Seshadri Raghavan, PhD

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Summary

I am a versatile and highly motivated researcher with over 15 years of experience in technology, engineering and policy domains, dedicated to finding the right balance between academic rigor, utility, and on-ground impact. My expertise spans the entire energy transition value chain, from raw materials to user behavior, encompassing emerging clean energy technologies, EV transition, sector-coupling dynamics and establishing KPIs. I am proficient in both quantitative and qualitative research methods and tools, and my work is characterized by high-quality research outputs at various academic, inter-governmental and policy research institutions. I offer strategic leadership and programmatic guidance drawing from international practices fostering interdisciplinary collaboration and driving research projects. I am committed to nurturing the next generation of researchers, sharing my deep-generalist mindset and interdisciplinary growth focus to advance integrative, systems-oriented problem-solving approaches. I am eager to bring my robust skill set and strong critical thinking abilities to deliver impactful research outputs on policy–technology–foresight nexus.

Education

PhD, Transportation Technology and Policy, University of California, Davis *Fall 2020*
MS, Electrical Engineering, University of Maryland, College Park *Fall 2013*
MS, Electrical and Computer Engineering, University of Illinois, Chicago *Spring 2007*
BE, Electrical and Electronics Engineering, Anna University, India *Spring 2005*

Research Interests

- Sustainable mobility and energy transitions
- Decarbonization-critical material nexus
- Integrated Assessment Modeling
- TEA, LCA, and MFA
- Data driven policy
- Applied Econometrics

Research Experience

The Council on Energy, Environment and Water (CEEW) **New Delhi, IN**
Program Lead, Sustainable Mobility *06/2023–Present*

- Led the USAID Clean Air Better Health work-stream on fleet electrification (e3W) and gender inclusive EV transition in Amristar
- Initiate, formulate, supervise and execute cross-cutting research on ZET transition, infrastructure, sector-coupling, behavioral interventions and quantitative modeling as well as building in-house capacity on leveraging big data analytics and tool development.
- Secured funding for research projects; active engagements with domestic and international avenues for collaborations and funding.
- Representing the organization at stakeholder convening, publishing and presenting at international scientific conferences (EVS37).
- Review, participate, support and contribute to NITI' e-FAST, MHI's EV task force and EoDB NHforEV initiatives.

Chalmers University of Technology and Swedish Electromobility Center **Gothenburg, SE**
Postdoc in Environmental Systems Analysis and Thematic Researcher *04/2021–06/2023*

- Quantifying raw material flows and resource scarcities of electromobility transitions.
- Current and prospective charging and hydrogen refueling infrastructure life cycle analysis.
- Comparative assessment of hydrogen and electricity decarbonization pathways—meta-review and pre-study.
- Assist organizing internal group meetings, monthly seminars, and providing inputs to the thematic road-maps.

University of California **Davis, CA, US**
Research Assistant, Institute of Transportation Studies, PH&EV Center *10/2017–12/2020*

- Critical examination of prescriptive metrics and technology criteria in EV policies and GHG standards.
- Electric vehicle adoption preferences, household travel demand, and refueling behavior big data analytics.
- Applying supervised and unsupervised learning techniques to characterize EV user behavior.
- Deep-dive into expectations vs. actual EV usage, emission benefits, infrastructure needs, and grid impacts.

International Energy Agency **Paris, FR**
Research Intern, Energy Technology Policy Division *01/2020-07/2020*

- Global EV sales and infrastructure stocks and flows harmonization for IEA's MoMo (Mobility Model).
- Synthesizing India's EV policy landscape, institutional targets, and OEM commitments.
- Desk research support for the IEA's *Global EV Outlook* and *Energy Technology Perspectives 2020* reports.
- Future charging infrastructure projections by market segment, accessibility, geography, and technology.
- Smart charging, renewable coordination, and V2G techno-environmental valuation.

National Renewable Energy Laboratory **Golden, CO, US**
Research Intern, Transportation and Hydrogen Systems Center *Summer 2016 and 2017*

- Contributed to regional and national EV charging infrastructure assessments.
- Analyzed public and private charger utilization data for validating charging adequacy metrics.
- Informed understanding of long-distance trip frequency and EV battery sizes from time-series traffic data.
- Regional EV sales forecast from vehicle registration and census indicators.

Select Publications

Working Publications

W1 **S.S. Raghavan** "Just Transition in Zero Emission Trucking", 6-pager submitted to the AS-MHI led EV task force on eTrucks, May. 2024

W2 **S.S. Raghavan** "Battery Swapping Systems (BSS) – Interoperability, Standardization, Innovation and Policy Priorities", 25-page technical report submitted to the AS-MHI led EV task force on battery swapping, Jun. 2024

W3 C.T. Verghese and **S.S. Raghavan**,"Pathways to Gender Inclusion in India's Electric Three-Wheeler Transition: A Case Study of Amritsar", CEEW Issue Brief, Aug. 2024.

W4 **S.S. Raghavan**,"Strategizing Zero Emission Trucking Infrastructure in India: Lessons from Global Leaders", blog article on e-FAST platform (Aug. 2024)

W5 **S.S. Raghavan** and S. Vaid, "Impact of Experiential Pilot Trial on Electric 3-Wheeler (e3W) Adoption", *submitted to the 2025 Transp. Res. Board Annual Meeting*, Washington D.C., Jan. 2025.

Refereed Journal Articles

J1 **S.S.Raghavan**, A. Nordelof, M. Ljunggren, and R. Arvidsson, "Metal requirements for road-based electromobility transitions in Sweden", *J. Res. Con. and Rec.*, Nov. 2022, doi.org/10.1016/j.resconrec.2022.106777.

