

# SHANGWEI LIU

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National University of Singapore, Singapore

## Academic Employment

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<b>National University of Singapore</b> Presidential Fellow (tenure-track faculty), Department of Civil and Environmental Engineering	<i>Mar 2026–present</i>
<b>Harvard Kennedy School, Harvard University</b> Postdoctoral Research Fellow    Advisors: Henry Lee and John P. Holdren	<i>Sept 2024–Mar 2026</i>
<b>Princeton University</b> Postgraduate Research Associate (PGRA) Program	<i>Feb 2024–July 2024</i>

## Research Interest

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Energy and climate policy; Energy system modeling; Technology innovation; Climate change impacts

## Education

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<b>Princeton University</b> Ph.D., Science, Technology and Environmental Policy (STEP) Program, Princeton School of Public and International Affairs <i>Thesis Committee:</i> Denise L. Mauzerall (advisor), Valerie J. Karplus, Fabian Wagner, Jesse D. Jenkins	<i>Aug 2018–Mar 2024</i>
<b>Beijing Normal University</b> Sc.B., with honors, Environmental Science	<i>Sep 2014–Jun 2018</i>
<b>Duke Kunshan University</b> Undergraduate Exchange Student	<i>Feb 2016–Jun 2016</i>

## Publications

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12. **Shangwei Liu**, Xiangwen Fu, Liquan Peng, Siyue Guo, Denise L. Mauzerall. Energy System Savings Largely Offset the Costs of Urban Building Energy Efficiency Improvements in China. *Nature Cities*, 2026 (Accepted)
11. **Shangwei Liu**, Gang He, Minghao Qiu, Daniel M. Kammen (2025). [China reins in the spiralling construction costs of nuclear power – what can other countries learn?](#) *Nature*, 643: 1186–1188. Coverage: [New York Times](#), [The Economist](#), [Harvard Belfer](#), [CUNY](#), [JHU](#); [Roosevelt Institute blog](#)
10. Bo Li, Ruotao Yu, Kaiye Gan, Guangchun Ruan, Wei Dai, **Shangwei Liu**, Mingxia Yang, Haiwang Zhong. (2025). [A Large-Scale Residential Load Dataset in Extreme Weather Events: A Case in Southern China](#). *Scientific Data*, 12, 450.
9. Jing Liang, Yueming (Lucy) Qiu, Bo Wang, Xingchi Shen, **Shangwei Liu**. (2025). [Impacts of heatwaves on electricity reliability: Evidence from power outage data in China](#). *iScience*, 111855.
8. **Shangwei Liu**, Yang Guo, Fabian Wagner, Hongxun Liu, Ryna Yiyun Cui, Denise L. Mauzerall. (2024). [Diversifying heat sources in China’s urban district heating systems will reduce risk of carbon lock-in](#). *Nature Energy*, 9, 1021–1031.  
[Princeton reports](#); Policy brief submitted to China’s State Council
7. **Shangwei Liu**, Hongxun Liu, Denise L. Mauzerall. (2023). [Improving building envelope efficiency lowers costs and emissions from rural residential heating in China](#). *Environmental Science & Technology*, 57, 595–605.

6. Liqun Peng, Yang Guo, **Shangwei Liu**, Gang He, Denise L. Mauzerall. (2024). Subsidizing grid-based electrolytic hydrogen could increase GHG emissions in coal dominated power systems. *Environmental Science & Technology*, 58(12), 5187–5195.
5. Yiling Xiong, Xin Tian, **Shangwei Liu**, Zhipeng Tang. (2020). Deciphering the pattern for inter-provincial water stress transferring: A case study on China’s mainland. *China Population, Resources and Environment*, 30(12): 75–83. (in Chinese)
4. **Shangwei Liu**, Xin Tian, Yiling Xiong, Yan Zhang, Hiroki Tanikawa. (2020). Challenges towards carbon dioxide emissions peak under in-depth socioeconomic transition in China: Insights from Shanghai. *Journal of Cleaner Production*, 247, 119083.
3. Yiling Xiong, Xin Tian, **Shangwei Liu**, Zhipeng Tang. (2020). New patterns in China’s water footprint: analysis of spatial and structural transitions from a regional perspective. *Journal of Cleaner Production*, 245, 118942.
2. Jie Wang, Yiling Xiong, Xin Tian, **Shangwei Liu**, Jiashuo Li, Hiroki Tanikawa. (2018). Stagnating CO2 emissions with in-depth socioeconomic transition in Beijing. *Applied Energy*, 228, 1714–1725.
1. **Shangwei Liu**, Xin Tian, Wenjia Cai, Weiqiang Chen, Yafei Wang. (2018). How the transitions in iron and steel and construction material industries impact China’s CO2 emissions: comprehensive analysis from an inter-sector linked perspective. *Applied Energy*, 211, 64–75.

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## Teaching Experience

- Assistant instructor, SPI594S Climate Change: Science, Policy and Mitigation *Spring 2023; Fall 2021*  
 Assistant instructor, ENV302 Practical Models for Environmental Systems *Spring 2022*  
 Assistant instructor, CEE334 Global Environmental Issues *Fall 2021*

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## Fellowship & Awards

- Energy, Climate, and Technology Policy Postdoctoral Fellowship, Belfer Center for Science and International Affairs, Harvard Kennedy School *2024–2026*  
 Princeton Dean’s Completion Fellowship / Postgraduate Research Associates Program *2023*  
 Princeton Institute for International and Regional Studies (PIIRS) Graduate Fellows Program *2023*  
 Fellowship in Princeton School of Public and International Affairs *2018–2023*  
 Zhou Tingru Scholarship (awarded to 1 top undergraduate student university-wide annually) *2018*  
 Tang Xiaoyan Scholarship (national award granted to 1–2 undergraduate students in environmental studies each year) *2018*  
 Nominated as one of the Top 20 Students University-wide, Beijing Normal University *2017*  
 National Scholarship by Ministry of Education of China *2015*

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## Invited Talks & Presentations

- 2026:** HKUST (GZ)  
**2025:** Climate Week NYC; MIT CEEPR Spring Workshop; Harvard-China Project; Harvard Energy Policy Seminar  
**2024:** BU Energy & Climate Workshop; MIT Energy Initiative Research Seminar; 2024 Macro-Energy Systems Workshop; Nature Conf. on Air Pollution & Climate Change; AGU 2024  
**2018–2023:** AGU 2023; AGU 2022; 2018 Int’l Conf. on Resources Sustainability (*Best Young Scientist Oral Presentation*); 12th Int’l Congress of Ecology

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## Technical Skills

**Energy & environmental analysis:** techno-economic assessment, power system modeling (GridPath), building energy modeling (EnergyPlus), industrial ecology (input-output analysis, LCA), econometrics  
**Programming:** R, Python, Matlab, STATA, L<sup>A</sup>T<sub>E</sub>X

## Service

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**Selected journal referee:** *Nature Reviews Clean Technology*, *Nature Climate Change*, *Energy Economics*, *Energy Policy*

Host of *Carbon Talk* podcast (in Chinese), [XiaoYuZhou](#) | [Ximalaya](#) | [Apple Podcast](#); Chinese Podcast of the Year 2023, 11k+ followers

Author of *Environmental Science and Policy* blog (in Chinese), 12k followers

Last updated: May 2026