

# SERENA KIM, PhD

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[Personal Webpage](#) · [LinkedIn](#) · [University Faculty Profile](#) · [Google Scholar](#)

## ACADEMIC APPOINTMENTS

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<b>North Carolina State University</b> <i>Assistant Professor</i> , School of Public and International Affairs	<b>Raleigh, NC</b> 2023 – Present
<b>University of Colorado Denver</b> <i>Postdoctoral Research Associate</i> , College of Engineering, Design and Computing <i>Scholar in Residence</i> , School of Public Affairs	<b>Denver, CO</b> 2021 - 2023 2019 - 2023

## ADMINISTRATIVE & AFFILIATED POSITIONS

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<b>Affiliated Faculty</b> The Institute for Regulatory Law & Economics (IRLE), Northwestern University	2021 - Present
<b>Affiliated Faculty</b> Metropolitan Governance and Management Transitions Laboratory, Indiana University Bloomington	2020 - Present

## EDUCATION

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<b>Florida State University</b> Ph.D., Public Administration Dissertation: <i>Essays on U.S. Renewable Energy and Sustainability Policy</i>	2019
<b>University of Colorado Boulder</b> M.S., Computer Science	2023
<b>Yonsei University, Seoul, South Korea</b> B.A., Economics; Public Administration (Double Major)	2012

## RESEARCH INTERESTS

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Computational Social Science, Energy Transition, Environment and Health, Collective Action

## PUBLICATIONS

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### Peer-Reviewed Journal Articles

14. **Serena Y. Kim**, Koushik Ganesan, Crystal Soderman, & Raven O'Rourke. "Spatial Disparities in Solar PV Deployment: An Application of Region-Based Convolutional Neural Network." *EPJ Data Science*. doi: 10.1140/epjds/s13688-023-00399-1. (2023)
13. Mahdi Ghafoori, Moatassem Abdallah, & **Serena Kim**. "Machine Learning-Based Vehicle to Building (V2B) Scheduling System for Electricity Peak Shaving in Commercial Buildings." *Applied Energy*. doi: 10.1016/j.apenergy.2023.121052. (2023)
12. Michael DiNardi, William L. Swann, & **Serena Y. Kim**. "Racial and Ethnic Segregation and the Availability of Opioid and Substance Use Treatment Facilities in US Counties." *SSM - Population Health*. doi: 10.1016/j.ssmph.2022.101289. (2022)

