Luna Yue Huang

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Agricultural and Resource Economics
University of California, Berkeley
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Research Interests

Primary: Development Economics.
Secondary: Machine Learning, Applied Econometrics, Big Data, Spatial Economics, Spatial Data Analysis, Industrial Organization.

Education and Affiliation

University of California, Berkeley — Berkeley, CA
Ph.D. Student in Agricultural and Resource Economics — *Aug, 2016–Present*

Selected Courses:	Applied Econometrics	Applied Machine Learning
Industrial Organization	Probability and Statistics	Development Economics

Peking University — Beijing, China
B.A. in Economics; B.S. in Environmental Science — *Aug, 2012–Jun, 2016*

Publications

Using RCT's to Estimate Long-Run Impacts in Development Economics, joint with Adrien Bouguen (UC Berkeley), Michael Kremer (Harvard), and Edward Miguel (UC Berkeley), *Annual Review of Economics*, forthcoming. (NBER Working Paper w25356.)

Working Papers

Information, Incentives and Air Quality: New Evidence from Machine Learning Predictions, joint with Minghao Qiu (MIT).

Research Experience

Impact Evaluation with Satellite Imagery and Machine Learning
Advisor: Prof. Edward Miguel — *Jan, 2019–Present*

- Applied a state-of-the-art machine learning model, DeepLabV3+, to process high-resolution satellite images in rural Kenya and developed proxies for household wealth (for example, roof quality).
- Used these cost-effective measures to evaluate a randomized controlled trial and estimated treatment effects that were corroborated with detailed household survey data.

Evaluating Air Quality Regulations with Remote Sensing Data
Advisor: Prof. Solomon Hsiang — *Aug, 2017–Apr, 2018*

- Assembled and pre-processed several large remote sensing datasets, including OMI, MODIS and MERRA2.
- Matched remote sensing observations and gridded meteorological datasets with ground-level air pollution measurements and applied a machine learning model, Extreme Gradient Boosting, to generate predictions for historical air quality in China, where official statistics were heavily manipulated.

- Exploited a natural experiment, the staggered implementation of centralized air quality monitoring, and estimated policy effects with both event study and structural break designs.

Treatment Effects Heterogeneity Estimation with Causal Forest
Research Assistant for Prof. Edward Miguel *Sep, 2017–Jan, 2018*

- Analyzed a large household survey dataset to evaluate an unconditional cash transfer program in rural Kenya.
- Used a machine-learning-based model, Causal Forest, to estimated treatment effect heterogeneity in a data-driven manner, in order to develop a set of targeting rules for cash assistance that maximize "per-dollar impact".

Teaching Experience

Teaching Assistant for Full-time MBA Microeconomics (MBA 201A), UC Berkeley	*Fall 2018*
Teaching Assistant for Undergraduate Microeconomics (EEP 100), UC Berkeley	*Fall 2017*

Presentations

UC Berkeley Development Economics Workshop (Mar 2019); 2nd Annual Symposium on Geospatial Analysis for International Development (Poster) (Nov 2018); UC Berkeley Development Economics Lunch (Oct 2018); UC Berkeley-Davis-Riverside Giannini Foundation Student Conference (Apr 2018).

Awards and Grants

East Africa Social Science Translation Collaborative Mentor Grant, Center for Effective Global Action	*2018*
Academic Creativity Award, Peking University	*2015*
Bajian Rencai Scholarship, Peking University	*2013, 2014, 2015*
Mao Yugang Foundation Grant for Undergraduate Research	*2014*
Wusi Scholarship, Peking University	*2013, 2014*

Skills

Data Scraping, Analysis and Visualization: R, Python, STATA, MATLAB and SQL.
Geospatial Analysis: R, Python and QGIS.
Deep Learning: PyTorch.
Miscellaneous: Bash, Git, HTML5, LaTeX and Markdown.