed the [MapRE renewable energy zoning tool](#) to identify low-impact solar and wind energy zones.
- Led a technical capacity building workshop in Nairobi, Kenya to train GIS specialists on use of the RE zoning tool for updating of MapRE study results and to create new resource maps.

### ENERGY AND ENVIRONMENTAL ECONOMICS (E3) | TECHNICAL CONSULTANT

06/2014 - 02/2015 | San Francisco, CA, USA | Dr. Jim Williams

- Developed the Optimal Renewable Energy Build-out (ORB) land allocation model to evaluate the impacts of biodiversity and environmental constraints on siting of renewable energy technologies in California. Integrated constraints into the

California Public Utilities Commission's Renewable Portfolio Standard Calculator to estimate the economic cost of environmentally preferred scenarios.

- Worked with The Nature Conservancy to develop categories of conservation value for scenario development and evaluate the water and conservation impacts of future renewable energy portfolios.

## **INTERNATIONAL ENERGY STUDIES GROUP, LAWRENCE BERKELEY NATIONAL LABORATORY | GRADUATE STUDENT RESEARCHER**

02/2013 – present | Berkeley, CA, USA

- Co-led project to develop a renewable energy zoning method for identifying best wind and solar zones in 21 member countries of the Eastern and Southern Africa Power Pools. Conducted five stakeholder workshops and one technical GIS workshop in partnership with the International Renewable Energy Agency (IRENA).
- Co-launched the Multi-criteria Analysis for Planning Renewable Energy (MapRE) initiative and helped design website, [mapre.lbl.gov](http://mapre.lbl.gov)
- Led GIS-based resource quantification and evaluation of wind and solar energy technologies for the whole of India.
- Developed renewable energy zoning methods using multi-criteria optimization to minimize economic cost to aid in transmission planning and power flow modeling
- Presented preliminary results to various Indian stakeholders, including the Ministry of New and Renewable Energy, Power Grid Corporation of India Ltd, and the Indian National Independent System Operator.

## **ENERGY DIVISION, CALIFORNIA PUBLIC UTILITIES COMMISSION | WATER-ENERGY ANALYST**

05/2013 – 06/2013 | San Francisco, CA, USA | Meredith Youngheim

- Independently reviewed and evaluated existing studies on the water-energy nexus
- Investigated marginal water sources and their respective energy intensities for various institutional and geographic units of analysis through interviews with water managers and engineers.
- Recommended methods to develop a cost-effectiveness framework to value the energy embedded in water.

## **ENERGY AND RESOURCES GROUP, UC BERKELEY | GRADUATE STUDENT RESEARCHER**

09/2012 – present | Berkeley, CA, USA | Dr. Margaret Torn and Dr. Jim Williams

- Examined land and water use trade-offs in electricity planning in California around resource constraints and conducting spatial analysis that informs optimal mix of generation technology on multiple levels (e.g. conventional vs. renewable, cooling technologies, and siting choices).
- Designed spatially explicit analysis that identifies and compares key tradeoffs between economic cost, technical reliability, and environmental sustainability

## **INTERNATIONAL COUNCIL ON CLEAN TRANSPORTATION | CLIMATE AND HEALTH GRADUATE INTERN**

05/2012 – 08/2012 | San Francisco, CA, USA | Ray Minjares

- Developed health impact valuation model for cost-benefit analysis of United Nations Environment Programme Bus Rapid Transit study for Nairobi, Kenya; Addis Ababa, Ethiopia.
- Co-authored policy memo to Chinese Finance Ministry on efficacy of international government fiscal interventions for transition to Ultra Low Sulfur Diesel.
- Led literature review detailing state of science regarding climate impacts of black carbon from transportation diesel emissions for a World Bank project to identify most attractive diesel black carbon reduction programs across the world for economic, health, and climate benefits.

