

SERENA KIM, PhD

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

ACADEMIC APPOINTMENTS

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

ADMINISTRATIVE & AFFILIATED POSITIONS

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

EDUCATION

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

PUBLICATIONS

Preprints (Under Review)

15. **Serena Y. Kim**, Crystal Soderman, & Lan Sang. "Sentiment Analysis of Solar Energy in U.S. Cities: A 10-Year Analysis Using Transformer-Based Deep Learning." doi: 10.21203/rs.3.rs-5050458/v1. (2024)

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)
 - Top 10 most cited paper at Policy Studies Journal (PSJ) in 2021, 2022, and 2023
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)

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

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

- “Leveraging AI Tools for Social Science Energy Research”
UNO SPA Research Round Table, Omaha, NE April, 2024
- “Solar Energy Sentiment and Deployment”
NCSU Center for Environmental and Resource Economic Policy April, 2024
- “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

Research Grants

- “E-VIBES: SAI: Integration of Electric Vehicles and the Electric Grid,” Strengthening American Infrastructure (SAI) \$750,000
U.S. National Science Foundation (NSF) 2023 – 2026
Co-PI. (With Lead PI Lynne Kiesling and 6 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”
- “Data for Enhancing Representative Justice and Co-Stewardship in Institutionally Diverse Communities” \$170,000
U.S. Forest Service (USFS) 2024 – 2025
Co-PI. (With Lead PI Branda Nowell)
- “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 \$299,614
Co-PI. (With Lead PI Farnoush Banaei-Kashani and 20 other Co-PIs) 2023 – 2024

- “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

North Carolina State University (NC State)	Raleigh, NC
Quantitative Research in Public Administration (PA 765)	Spring 2024
Research Methods and Analysis (PA 515)	Fall 2023, Spring 2024
University of Colorado Denver (CU Denver)	Denver, CO
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

University Services

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

PhD Dissertation Committees

Ryne Crout Jones, Public Administration, North Carolina State University Expected 2025
Crystal Soderman, Public Affairs, University of Colorado Denver Expected 2024
Kristin Wegner, Public Affairs, University of Colorado Denver 2022

Master’s Thesis and Capstone Committees

52 Students, University of Colorado Denver Fall 2019 – Fall 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: *EPJ Data Science*, *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*, *Public Performance & Management Review*
- Others: *PLOS One*

CERTIFICATIONS, TRAINING, & PROFICIENCY

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

Responsible Conduct of Research Training, *CITI Program*. 2023

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

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

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