J2 **S.S.Raghavan** and G.Tal, *"Behavioral and Technology Implications of Electromobility on Household Travel Emissions"*, Transportation Research Part D, v. 94, 102792, May 2021, doi.org/10.1016/j.trd.2021.102792.

J3 **S.S.Raghavan** and G.Tal, *"Plug-in Hybrid Electric Vehicle Utility Factors: Why Observed Estimates Differ from SAEJ2841 Expectations"*, Int. J. Sust. Transp., Dec. 2020, doi.org/10.1080/15568318.2020.1849469.

J4 **S.S.Raghavan** and G.Tal, *" Influence of User Preferences on the Revealed Utility Factor of Plug-In Hybrid Electric Vehicles"*, World Electric Vehicle Journal, 11(1), 6, Jan. 2020, doi.org/10.3390/wevj11010006.

Reports

R1 **S.S.Raghavan** and A. Nordelof, "Unit Process Data for Performing LCA of EV Charging Infrastructures", *Scientific Report*, Swedish Electromobility Center and Chalmers University of Technology.

R2 International Energy Agency, *"Global EV Outlook 2020-Entering the Decade of Electric Drive"*, IEA, 2020.

R3 G.Tal, **S.S.Raghavan**[and 11 others],*"Advanced Plug-in Electric Vehicle Travel and Charging Behavior Final Report"*, California Air Resources Board Contract 12-319, Apr. 2020, Report PDF link.

R4 L.Paoli, J. Teter, J. Tattini, and **S. S. Raghavan**, *"Tracking Clean Energy Progress (TCEP) 2020, Ch. 4: Fuel Economy of Cars and Vans,"* , International Energy Agency (IEA),2020, IEA TCEP webpage.

R5 E.Wood, **S.S.Raghavan**, C.Rames, J.Eichman, and M.Melaina, *"Charging electric vehicles in smart cities:*

An EVI-Pro analysis of Columbus, Ohio," NREL/TP-5400-70367, Sep. 2018, doi.org/10.2172/1421381.

R6 E.Wood, C.L.Rames, M.Muratori, **S.S.Raghavan**, and M.Melaina, *"National Plug-In Electric Vehicle Infrastructure Analysis,"* NREL/TP-5400-69031, Sep. 2017, Report PDF link.

Conference Presentations

C1 **S.S.Raghavan***"The Long and Short of Future Public Charging Infrastructure Requirements,"* Presented at Proc. Intl. Electric Vehicle Symposium and Exhibition-EVS37, Seoul, South Korea, Apr. 2024.

C2 V. Vidhani and **S.S.Raghavan**, *"Silent drivers of change: Assessing the interplay of social networks and norms in electric 3W (e3W) adoption in Amritsar,"* Presented at EVS37, Seoul, South Korea, Apr. 2024.

C3 **S.S.Raghavan** and A. Nordelof, *"Anticipating metal scarcity challenges in mobility transitions,"* Presented at Proc. eMobility Day, Lund, Nov. 2021.

C4 **S.S.Raghavan**, *"Electric Road Systems (ERS) : Framework, Requirements, and their Environmental Implications,"* Presented at Proc. Future of Charging Symposium, Rotterdam, NL, Oct. 2021.

C5 V.Karanam, C.Sugihara, K.Sutton, **S.S.Raghavan** and G.Tal, *"From Shifting Gears to Changing Modes: The Motivations and Efficiency Impacts of Driver-induced Mode Changes,"* Presented at Proc. 99th Transportation Research Board Annual Meeting, Washington DC, Jan. 2020.

C6 **S.S.Raghavan** and G.Tal, *"Utility Factor and Recharging Frequency of Plug-in Hybrid Electric Vehicles,"*, Proc. Intl. Electric Vehicle Symposium and Exhibition-EVS32, Lyon, France, May 2019.

Awards and Honors

- UC Davis Graduate Studies, Silvia and Ted Hillyer Fellowship — *Oct 2019*
- Lee Schipper Memorial Scholarship, Honorable Mention — *July 2019*
- Dissertation Fellowship – UC Davis National Center for Sustainable Technology — *2019-2020*
- US DOE Vehicle Technologies Office Team Award, National Renewable Energy Lab — *Jun 2018*
- ITS-Davis Shell Corporate Affiliate Fellowship — *2018-2019*
- UC Davis National Center for Sustainable Technology Full Fellowship — *2017-2018*

Technical Skills

LCA: OpenLCA, GaBi, AB/BW 2.0, GREET

Power Market: PLEXOS, MATPOWER, GCAM

Vehicle Technologies: Autonomie, FASTSim

Quantitative: R, JMP, SPSS, GAMS

Productivity: MS Office, MindManager, GitHub

Optimization: GAMS, AIMMS

Simulation & Prototyping: MATLAB/Simulink

GIS: QGIS, ArcGIS

Pedagogical Experience

MS Thesis supervision, Chalmers University — *Spring 2023*

Assessing Sustainability, Chalmers University — *Fall 2021 and 2022*

Energy and Environmental Aspects of Transportation, UC Davis — *Fall 2019*

Transportation Policy, UC Davis — *Fall 2018*

Graduate School Writing Fellow, University of Maryland — *Fall & Spring 2016/2017*

Professional Experience

Caterpillar — **Aurora, IL, US**

Consulting Engineer–Performance and Controls, Large Wheel Loaders Division — *2007-2009*

- Model-based design and embedded control algorithm development.
- Hardware-in-the-loop simulation of transmission, engine, and diagnostic electronic control modules.
- Vertical and cross-unit collaboration for process control, improvement, and FMEA.