## **UNIVERSITY OF NOTRE DAME IN COLLABORATION WITH U.S. GEOLOGICAL SURVEY | LEAD RESEARCH TECHNICIAN**

05/2010 – 8/2011 | South Bend, Indiana, USA | Dr. Jessica Hellmann and Dr. Ralph Grundel

- Led an experimental and spatial modeling investigation of climate change impacts on the endangered Karner blue butterfly by examining: 1) micro- and macro-climatic variation of the species' distributions and 2) climatic variables that affect demographic parameters.
- Applied spatial and statistical modeling algorithms (MaxEnt, GARP, logistic regression, GLM) to understand the role of climatic variables in determining patterns of distribution and to project range changes in the face of future climate change.
- Microclimate approach entailed mapping microclimate zones and species occurrence across Indiana Dunes National Lakeshore, and interpolating microclimate zone distribution changes from climate change projections.
- Designed and programmed climate controlled freezers to act like growth chambers in order to experimentally observe the impact of multiple climate scenarios on the butterfly's life cycle and survival.

## **FLR OUTDOOR EDUCATION AND SCIENCE EXPERIENCE | ENVIRONMENTAL SCIENCE EDUCATOR**

03/2010 - 04/2010 | Lake Arrowhead, CA, USA

- Developed environmental science curriculum
- Led middle and high school students on educational hikes and exercises that explored the natural history of the San Bernardino Mountains.

### **SMITHSONIAN TROPICAL RESEARCH INSTITUTE | RESEARCH ASSISTANT**

09/2009 – 01/2010 | Gamboa, Panama | Dr. Chris Jiggins

- Conducted tropical fieldwork (specimen collection) in remote regions.
- Developed and implemented laboratory experiments, conducted phylogenetic analysis.

### **UNIVERSITY OF CAMBRIDGE | GRADUATE STUDENT RESEARCHER**

08/2008 – 09/2009 | Cambridge, England | Dr. Chris Jiggins

- Experimental and comparative analysis of the genetic basis of wing pattern evolution using laboratory and bioinformatic techniques.

### **POMONA COLLEGE HISTORY DEPARTMENT | RESEARCH ASSISTANT**

08/2007 – 05/2008 | Claremont, CA, USA | Dr. Angelina Chinn

- Conceived and developed syllabus for a modern Chinese history course entitled: “Historical Engineering: welding the contemporary and historical Chinas” based on research findings of history thesis. Course was taught by Dr. Angelina Chin at Pomona College (Fall 2010, 2011).

### **POMONA COLLEGE BIOLOGY DEPARTMENT | ROSE HILLS FOUNDATION UNDERGRADUATE RESEARCHER**

Summer 2007 | Claremont, CA, USA | Dr. Jonathan Wright

- Examined the effect of lung development on the allometric scaling of metabolism with body mass in terrestrial isopods. Collected specimens and quantitatively measured and statistically analyzed metabolism of various species.

### **POMONA COLLEGE CHEMISTRY DEPARTMENT | ORGANIC CHEMISTRY LABORATORY TA**

08/2006 – 05/2007 | Claremont, CA, USA

### **POMONA COLLEGE WEEKLY NEWSPAPER, THE STUDENT LIFE | NEWS ASSOCIATE AND STAFF WRITER**

08/2006 – 01/2007 | Claremont, CA, USA

### **AMERICAN MUSEUM OF NATURAL HISTORY | NSF REU RESEARCH INTERN**

Summer 2006 | New York City, NY, USA | Dr. Randall Schuh

- Completed systematics and phylogenetics project as part of a six year Planetary Biodiversity Inventory.

### **HARVARD FOREST, HARVARD UNIVERSITY | NSF REU RESEARCH INTERN**

Summer 2005 | Petersham, MA, USA | Dr. Aaron Ellison

- Contributed to long-term ecological research project investigating effects of the Hemlock Woolly Adelgid on invertebrate biodiversity in old and secondary growth forests.
- Developed independent project to determine induced changes in ant species composition through study of behavioral interactions and population abundance.

