Madalsa Singh

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EDUCATION

Stanford University Sep 2019 - March 2024 (expected)
PhD Candidate
Energy Science and Engineering
Advisor: Dr. Inês Azevedo

Carnegie Mellon University Aug 2018 - May 2019
Master of Science
Energy Science and Mechanical Engineering

Indian Institute of Technology Bombay Aug 2011 - Aug 2015
Bachelor of Technology
Materials Science and Metallurgical Engineering

PUBLICATIONS

First Author Publications

1. Distributional impacts of fleet-wide change in light duty transportation: mortality risks of $PM_{2.5}$ emissions from electric vehicle and Tier 3 conventional vehicles. (with Chris Tessum, Julian Marshall, Inês Azevedo) [Revise and resubmit, *Environmental Research Letters*]
2. How clean does the U.S. electricity grid need to be to ensure electric vehicles reduce greenhouse gas emissions? (with Tugce Yuksel, Jeremy Michalek, Inês Azevedo [in-review, *Nature Scientific Reports*]
3. Pathways to Zero Emissions in California's Light-Duty Transportation Sector. (with Nora Henessey, Sarah Saltzer, Inês Azevedo) [in submission, *Science*]
4. How differential privacy will affect our understanding of air pollution exposure and disparities in the United States.*Findings*, 2023.
5. Microhybrid electricity system for energy access, livelihoods, and empowerment. (with P. Balachandra). *Proceedings of the IEEE*, 2019

Contributing Author Publications

1. Pathways to Zero Emissions in California's Heavy-Duty Transportation Sector. (with Nora Hennessy, Sarah Saltzer, Inês Azevedo) [in submission, *Science*]

2. Performance metrics required of next-generation batteries to electrify commercial aircraft. (with Alexander Bills, Shashank Sripad, Venkat Vishwanathan). *ACS Energy Letters*, 2020.

CONFERENCE PRESENTATIONS

1. Designing efficient and equitable electricity retail rates for distributed energy resources. (with Bruce Cain, Inês Azevedo). *INFORMS* 2023.
2. How clean does the U.S. electricity grid need to be to ensure electric vehicles reduce emissions? (with Tugce Yuksel, Jeremy Michalek, Inês Azevedo).*Transportation Research Board Annual Meeting* 2023.
3. EVs or Tier 3 gasoline vehicles? $PM_{2.5}$ mortality impacts of fleet-wide change in light duty transportation. (with Chris Tessum, Julian Marshall, Inês Azevedo). *American Geophysics Unions Fall Meeting* 2022.
4. At-margin or not? Persistently high marginal emissions factor and their impact on electric vehicle emissions. (with Tugce Yuksel, Jeremy Michalek, Inês Azevedo). *United States Association of Energy Economics Annual Meeting* 2022.
5. Accelerated retirements of fossil vehicles to achieve sustainable mobility goals of California (with Nora Hennessy, Sarah Saltzer,Inês Azevedo). *United States Association for Energy Economics Anual Meeting* 2022.
6. Utility in a box : Feasibility of hybrid micro-grids for productive energy in India. *Women in Clean Energy Symposium*, Stanford University, 2019.
7. Techno-economic feasibility of hybird micro-grids in Western Ghats (with P.Balanchandra). *International Conference of Indian Society of Ecological Economics* 2017.

REPORTS

1. Pathways to Carbon Neutrality in California: Decarbonizing the Transportation Sector. (with Eleanor Hennessy, Sarah Saltzer, Andrew Berson, Inês Azevedo) *Stanford Center for Carbon storage and Stanford Carbon Removal Initiative* 2022.

WORKSHOPS

1. Energy justice in the energy transition. Southern Methodist University 2023
2. Stanford-IIT Bombay workshop on climate change and energy transition. IIT Bombay 2023
3. International PhD Workshop on Sustainable Development. Columbia University 2023, 2022
4. Green energy in Appalachia : Trans-tech workshop 2018
5. India Energy Access Summit 2018

AWARDS

The William H. Bourne Fellowship 2023
Columbia University travel grant 2023
American Geophysics Union travel grant 2022
Fellow, Inaugural Aspen Climate Cohort 2022
Shultz Energy Fellow, Stanford University 2021
Winner, United States Energy Economics Case Competition, 2020
Alumni Award, Carnegie Mellon University, 2018
EST&P travel grant, Carnegie Mellon University, 2018
Science Fellowship, Department of Science and Technology, Government of India, 2011

SERVICE

Teaching : Quantitative Methods for Energy Decisions 2021. 1 out of 2 teaching assistants responsible for grading, office-hours, extra lectures, and problem set conceptualization
Reviewer: IEEE Vehicle Power and Propulsion, Energy Policy, Environmental Research Letters, Nature Reviews: Electrical Engineering
Department Service: Graduate Student Advisory Committee Representative, Department of Energy Science and Engineering, Stanford University (2022-2023)
Graduate Student Panelist, Stanford School of Earth, Energy & Environmental Sciences Faculty Search, 2021
President, Women in Earth Sciences, Stanford University (2021-2023)
Department Mentor, Energy Resources Engineering, Stanford University (2021-2023)

SKILLS

Python, Julia, QGIS, LaTeX

PROFESSIONAL EXPERIENCE

Tesla Inc. *Algorithms and Operations Intern* June 2022 - Sept 2022
California Public Utilities Commission, Office of Commissioner Martha Guzman Aceves *Shultz Energy Fellow* May 2021 - Sept 2021
- Energy systems modeler for commissioner's office on the net energy metering rulemaking (NEM3.0 proceeding)
Oorja Development Solutions Ltd., *Technical Consultant* Oct 2017 - July 2018