11. Aaron Deslatte, **Serena Y. Kim**, Christopher Hawkins, & Eric Stokan. “How Do Cities Pursue Green Housing Equity? An Organizational Capabilities Approach.” *Review of Policy Research*. doi: 10.1111/ropr.12499 .(2022)
10. Jongeun You, Tanya Heikkila, Christopher M. Weible, **Serena Y. Kim**, Kyudong Park, Jill Yordy, & Sharon L. Smolinski. “The Distribution of Conflict and Attention Across Energy Infrastructure.” *Public Administration*. doi: 10.1111/padm.12842. (2022)
9. William L. Swann, Terri L. Schreiber, **Serena Y. Kim**, Heidi McNeely & Hyunwoo Hong. “Perceived Impact of COVID-19 on Prevention, Treatment, Harm Reduction, and Recovery Services for Opioid Use Disorder: National Survey of Local Health Departments.” *Substance Abuse*. doi: 10.1080/08897077.2022.2060429. (2022)
8. **Serena Y. Kim**, Koushik Ganesan, Princess Dickens, & Soumya Panda. “Public Sentiment Toward Solar Energy: Opinion Mining of Twitter Using a Transformer-Based Language Model.” *Sustainability*. doi: 10.3390/su13052673. (2021)
7. **Serena Y. Kim**, “Institutional Arrangements and Airport Solar PV.” *Energy Policy*. doi: 10.1016/j.enpol.2020.111536. (2020)
  - Featured in *New York Times* and *The Washington Post* among others
6. William L. Swann, Sojeong Kim, **Serena Y. Kim**, & Terri L. Schreiber. “Urban-Rural Disparities in Opioid Use Disorder Prevention and Response Activities: A Cross-Sectional Analysis.” *Journal of Rural Health*. doi: 10.1111/jrh.12491. (2020)
5. **Serena Y. Kim**, William L. Swann, Christopher M. Weible, Thomas Bolognesi, Rachel M. Krause, Angela Y. S. Park, Tian Tang, Kiernan Maletsky, & Richard C. Feiock. “Updating the Institutional Collective Action.” *Policy Studies Journal*. doi: 10.1111/psj.12392. (2020)
4. William L. Swann, Terri L. Schreiber, Steven Wright, Mark W. Davis, Sojeong Kim, **Serena Y. Kim**, Alex Osei-Kojo, & Megan Lamiotte. “Local Policy Activity and Commitment to Addressing the US Opioid Crisis: A Cross-Sectional Survey of County Governments.” *Journal of Public Health Management & Practice*. doi: 10.1097/phh.0000000000001194. (2020)
3. William L. Swann, Dan Graeve, Shelley McMullen, & **Serena Y. Kim**. “Balancing Autonomies in Sustainability Planning: A Case Analysis of Colorado Cities.” *Urban Planning* 4(4): 98-110. doi: 10.17645/up.v4i4.2384. (2019)
2. William L. Swann & **Serena Kim**. “Practical Prescriptions for Governing Fragmented Governments.” *Policy & Politics* 46 (2): 273-292. doi: 10.1332/030557318X152300587209794. (2018)
1. Min Gyo Koo & **Serena Kim**. “East Asian Way of Linking the Environment to Trade in Free Trade Agreements.” *The Journal of Environment & Development* 27(4): 273-292. doi: 10.1177/1070496518794234. (2018)

## Working Papers

- **Serena Y. Kim**, Crystal Soderman, & Lan Sang. “Public Sentiment Towards Solar Energy Across the United States, 2013 – 2022: An Application of Neural Networks and Deep Learning” *In Preparation*.
- Kristin Wegner & **Serena Y. Kim** “The Impact of Building Energy Benchmarking and Disclosure Policies on Energy Use Intensity: A Machine Learning-Based Approach” *In Preparation*.

## Book Chapters, Op-Eds, Reports, & Other Publications

- **Serena Y. Kim** & Hilary Haskell. “Survey Report: Willingness to Use Vehicle-to-Everything (V2X) 2021 Pilot Survey”. School of Public Affairs, University of Colorado Denver. (2021)
- **Serena Y. Kim**. “The Unequal Cost of Brittle Power Infrastructure.” *Research and Impact*. School of Public Affairs, University of Colorado Denver. (2021)
- **Serena Y. Kim**, William L. Swann, & Richard C. Feiock. “Collective Learning and Institutional Collective Action in Fragmented Governance.” In *Knowledge for Governance*. Vol 15. Knowledge and Space, edited by Johannes Glückler, Gary Herrigel, & Michael Handke. Berlin, Heidelberg: Springer. doi: 10.1007/978-3-030-47150-7. (2020)
- William L. Swann & **Seo Young Kim**. “Strategies for Collaborating in Fragmented Governments.” *Policy and Politics Journal Blog*. (2018)
- Sustainable Healthy Cities Network. “Policy Responses to Emerging Topics in Urban Sustainability: Distributed and Localized Infrastructure in Cities.” *Science-Policy Dialogue Report No.1*, edited by Samuel Tabory, Ashly McFarlane, **Serena Kim**, Richard Feiock, Cory Fleming, Terri Matthews, Eli Yewdall, & Anu Ramaswami. Humphrey School of Public Affairs: Minneapolis, MN. (2018)