## PUBLICATIONS

### **PEER-REVIEWED JOURNAL ARTICLES**

12. Deshmukh, R., A. Mileva, **G.C. Wu**. **Renewable energy alternatives to mega hydropower: a case study of Inga 3 for Southern Africa.** *Environmental Research Letters*. 13 064020. doi: 10.1088/1748-9326/aabf60
11. **Wu, G.C.\***, R. Deshmukh\*, K. Ndhlukula, T. Radojicic, J. Reilly-Moman, A. Phadke, D. Kammen, D.S. Callaway. 2017. **Strategic siting and grid interconnection key to Africa's low-carbon electricity future.** *Proceedings of the National Academy of Sciences*. doi: 10.1073/pnas.1611845114 \*authors contributed equally
10. Nadeau, NJ, C. Pardo-Díaz, A. Whibley, M. Supple, S.V. Saenko, R.W.R. Wallbank, **G.C. Wu**, L.S. Maroja, L. Ferguson, J.J. Hanly, H. Hines, C. Salazar, R. Merrill, A. Dowling, R. French-Constant, V. Llaurens, M. Joron, O. McMillan, C.D. Jiggins. 2016. **The gene Cortex controls mimicry and crypsis in butterflies and moths.** *Nature*. 534,106–110. 10.1038/nature17961
9. Hallfors, MH, J. Liao, J. Dzurisin, R. Grundel, M. Hyvarinen, K. Towle, **G.C. Wu**, J.J. Hellmann. 2015. **Addressing potential local adaptation in species distribution models: implications for conservation under climate change.** *Ecological Applications*. 10.1890/15-0926.1
8. R. Hernandez, M. Hoffacker, M.L. Murphy-Mariscal, **G.C. Wu**, M. Allen. 2015. **Solar energy development impacts on land cover change and protected areas.** *Proceedings of the National Academy of Sciences*. 10.1073/pnas.1517656112

7. Wu, G.C., J.C. Wright. 2015. **Exceptional thermal tolerance and water resistance in the diminutive mite *Paratarsotomus macropalpis* (Erythracaridae) challenges explanations of physiological mechanisms.** *Journal of Insect Physiology*. 82:1–7.
6. Wu, G.C., M.S. Torn, J. Williams. 2015. **Incorporating Land-Use Requirements and Environmental Constraints in Low-Carbon Electricity Planning for California.** *Environmental Science and Technology*. 10.1021/es502979v
5. O'Neil, S.T., J.D.K. Dzurisin, S.J. Emrich, N.F. Lobo, J.M. Deines, J.K. Higgins, C.M Williams, R.D. Carmichael, E. Zeng, G.C. Wu, J.J Hellmann. 2014. **Gene expression in closely related species mirrors local adaptation: consequences for responses to a warming world.** *Molecular Ecology*. 23 (11): 2686–2698.
4. Wu, G.C., M. Joron, C.D. Jiggins. 2010. **Signatures of selection in loci governing major colour patterns in polymorphic *Heliconius* butterflies and related species.** *BMC Evolutionary Biology*. 10:368.
3. Wu G.C., J.C. Wright, D.L. Whitaker, A.N. Ahn. 2010. **Kinematic evidence for superfast locomotory muscle in two species of teneriffiid mites.** *Journal of Experimental Biology*. 213: 2551-2556.
2. Salazar, C., S.W. Baxter, C. Pardo-Diaz, G.C. Wu, A. Surridge, M. Linares, E. Bermingham, C.D. Jiggins. 2010. **Genetic Evidence for Hybrid Trait Speciation in *Heliconius* Butterflies.** *PLoS Genetics*. 6(4): e1000930.
1. Schuh, R.T. and G.C. Wu. 2009. **Revision of *Eminoculus* Schuh (Heteroptera: Miridae: Phylinae) from South Africa, with the description of five new species.** *Entomologica Americana*. 115(1):36-66.

## IN REVIEW OR PREPARATION

5. G.C. Wu, M.S. Torn, J. Chambers. Deforestation and land use impacts of large-scale hydropower in the Brazilian Amazon. In prep for Environmental Research Letters.
4. G.C. Wu, M.S. Torn, J. Chambers. A Google Earth Engine workflow for rapid infrastructure environmental impact assessment. In prep.
3. G.C. Wu, R. Hernandez, E. Leslie, E. Brand, J. Williams, M.S. Torn. A new energy-planning paradigm for meeting climate and conservation goals. In prep.
2. Bristow, L., G.C. Wu, J. Dzurisin, R. Grundel, J.J. Hellmann. Climate change impacts on the endangered Karner Blue Butterfly. In submission to Conservation Biology.
1. Deshmukh, R. G.C. Wu, A. Phadke. Growth of wind and solar energy development in India requires balancing of multiple siting trade-offs. In prep for *Applied Energy*.

