Leah Kaplan

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Education

Ph.D. Systems Engineering	The George Washington University, Washington, DC
B.S. in Chemical Engineering Minor: Communication	The University of Arizona, Tucson, AZ

Doctoral Committee: John Helveston, Zoe Szajnfarber, Erica Gralla, Karen Levy, & Jane Lappin

Research Interests

Autonomous vehicles: Exploring the potential impacts of AVs with a focus on labor, cost, and adoption.

Trustworthy artificial intelligence (AI): Collaborating on research at the intersection of AI and human work systems. Evaluating different dimensions of trustworthiness.

Transportation equity: Developing transportation systems that improve transportation access for individuals that are least served by current transportation systems.

Deliberative democracy: Developing methods for engaging the public in science and technology development and decision-making.

Publications

Publications in Peer Reviewed Journals

1. **Kaplan, L.** & Helveston, J.P., (2024)"Undercutting Transit? Exploring potential competition between autonomous vehicles and public transportation in the U.S." *Transportation Research Record.* https://doi.org/10.1177/03611981231208976

2. **Kaplan, L**., Farooque, M., Sarewitz, D., and Tomblin, D. (2021). Designing Participatory Technology Assessments: A Reflexive Method for Advancing the Public Role in Science Policy Decision-making. *Technological Forecasting and Social Change.* https://doi.org/10.1016/j.techfore.2021.120974 (cited in report by President's Council of Advisors on Science and Technology)

3. Nelson, J. P., **Kaplan, L.,** & Tomblin, D. (2020). Assessing solar geoengineering research funders: Insights from two US public deliberations. *The Anthropocene Review*,. https://doi.org/10.1177/2053019620964845

4. Hernandez, E., MacNamee, S., **Kaplan, L.**, Lance, K., Garcia-Verdugo, H., Farhadi, D., and Oland, L. (2020). The astrocyte network in the ventral nerve cord neuropil of the Drosophila third-instar larva. *Journal of Comparative Neurology*. https://doi.org/10.1002/cne.24852

Working Papers

1. **Kaplan, L.,** Nurullaeva, L. & Helveston, J.P., (Working Paper) "Modeling the Hidden Labor Costs of Autonomous Vehicle Taxi Services."

2. **Kaplan, L.**, Szajnfarber, Z., & Helveston, J.P., (Working Paper) "Mapping the AI-enabled Transformation of Labor in Autonomous Vehicle Taxi Services."

Book Chapters

1. **Kaplan, L**., Farooque, M., Sarewitz, D., and Tomblin, D. (2023). Designing Participatory Technology Assessments. In The Rightful Place of Science: New Tools for Science Policy (Vol II) (pp. 107-154). Consortium for Science, Policy & Outcomes.

2. **Kaplan, L.**, Rupprecht, S., Grosso, M., Thomopoulos, N., Backhaus, W., Raposo, M. A., & Franco, D. (2023). Ensuring Strong Public Support for Automation in the Planning Process: From Engagement to Co-creation. In Automated Road Transportation Symposium (pp. 167-183). Springer, Cham. https://link.springer.com/book/10.1007/978-3-031-11112-9#page=169

Policy Memos, Reports, Articles for Non-Academic Audiences, and Other Publications

1. **Kaplan, L.,** Szajnfarber, Z., & Helveston, J. P. (2023, November). Driverless but not humanless– vehicle systems. IISE Magazine, 55(11). https://www.iise.org/isemagazine/details.aspx?id=54506

2. **Kaplan, L.,** Currier, E. O., Omar, M., & Tchoumie, O. (2023). Food for Thought: An Interactive Exercise in Ethical Decision-Making. *FASPE 2023 Journal*. https://www.faspe-ethics.org/2023-journal-food-for-thought/

3. Doyle, S., **Kaplan, L.**, & Pan, E. (2023). Three Lessons from the Holocaust for Young Technologists. *FASPE 2023 Journal*. https://www.faspe-ethics.org/2023-journal-doyle-kaplan-pan/

4. **Kaplan, L.**, Mulcare, S., and Pantha, S. (2021). Cool Roofs to Reduce Urban Heat in New Orleans. European Horizons Policy Competition.