## PRESENTATIONS, TALKS & MEDIA

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### Media Appearances

- “Dulles Solar Farm Would Be the Nation’s Largest at an Airport”. *The Washington Post*. Aug 2022
- “Seeking Space for Solar Farms, Cities Find Room at Their Airports”. *New York Times*. Dec 2021
- “Study: 20% of Airports Use Solar Energy; DIA among Largest Solar Projects in U.S”. *The Gazette*. Sep 2020
- “Researcher Analyzes the Use of Solar Energy at US Airport”. *Science Daily*. Sep 2020
- “Climate Change News: More Airports Are Going Solar To Protect Environment, Cut Costs”. *International Business Times*. Sep 2020
- “CU Denver Researcher Analyzes the Use of Solar Energy at Us Airports”. *Solar Daily*. Sep 2020
- “Only 20% of Nation’s Large Commercial Airports Incorporate Solar Power”. *Oklahoma Energy Today*. Sep 2020
- “CU Denver Researcher Analyzes the Use of Solar Energy at U.S. Airports”. *CU Denver News*. Sep 2020

### Academic Research Conferences

- “Grid Resilience Index: An Online Mapping Tool Harnessing Social Capital”  
Southern Economic Associations 93rd Annual Meeting, New Orleans, LA      November, 2023
- “Spatial Distribution of Solar PV Deployment: An Application of the Region-Based Convolutional Neural Network”  
Rocky Mountain Celebration of Women in Computing, Boulder, CO      September, 2022

- “Financing Arrangements for Airport Solar Photovoltaic Projects”  
American Society for Public Administration, Denver, CO March, 2018
- “Explaining Intra-Governmental Competition in Sustainability Policy”  
Southern Political Science Association, New Orleans, LA January, 2017
- “Intra-Governmental Competition and Collaboration on Sustainability”  
Association for Public Policy Analysis and Management, Washington DC November, 2016

### Campus & Invited Talks

- “Governance Insights from Institutional & Organizational Economics and Data Science”  
Institute of Regulatory Law and Economics, Aspen, CO October, 2022
- “Big Data, Public Policy, and Distributed Energy Resources”  
Rocky Mountain Institute, Boulder, CO June, 2022
- “Polycentric Governance and Collective Action in Energy Transition”  
Rocky Mountain Institute, Boulder, CO June, 2022
- “Geospatial Data Science and Energy Research”  
University of Colorado Denver, Denver, CO February, 2022
- “Research Data Management”  
School of Public Affairs, University of Colorado Denver, Denver, CO October, 2021
- “Nonresponse Bias and Survey Weights”  
The Schreiber Research Group, Denver, CO May, 2020
- “Geographic Information System (GIS) for Public Policy Research”  
School of Public Affairs, University of Colorado Denver, Denver, CO Nov, 2019
- “Assumptions of Logistic Regression and the Alternatives”  
School of Public Affairs, University of Colorado Denver, Denver, CO January, 2018

## FUNDING

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### Research Grants

- “E-VIBES: SAI: Integration of Electric Vehicles and the Electric Grid,” Strengthening American Infrastructure (SAI) \$750,000  
National Science Foundation (NSF) 2023 – 2026  
**Co-PI.** (With Lead PI Lynne Kiesling and 5 other Co-PIs)  
– Featured in “CU Denver News - Can EV Owners Help Pump Power Back to the Grid?”,  
“Power-Grid - New Study Aims to Test Benefits of Bidirectional EV Charging”
- “Infrastructure Informatics: Toward Establishing a Research Center for Preventive, Predictive, and Prescriptive Design, Maintenance and Management of Civil Infrastructures using AI/Data Science,” CU Denver Research and Creative Work Grand Challenges 2023 – 2024  
**Co-PI.** (With Lead PI Farnoush Banaei-Kashani and 20 other Co-PIs) \$299,614
- “Community Microgrids for Energy Resilience and Emergency Planning” \$12,000  
CU Denver Office of Research Services 2022 – 2023  
**PI.**
- “Electric Vehicles (EVs) as a Tool for Energy Efficiency and Resilience” \$14,864  
CU Denver CRC Faculty Interdisciplinary Fellowship 2021 – 2022  
**PI.** (With PI Moatassem Abdallah)

- “Integrated Solar Energy for Sustainable, Resilient, and Equitable Communities” \$15,989  
CU Denver Presidential Initiative on Urban & Place-Based Research 2020 – 2021  
PI.