## TECHNICAL REPORTS

7. Deshmukh, R., G.C. Wu, A. Mileva. Sept 2017. Energy Alternatives to the Inga III in the Democratic Republic of Congo. International Rivers.
6. Deshmukh, R., G.C. Wu, A. Phadke. April 2017. **Renewable Energy Zones for Balancing Siting Trade-offs in India.** Lawrence Berkeley National Laboratory.
5. Deshmukh, R., G.C. Wu. Oct 2015. **Designing Low Carbon Futures for African and Other Developing Economies.** International Rivers, Berkeley, CA.
4. Wu, G.C., R. Deshmukh, K. Ndhlukula, T. Radojicic, J. Reilly. March 2015. **Renewable Energy Zones for the Africa Clean Energy Corridor.** International Renewable Energy Agency and Lawrence Berkeley National Laboratory.
3. Wu, G.C., N. Schlag, E. Brand, R. Cameron, L. Crane, JH Williams, S. Price. February 2015. **Integrating Land Conservation and Renewable Energy Goals in California: A Study of Costs and Impacts Using the Optimal Renewable Energy Build-Out (ORB) Model.** Technical Report. 34 pages plus appendices. The Nature Conservancy and Environmental and Energy Economics.
2. Minjares, R., V. Wagner, S. Chambliss, A. Baral, G.C. Wu, S. Galarza, F. Posada, B. Sharpe, K. Blumberg, F. Kamakate, A. Lloyd. April 2014. **Reducing Black Carbon Emissions from Diesel Vehicles: Impacts, Control Strategies, and Cost-Benefit Analysis.** The World Bank.
1. Williams, C., A. Hasanbeiji, G.C. Wu, L. Price. 2012. International Experience with Quantifying the Co-Benefits of Energy Efficiency and Greenhouse Gas Mitigation Programs and Policies. China Energy Group, Lawrence Berkeley National Laboratory.

## OTHERS

1. G.C. Wu, M.L. Murphy-Mariscal, R. Hernandez. **Can we expand solar power dramatically without damaging protected lands?** The Conversation. October 20, 2015 3:20pm EDT.

## ABSTRACTS AND PRESENTATIONS

13. Wu, G.C. Sept 20, 2017. Integrated land use planning for managing climate change mitigation, biodiversity, and food production. Low-Emissions Solutions Conference. Columbia University, NY. (Talk)
12. Wu, G.C. and M.S. Torn. Dec 13, 2016. Land cover impacts of utility-scale hydropower. American Geophysical Union (AGU). Fall 2016 Meeting. San Francisco, CA. (Poster)
11. Wu, G.C., N. Schlag, E. Brand, R. Cameron, L. Crane, JH Williams, S. Price, R Hernandez, MS Torn. Dec 19, 2015. Integrating Land Conservation and Renewable Energy Goals in California: Assessing Land Use and Economic Cost Impacts Using the