5. Weller, N., Sullivan-Govani, M., Farooque, M., and **Kaplan, L.** (2020). Blinded by the Frontier. *Issues in Science and Technology*. https://issues.org/endless-frontier-act-and-public-values/

6. **Kaplan, L**., Nelson, J., Tomblin, D., Farooque, M., Lloyd, J., Neff, M., Bedsted, B., and Sarewitz, D., (2019). Exploring Democratic Governance of Geoengineering Research Through Public and Stakeholder Engagement. Consortium for Science, Policy & Outcomes. https://cspo.org/wp-content/uploads/2019/10/SRM_book_EPUB.pdf

7. **Kaplan, L.** (2019). Background materials for "Our Driverless Futures: Community Forums on Automated Mobility." Consortium for Science, Policy & Outcomes. https://cspo.org/wp-content/uploads/2019/04/Background-Materials-for-Our-Driverless-Futures.pdf

5. **Kaplan, L.** (2019). Give STAA a Chance. *As We Now Think*. Consortium for Science, Policy & Outcomes. https://cspo.org/give-staa-a-chance/

6. Farooque, M., **Kaplan, L.,** Lloyd, J., and Quach, K. (2019). Boundary Practitioners Workshop Report for the Earthrise Alliance. Consortium for Science, Policy & Outcomes. https://earthrisealliance.org/s/FinalBoundarySpanningWorkshopReport021519.pdf

Honors & Awards

Scholarships and Fellowships

2023 Design & Technology Fellow, Fellowships at Auschwitz for the Study of Professional Ethics

2022 Co-Designing Trustworthy AI Systems National Science Foundation Research Traineeship

2020 National Science Foundation Graduate Research Fellowship

2017 Chapman Scholar – awarded to 1 UA engineering student, department nominated and committee selected

2014 Flinn Scholar – merit based scholarship awarded to top 20 high school seniors in Arizona, valued at more than $115,000

Awards

2024 Best Paper Award for the 6th Bridging Transportation Researchers Conference – "Modeling the Operational & Labor Costs of Autonomous Robotaxi Services"

2024 Outstanding Presentation – Technology, Data, and Policy Conference 2024

2024 People's Choice – Northeastern Regional 3 Minute Thesis Competition

2024 1st Place – George Washington University 3 Minute Thesis Competition

2023 1st Place – Public Interest Technology University Network Student Video Competition

2018 Freeman Medal – awarded to 2 graduating seniors (out of 6,000 graduates) from the Univ. of Arizona

2018 Outstanding Senior in Chemical Engineering (out of 80 undergraduates)

2018 1st Place – Society of Women Engineers Undergraduate Rapid-Fire Research Presentation Competition

2018 2nd Place – Lockheed Martin Ethics in Engineering Case Competition

2016 The University of Arizona Honors College Outstanding Sophomore of the Year

Teaching Experience

Courses Served as a Teaching Assistant

Designing Trustworthy AI Systems Seminar, The George Washington University Fall '23, Spring '24

- Advised systems engineering and computer science PhD students on facilitating interdisciplinary discussions about emerging AI issues
- Provided feedback on written assignments to help students draw out meaningful discussion insights that could yield fruitful research directions

Introduction to Systems Analysis, The George Washington University Fall '22

- Delivered a lecture on "Automated Vehicles as a Modern Engineering Case Study"
- Organized and ran the lab section of the course for a class of 34 students
- Hosted office hours for students and managed conflict that arose with group projects

Argumentation, The University of Arizona Spring '16

- Presented lectures to class and aided 35 students in preparing for and presenting their debates
- Engaged in a model debate to demonstrate successful argumentation techniques
- Coordinated review sessions for students to help them prepare for midterm exams