### Teaching Grants

- “Public Data for Public Good: Using Geospatial Data to Analyze Housing and Crime Issues”  
Teaching Enhancement Grant, University of Colorado Denver, \$2,750 2020 – 2021

## TEACHING

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<b>North Carolina State University (NC State)</b>	<b>Raleigh, NC</b>
Quantitative Research in Public Administration (PA 765)	Spring 2024
Research Methods and Analysis (PA 515)	Fall 2023, Spring 2024
<b>University of Colorado Denver (CU Denver)</b>	<b>Denver, CO</b>
Research and Analytic Methods (PUAD 5003)	2019 – 2023 (10 sections)
Evidence-Based Decision-Making (PUAD 5008)	2019 – 2023 (9 sections)
Public Policy Analysis (PUAD 5320)	2020 – 2023 (7 sections)
Policy Process and Democracy (PUAD 5005)	Spring 2020 (1 section)

## SERVICE

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### University Services

Faculty Advisor, Science Policy Pack, NC State 2023 - Present

### PhD Dissertation Committees

Crystal Soderman, Public Affairs, University of Colorado Denver Expected 2024  
Kristin Wegner, Public Affairs, University of Colorado Denver 2022

### MPA Thesis and Capstone Committees

51 Students Fall 2019 – Spring 2023

### Advising and Mentoring

Crystal Soderman, PhD Student, Public Affairs 2021 – Present  
Sachin Prakash Kumar, MS, Computer Science 2022 – 2023  
Matthew Wicks, MPA (National Conference of State Legislatures) 2023 – 2023  
Sam Marshall, MPA (State of Colorado) 2022 – 2023  
Kristin Wegner, PhD, Public Affairs (National Renewable Energy Laboratory) 2021 – 2022  
Danielle Edwards, MPA (City and County of Denver) 2021 – 2022  
Aric Thompson, MPA (City and County of Denver) 2021 – 2022  
Hilary Haskell, MPA (U.S. Green Building Council, Denver) 2020 – 2021  
Suneel Raza, MPA (U.S. Department of Housing & Urban Development) 2019 – 2021  
Raven O’Rourke, BS, Computer Science (RadiaSoft, Boulder) 2020 – 2021  
Lindsay Miller, MPA (Beyond Growth Strategies, Denver) 2019 – 2020

### Grant Review

- National Science Foundation (NSF) – Decision, Risk, and Management Sciences (DRMS)
- Department of Energy (DOE) – SLAC National Accelerator Laboratory

### Journal Review

- Computer science and engineering journals: *Applied System Innovation (ASI)*, *International Journal of Artificial Intelligence (IJ-AI)*, *Concurrency and Computation: Practice and Experience (CCPE)*, *Symmetry*, *Recent Advances in Electrical & Electronic Engineering*
- Energy and environment journals: *Energies*, *Wind Energy*, *Energy Systems*, *International Journal of Environmental Research and Public Health (IJERPH)*, *Natural Hazards Review*
- Policy and administration journals: *Policy Studies Journal (PSJ)*, *Policy & Politics*, *Journal of Strategic Contracting and Negotiation (JSCAN)*
- Others: *PLOS One*

## CERTIFICATIONS, TRAINING, & PROFICIENCY

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### Certifications

Spatial Data Science: The New Frontier in Analytics, *ESRI ArcGIS*. 2020

Integrated Infrastructure Solutions for Sustainable, Healthy, and Livable Cities, *SRN*, University of Minnesota. 2018

### Training

Community of Practice: Large Online Classes, University of Colorado Denver. 2019

Online Skills Mastery (OSM), University of Colorado Denver. 2019

Responsible Conduct of Research Training, *CITI Program*. 2018

### Proficiency

Main Working Languages & Tools Python, JavaScript, Git, ArcGIS, R

Other Working Languages & Tools C/C++, Java, Julia, MATLAB, SPSS, STATA, Tableau

Computer Graphics & Design OpenGL (C/C++), Adobe Photoshop & InDesign, Blender

### Other Information

US Permanent Resident