- Optimal Renewable Energy Build-Out (ORB) Model. American Geophysical Union (AGU). Fall 2015 Meeting. San Francisco, CA. (Poster)
10. Wu, G.C. and R. Deshmukh. Oct 4, 2015. Renewable energy zones for Eastern and Southern Africa. South Africa International Renewable Energy Conference (SAIREC). Cape Town, South Africa. (Talk)
  9. Wu, G.C. and R. Deshmukh. Sept 30 – Oct 2, 2015. Technical GIS workshop on renewable energy zoning. Organized and led workshop. International Renewable Energy Agency (IRENA) and Kenyan Electricity Regulatory Commission. Nairobi, Kenya. (Talk)
  8. Wu, G.C. and R. Deshmukh. Oct 2014. Southern and Eastern Renewable Energy Zones for the Africa Clean Energy Corridor. Organized and led workshop. ORAL. International Renewable Energy Agency (IRENA) and Southern and Eastern African Power Pools, Addis Ababa, Ethiopia and Harare, Zimbabwe. (Talk)
  7. Wu, G.C., MS. Torn, J. Williams. Sept 2014. The other renewable integration problem: Anticipated land use demands and tradeoffs of low-carbon electricity for California in 2050. Energy Policy Institute Conference, San Francisco, CA. (Talk)
  6. Wu, G.C. and R. Deshmukh. 2014. Methodology for renewable energy zones in the Africa Clean Energy Corridor. International Renewable Energy Agency (IRENA), Abu Dhabi, UAE. (Talk)
  5. Wu, G.C., M. Youngheim. 2013. Review of water-energy studies and recommendations for a cost-effectiveness framework for embedded energy in water. Demand-side, Energy Division, California Public Utilities Commission. (Talk)
  4. Wu, G.C., MS. Torn, J. Williams. 2013. Land use impacts of low carbon energy for California in 2050. Energy and Environmental Economics (E3), San Francisco, CA. (Talk)
  3. Wu, G.C. and JC Wright. 2007. Metabolism in the Oniscidea: allometry in relation to pleopodal lungs. (Pomona College summer research symposium and Southern California Undergraduate Research Conference). (Talk)
  2. Wu, G.C. and RT Schuh. 2006. Revision of *Eminoculus Schuh* (Heteroptera: Miridae: Phylinae) from South Africa. (American Museum of Natural History REU Student Symposium). (Talk)
  1. Wu, G.C. and A. Ellison. 2005. Ant interaction dynamics predict Formicinae species encroachment in aftermath of the invasive Hemlock Woolly Adelgid. (Harvard Forest REU Student Symposium). (Talk)

## AWARDS

2018	1 year of support	<b>UC President's Postdoctoral Fellowship</b>
2019	2 years of support	<b>David H. Smith Conservation Postdoctoral Fellowship</b>
2016	1 year of support	<b>Philomathia Scholarship for Environmental Sciences</b>
2011	3 years of support	<b>National Science Foundation (NSF) Graduate Research Fellowship</b>
2011	2 years of support	<b>Berkeley Graduate Fellowship</b>
2008	Fully supported MPhil	<b>Downing Scholarship for Graduate Studies at University of Cambridge</b>
2008	Research expenses	<b>Sherwood Heiser Scholarship for Graduate Studies</b>
2008	\$500	<b>Vaile Prize for highest honors in Biology awarded by the Pomona College Biology Department</b>
2007	1 summer of support	<b>Rose Hills Foundation undergraduate research scholarship</b>
2007	\$11,000	<b>Barry M. Goldwater Scholarship for Excellence in Science</b>

## TEACHING

### **ER102: QUANTITATIVE ASPECTS OF GLOBAL ENVIRONMENTAL PROBLEMS | GRADUATE**

#### **INSTRUCTOR**

Spring 2017 | Energy and Resources Group, UC Berkeley, CA, USA | Instructor [John Harte](#)

- One of two GSIs for 90-student course. Responsible for teaching sections, holding office hours, conducting exam review sessions, reviewing course material (assignments and exams), and grading exams.
- Course focused on quantitative methods commonly used to analyze human influence on environmental conditions. Topics include box modeling of stocks and flows, chemical equilibria, analytical climate change modeling, fates and effects of toxic substances, carrying capacity and population growth.

### **ER99/199: DATA AND DIVERSITY | COURSE DESIGNER AND INSTRUCTOR**

Fall 2015 | Energy and Resources Group, UC Berkeley, CA, USA

- Collaboratively designed and taught a project based undergraduate course using data science to improve understanding of diversity in STEM fields at UC Berkeley. See course website: [datadiversity.berkeley.edu](http://datadiversity.berkeley.edu)
- Identified and engaged project clients at the Office of Equity and Inclusion and the Berkeley Institute for Data Science.

## SERVICE

**FACULTY SEARCH COMMITTEE FOR ASSISTANT PROFESSOR IN QUANTITATIVE ENVIRONMENTAL SCIENCE | COMMITTEE MEMBER**

11/2015 - 2/2016 | Energy and Resources Group, UC Berkeley, CA, USA

- Reviewed faculty applications, interviewed short-listed candidates.