Guest Lectures

Spring '22 "Macro-ethical Approaches to Engineering Design & Decision-Making" Lecture for Ethics & Equity in Engineering Leadership, Pennsylvania State University. (Undergrad Students)

Spring '22 "Literature Reviewing 101" Co-Lecture for EMSE 8000: Research Formulation in Engineering Management and Systems Engineering, The George Washington University (PhD Students)

Fall '22 "Automated Vehicles as a Modern Engineering Case Study" Lecture for APSC/EMSE 1001: Introduction to Systems Analysis, The George Washington University (Undergrad Students)

Fall '21, '22 "Applying Systems Engineering to Societal Problems" Co-Lecture for EMSE 6801: Systems Engineering I, The George Washington University. (Masters Students)

Work Experience

Research Fellow, Graduate, George Washington University, Washington, DC 08/2020 – Present

- Interviewing government and industry experts to collect data on emerging labor roles for autonomous vehicle systems that led me to policy recommendations for workforce development and new theories about AI impacts on work.
- Developing a cost model using operational data and insights from interviews I conducted to determine the economic competitiveness of autonomous taxi services.
- Designing and fielding a choice experiment to collect data on public preferences for autonomous vehicles. Used responses to develop models of potential future marketplace competition to inform planning for and regulation of AVs.
- Managing multiple research projects by developing project timelines, setting agendas for and hosting project team meetings, and assigning project tasks to research team members, finishing doctorate faster than departmental average.

Program Specialist, ASU Consortium for Science, Policy & Outcomes, Washington, D.C. 08/2018 – 05/2020
- Designing and coordinating national and international-scale public deliberations (e.g., **18 cities across 9 countries**) to learn public values about emerging science and technology issues to inform early technology development, deployment, and regulation.
- Authoring paper on new method of conducting public deliberation, paper cited in White House report on advancing public engagement with the sciences.
- Developing central resources and tooling including protocols for hosting public deliberations and data management, and briefing materials for deliberation participants.
- Training facilitators to support deliberation discussions and training of science policy fellows on public deliberation to promote greater integration of public values into science policy decision making

Congressional Intern, House Committee on Science, Space, & Technology, Washington, D.C. 09/2018 – 12/2018
- Synthesizing information from Hill briefings into memos to inform professional staff members about critical science & technology issues and discussions
- Reading and summarizing scientific reports scientific reports for staff members via memos to support policy development
- Managing office phone, preparing hearing rooms and materials, and helping coordinate room requests

Research Assistant, Kim Ogden Algae Biofuel Lab, University of Arizona 08/2017 – 05/2018
- Worked with Tucson Electric Power Plant to test algae as a waste stream remediation tool
- Conducted graphical analysis of temperature, carbon dioxide, pH, and optical density of algae samples

Supply Chain Intern, PepsiCo – Gatorade, Tolleson, AZ 05/2017 – 08/2017
- Created a VBA program in Excel to automate a report to yield a cost savings of $18,000 per year
- Coordinated with contractors to collect proposals and award a bid for a $130,000 project

Research Assistant, Tolbert/Oland Neuroscience Lab, University of Arizona 06/2015 – 05/2017
- Designed and optimized 15 experimental protocols using critical thinking skills
- Presented two scientific posters to over 150 people at two undergraduate research conferences

Resident Assistant, Engineering Leadership Community, University of Arizona 08/2015 – 05/2016
- Addressed conflict in the dorm such as roommate disagreements and violations of alcohol policies
- Collaborated with 15 coworkers to create monthly educational events for over 170 residents

Presentations / Conferences

Conference Panel Organizer / Chair

1. Breakout Session Co-Organizer, w/Allanté Whitmore & Johanna Zmud, Choose Your Adopter: Redefining the AV Early Adoption Archetypes. TRB Automated Road Transportation Symposium. 2023.

2. Session Chair. Human Systems Design Session – Engineering Management Track. Institute of Industrial and Systems Engineering Annual Meeting. 2023.

Invited Panelist

1. Advocacy, Politics, & Outreach: The Need for Intersectional Dialogue & Awareness for Women & Gender Minorities in STEM, Arizona State University EmpowHER Summit. 2024.

2. Workforce Development for 21st Century Automated Mobility, TRB Automated Road Transportation Symposium. 2023.

3. Opportunities and Challenges for Testing Collaboration. Vermont AV-Xchange. 2021.

Presentations

1. **Kaplan, L.,** Nurullaeva, L., & Helveston, J.P. *Modeling the Operational and Labor Costs of Autonomous Robotaxi Services,* Bridging Transportation Researchers Conference. 2024. (Oral)

2. **Kaplan, L.,** Szajnfarber, Z., & Helveston, J.P., *Mapping the AI-Enabled Transformation of Labor in Autonomous Taxi Services,* Technology, Data, and Policy Conference. 2024. (Oral)

3. **Kaplan, L.,** Nurullaeva, L., & Helveston, J.P. *Modeling the Operational and Labor Costs of Autonomous Robotaxi Services,* Industry Studies Association Annual Meeting. 2024. (Oral)

4. **Kaplan, L.** *AI Behind the Wheel: Work, Economics, and Preferences in the Era of Autonomous Vehicles,* George Washington University 3 Minute Thesis Competition. 2024. (Oral)

5. **Kaplan, L.** *AI Behind the Wheel: Work, Economics, and Preferences in the Era of Autonomous Vehicles,* Northeastern Association of Graduate Schools Regional 3 Minute Thesis Competition. 2024. (Oral)

6. **Kaplan, L.** *AI Behind the Wheel: Work, Economics, and Preferences in the Era of Autonomous Vehicles,* George Washington University School of Engineering Research Showcase. 2024. (Oral)

7. **Kaplan, L.** *Building LLMs for Alignment and Trustworthiness*. GW Coders Meeting, George Washington University. 2024. (Oral)

8. **Kaplan, L.,** Szajnfarber, Z., & Helveston, J.P., *Shifting, Not Shrinking? Exploring Labor Roles in Traditional and Automated Taxi Services*, George Washington University Trust in AI Research Showcase. 2023. (Poster)

9. **Kaplan, L.,** Szajnfarber, Z., & Helveston, J.P., *Shifting, Not Shrinking? Exploring Labor Roles in Traditional and Automated Taxi Services*, TRB Automated Road Transportation Symposium. 2023. (Poster)

10. **Kaplan, L.,** Szajnfarber, Z., & Helveston, J.P., *Shifting, Not Shrinking? Exploring Labor Roles in Traditional and Automated Taxi Services*, Industry Studies Association. 2023. (Oral)

11. **Kaplan, L.,** Szajnfarber, Z., & Helveston, J.P., *Shifting, Not Shrinking? Exploring Labor Roles in Traditional and Automated Taxi Services*, Institute of Industrial and Systems Engineering Annual Meeting. 2023. (Oral)

12. **Kaplan, L.,** Szajnfarber, Z., & Helveston, J.P., *Shifting, Not Shrinking? Exploring Labor Roles in Traditional and Automated Taxi Services*, GW School of Engineering Research Showcase. 2023. (Poster)

13. **Kaplan, L.** & Helveston, J.P., *Undercutting Transit? Exploring potential competition between autonomous vehicles and public transportation in the U.S.* Transportation Research Board Annual Meeting. 2023. (Oral)

14. **Kaplan, L.** & Helveston, J.P., *Undercutting Transit? Exploring potential competition between autonomous vehicles and public transportation in the U.S.* Association for Public Policy Analysis & Management. 2022. (Oral)

15. **Kaplan, L.** & Helveston, J.P., *Undercutting Transit? Exploring potential competition between autonomous vehicles and public transportation in the U.S.* Industry Studies Association. 2022. (Oral)

16. **Kaplan, L.** & