

HEADLIGHTS



Welcome to the inaugural issue of Headlights, the newsletter of the UC Davis Institute of Transportation Studies. Each newsletter offers a snapshot of the Institute's latest research findings and publications, accomplishments, events, and other noteworthy activities. In this issue we put our high beam on the ITS-Davis 3 Revolutions Future Mobility Program.

Research Spotlight: 3 Revolutions

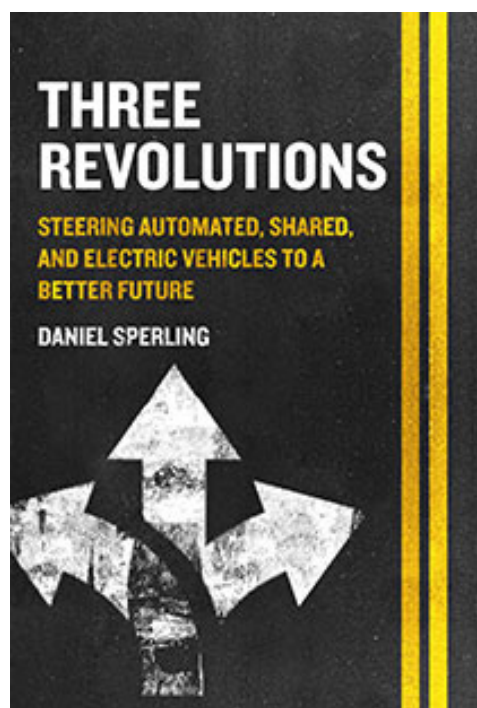
Three Revolutions: Sperling's Book Published by Island Press

For the first time in half a century, real transformative innovations are coming to our world of passenger transportation. The convergence of new shared mobility services with automated and electric vehicles (EVs) promises to significantly reshape our lives and communities for the better—or for the worse.

The dream scenario could bring huge public and private benefits, including more transportation choices, greater affordability and accessibility, and healthier, more livable cities, along with reduced greenhouse gas emissions (GHGs). The nightmare scenario could bring more urban sprawl, energy use, GHG, and unhealthy cities and individuals.

In *Three Revolutions: Steering Automated, Shared, and Electric Vehicles To a Better Future*, ITS-Davis Director Dan Sperling, along with seven expert contributors, shares research-based insights on potential public benefits and impacts of the three transportation revolutions. They describe innovative ideas and partnerships, and explore the role government policy can play in steering the new transportation paradigm toward the public interest.

Published this spring by Island Press, *Three Revolutions* offers policy recommendations and provides insight and knowledge that could lead to wiser choices by all.



3 Revolutions Video and Conference: The Experts Speak

Check out the [new video about the ITS-Davis 3 Revolutions Future Mobility Program](#).

Interviews were conducted in February at the 3 Revolutions Policy Conference, where more than 350 transportation policy experts converged on campus to explore how we can steer shared, electric, and automated technologies and services to a better future. Featured in the video, and welcoming attendees to the conference, was Giovanni Circella, Director of the 3 Revolutions Future Mobility Program (pictured). Among the impressive list of presenters, which included researchers, state and national policy experts, local and regional government leaders, and representatives of shared mobility companies, was UC Berkeley adjunct professor Susan Shaheen (Ph.D. Ecology, UC Davis), a contributing author to the *Three Revolutions* book. Shaheen, who spoke on shared mobility impacts on equity and public transport, opened her heartfelt talk with a call to action.

"We need to rethink everything," she said. "We need to be really bold, really brave, and really fast because we don't have the luxuries we've had in the past." Shaheen struck an urgent tone, calling on attendees to ensure low-income and disadvantaged communities are not left behind as mobility innovation barrels forward. Her remarks reflected a prominent theme of the conference discussion.

The conference aimed to move beyond hype and hostility in considering how we can anticipate—rather than react to—environmental, economic, and social challenges and opportunities related to the coming transportation revolution.

More on the conference, including presentation slides, at <https://3rev.ucdavis.edu/events/>.



GreenLight Blog: Can Local Governments Make Lyft and Uber More Sustainable?

With shared, electric, and automated vehicles poised to transform the way we travel, local government transportation planners find themselves on the front lines of a revolution. They're busy preparing for potentially big mobility changes in their communities, while also grappling with increased traffic congestion and transportation demand coupled with decreased transit ridership. Ride-hailing services like Uber and Lyft could help—or hurt—local government efforts to address these complex transportation challenges.

In our latest [GreenLight Blog: Can Local Governments Make Lyft and Uber More Sustainable?](#), ITS-Davis Postdoctoral Researcher Susan Pike, a contributor to the new [Three Revolutions](#) book, describes her interviews with dozens of local transportation stakeholders to find out the biggest challenges they face.

“Understanding their diverse perspectives is key to developing research-based policies with real potential to win widespread support and generate positive impacts,” she writes.

Featured Publications: Driverless Cars, Ride-hailing Services, and Greenhouse Gas Emissions



National Center
for Sustainable
Transportation

A pair of [National Center for Sustainable Transportation](#) white papers by ITS-Davis Researcher Caroline Rodier examine the range of effects—on both people and the environment—of two revolutionary changes in transportation: automated vehicles (AVs) and ride-hailing services. Rodier is associate director of the Urban Land Use and Transportation Center (ULTRANS).

AVs could have profound positive and negative effects on society and the natural environment. However, since these cars are not yet fully operational on our roads, researchers must extrapolate their effects from current observed

behavior and draw on theory and models. In “NCST White Paper: Travel Effects and Associated Greenhouse Gas Emissions of Automated Vehicles,” Rodier reviews the available evidence. She outlines the mechanisms by which AVs may change travel demand, including increased roadway capacity, reduced travel time burden, change in monetary costs, parking and relocation travel, induced travel demand, new traveler groups, and energy effects, then describes the results of scenario modeling studies.

Ride-hailing services present equally challenging questions for transportation researchers. An estimated 15% of adults across the U.S. and 21% in major cities have personally used these services, and the numbers are growing each year. Still, there is little definitive understanding of their effect on the overall transportation system, including congestion, total vehicle miles traveled, and greenhouse gas emissions. In “NCST White Paper: The Effects of Ride Hailing Services on Travel and Associated Greenhouse Gas Emissions,” Rodier develops a framework to identify the range of possible travel effects, both positive and negative, on users of ride-hailing services. This includes the effects of ride hailing on auto ownership, trip generation, destination choice, mode choice, network vehicle travel, and land use.

More Reading:

Rodier, Caroline J. (2018) NCST White Paper: Travel Effects and Associated Greenhouse Gas Emissions of Automated Vehicles. Institute of Transportation Studies, University of California, Davis, Research Report [UCD-ITS-RR-18-11](#)

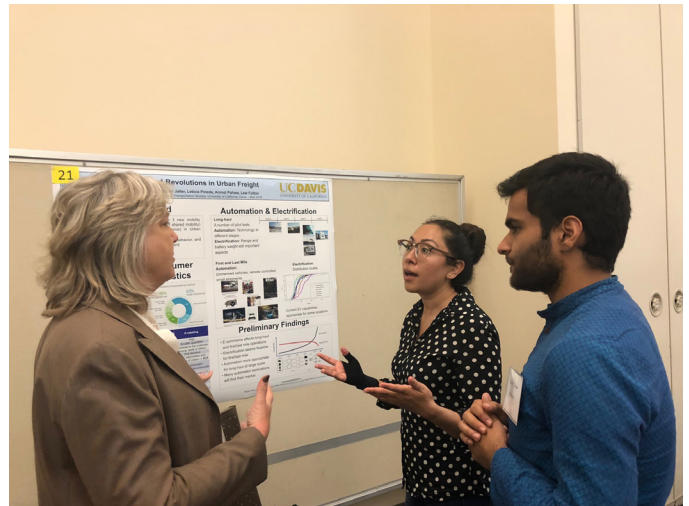
Rodier, Caroline J. (2018) NCST White Paper: The Effects of Ride Hailing Services on Travel and Associated Greenhouse Gas Emissions. Institute of Transportation Studies, University of California, Davis, Research Report [UCD-ITS-RR-18-12](#)

STEPS Spring Symposium Deep-Dive

A record 170 invited guests registered for the 2018 Spring Symposium and Advisors Meeting of the [Sustainable Transportation Energy Pathways \(STEPS\) Program](#) in mid-May. The biannual gathering of STEPS program sponsors, researchers, and policy leaders provides a deep dive into the latest STEPS research progress and findings.

The [Spring Symposium](#) included a recap of the California Climate Policy Modeling gathering held the day before; presentations on electric vehicles (EVs), the electricity sector and the EV market; talks on trucking and logistics; a review of hydrogen infrastructure developments; and an update on the 3 Revolutions Future Mobility Program. Former ITS-Davis researcher Sonia Yeh (pictured), now a professor at Chalmers University in Sweden, gave a keynote on big data analytics in transportation. One of the most popular features at the symposium is the Poster Session at which transportation and energy graduate students and researchers present their current studies, with great interaction and feedback with event attendees.

STEPS is a multidisciplinary research [consortium](#) within ITS-Davis supported by private and governmental sponsors.



Events

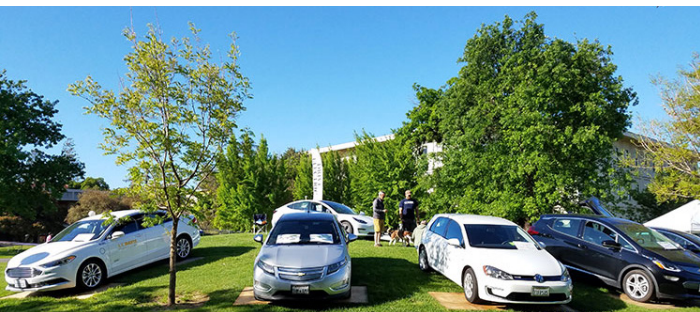
2018 Graduation

Students in caps and gowns participated in graduation ceremonies all over the UC Davis campus in June as the 2017-18 academic year drew to a close. In addition to those students enrolled in the ITS-Davis Transportation Technology and Policy Graduate Group, many others are involved in interdisciplinary transportation research in Engineering, Economics, Agricultural and Resource Economics, Computer Science, Chemistry, Geography, and other departments. Fifteen students have graduated so far this academic year. Another eight are expected to complete their degrees by mid-June. Check the ITS-Davis website soon for an article and photographs of this year's ITS-Davis graduates.



Sustainable Transportation Electrifies UC Davis Picnic Day

ITS-Davis once again took an active role in promoting the current development and future growth of electric vehicles at the annual university open house known as Picnic Day. This year, the [Plug-in Hybrid & Electric Vehicle Research Center](#) sponsored an electric vehicle showcase, featuring five all-electric vehicles and three plug-in hybrids along with fun, interactive activities. Read the [full story](#).



Seminar: Multitasking While Commuting – the Good, the Bad and the Ugly

What activities do you conduct on your commute? Does multitasking make an unpleasant trip tolerable even enjoyable? Or an unpleasant trip even more unpleasant? Are there hedonic and productive benefits? Or does it create a cognitive burden?

Revered UC Davis Professor Emerita Pat Mokhtarian, founding chair of the Transportation Technology and Policy Graduate Group at ITS-Davis, posed these questions to students recently when she returned to campus to lead a weekly Friday seminar. Mokhtarian is now the Susan G. and Christopher D. Pappas Professor of Civil and Environmental Engineering at Georgia Tech.

Read more about her talk, “It’s Not All Fun and Games: An Investigation of the Reported Benefits and Disadvantages of Conducting Activities while Commuting” on [facebook](#) or stream the seminar by clicking on this [video link](#).



Policy & Popcorn

Attention anyone interested in policy who also loves popcorn! Policy & Popcorn, a casual new “alt-seminar” brings together experts from the UC Davis community and beyond to explore the policy process and how to better engage with it. These occasional gatherings, hosted by the Policy Institute for Energy, Environment, and the Economy in close partnership with ITS-Davis and the Energy and Efficiency Institute promise a wonk-like level of knowledge and experience with the accessibility of a 101-level class. The most recent Policy & Popcorn gathering, “Know your Ballot” was a non-partisan primer on the June primary ballot.

Policy & Popcorn: Come for the intellectual stimulation. Stay for the popcorn and snacks! [Learn more](#).

People

Three Revolutions Book Tour

It's been a whirlwind spring for ITS-Davis Director Dan Sperling who has been crisscrossing the continent—indeed, the world—in support of his new book, *Three Revolutions: Steering Automated, Shared and Electric Vehicles to a Better Future*.

Sperling is featured in three podcasts:

- The Three Revolutions of Transportation: Streetsblog USA: Talking Headways [podcast](#)
- Three Revolutions – The Future of Cars: Infinite Earth Academy [podcast](#)
- We're on the Verge of a Transportation Revolution. If We're Not Careful, We Could Screw It Up: GreenTech Media/Energy Gang [podcast](#)

Closer to home, Sperling made stops at the Avid Reader bookstore in Davis, where he spoke to a full house, and on [Capital Public Radio Insight](#).

This summer, Sperling will travel to New York City for a book talk and discussion at the Princeton Club of New York. His presentation is being hosted by the Center on Global Energy Policy at Columbia University School of International and Public Affairs. For information on Sperling's July 20 presentation in Midtown Manhattan, [click here](#). Note: For those unable to attend the 9:30-11 a.m. EST event, Sperling's talk will be livestreamed, and available as a podcast afterwards.



ITS-Davis Graduate Students Receive 2018 Women in Transportation Scholarships

When the Sacramento Chapter of the international Women in Transportation Seminar (WTS) organization held its annual Awards and Scholarships Dinner for 2018, four ITS-Davis transportation graduate students were prominent among the “seven very deserving” women receiving honors and a total of \$17,000 in scholarship funding: Master's students Albee Wei, Michelle Byars, and Koral Buch, and doctoral student Liya Jiao. Read the [full story](#), where each student talks about what the scholarship means to her and how women's growing presence is transforming the field of transportation.



TTP Student Receives Eisenhower Fellowship

Jamey Volker, a Transportation Technology and Policy (TTP) Ph.D. student, has received the prestigious Dwight David Eisenhower Transportation Fellowship.

Volker's research focuses on how the built environment affects travel behavior, thus vehicle miles traveled (VMT) and greenhouse gas GHG emissions—and, conversely, how households choose which built environments to live in. He says he's been interested in the topic since high school and is applying his experience as a practicing environmental law attorney and policy consultant in his academic pursuits here at ITS-Davis.



Alumni Spotlight

Tara Goddard (M.S., CEE, 2005) is now an Assistant Professor in the Department of Landscape Architecture and Urban Planning at Texas A&M University. Goddard received a Ph.D. in Urban Studies last year from Portland State University.

In the News

A selection of news media stories quoting ITS-Davis experts:

[California May Push Uber And Lyft To Go Electric, With Far-Reaching Consequences](#)

Forbes, May 16, 2018

[California Challenges Trump EPA Over Auto-Emissions Rollback](#)

Bloomberg, May 1, 2018

[Volkswagen's Penance Will Expand Nation's Fast-Charging Network](#)

Forbes, April 23, 2018

[Nashville transit referendum: Where do Uber, Lyft, autonomous vehicles fit in?](#)

The Tennessean/USA Today, April 6, 2018

[Robot cars could add CO2 by circling the block, grabbing pizza](#)

E&E News, February 21, 2018

[The Beguiling Science of Making Planet-Saving Pavement](#)

Wired, January 27, 2018