**DEPARTMENTAL DIVERSITY COMMITTEE | COMMITTEE MEMBER**

2/2015 - present | Energy and Resources Group, UC Berkeley, CA, USA

- Designed and launched survey to evaluate perceptions and experiences of equity, inclusion, and diversity.
- Organized and led town hall meeting to discuss survey results with students and solicit strategies for improving climate of equity and inclusion.
- Co-authoring departmental "strategic plan" for equity and inclusion detailing current state and near and long term actions.

**SPATIAL SEMINAR | CONTRIBUTOR**

02/2015 - 05/2015 | Environmental Science Policy and Management, UC Berkeley, CA, USA

- Designed and led geospatial workshop on using Arcpy

**STUDENT ADMISSIONS COMMITTEE | COMMITTEE MEMBER**

12/2012 - 1/2013 | Energy and Resources Group, UC Berkeley, CA, USA

- Reviewed student applications

**GRID ALTERNATIVES | SOLAR PANEL INSTALLATION VOLUNTEER**

03/2012 | Berkeley, CA, USA

- Helped fundraise to buy solar panels for a low income household in Richmond, CA and helped to install solar panels

**SISTEMA BIOBOLSA | BIOGAS DIGESTER INSTALLER VOLUNTEER**

1/2013 | Yucatan, Mexico

**WORLD WIDE OPPORTUNITIES IN ORGANIC FARMING (WWOOF) | APPRENTICE/WWOOFER**

07/2008 - 08/2008 | Exeter and Visalia, CA, USA

**STUDENTS FOR THE BERNARD FIELD STATION | POMONA COLLEGE REPRESENTATIVE**

08/2007 - 05/2008 | Claremont, CA, USA

- Negotiated with administrators and trustees to protect land from development, wrote newspaper articles in support of protection
- Lead educational tours of the field station

**ENVIRONMENTAL QUALITY COMMITTEE, ASSOCIATED STUDENTS OF POMONA COLLEGE | COMMITTEE MEMBER**

08/2004 - 05/2008 | Claremont, CA, USA

- Developed recycling initiatives in dorms, instated reusable and biodegradable take-out containers for dining halls.
- Designed first-year 'orientation in sustainability' at Pomona College.
- Headed initiatives for proposing an environmentally-focused first-year summer reading book, The Weather Makers by Tim Flannery.

**RELEVANT RECENT COURSEWORK**

2016	Adv. Topics in Remote Sensing, Scalable Spatial Analytics, Applied Econometrics
2015	Intro to Remote Sensing of the Environment
2014	Intro to Hydrology (Engineering), Spatial Statistics
2003	Electric Power Systems, Hierarchical Models (Statistics), History of Development and Underdevelopment (Development Studies)
2012	Geographic Information Systems (GIS) for Environmental Science and Problem Solving, Civil Systems and the Environment (Engineering), Risk and Optimization Models (Public Policy), Climate Change Mitigation (Engineering), Intro to Environmental Data Analysis (Statistics), Energy and Environmental Markets (Haas School of Business), Quantitative Methods in Environmental Problem Solving (Environmental Science), Master's seminar (research methods)
2011	Energy and Society, Mathematical Modeling of Complex Systems, Environmental Engineering, Interdisciplinary Analysis in Energy and Resources.

## LANGUAGES AND TECHNICAL SKILLS

### **PROGRAMMING**

Over 5000 lines:

Python • R •  $\LaTeX$

Over 1000 lines:

JavaScript

Familiar:

Matlab • Optimization Programming

Language (OPL) • PostgreSQL

### **SPOKEN & WRITTEN**

Native fluency:

English, Mandarin

Chinese (spoken)

### **SOFTWARE**

GIS and remote sensing:

Google Earth Engine, ENVI, ArcGIS and arcpy, QGIS, Python geospatial libraries (gdal, shapely, geopandas, fiona)

**Computational biology:**

Phylogenetic analysis tools (PAML, MacClade, Phylip), sequence analysis tools (CodonCode, Sequencer, Artemis gene annotation)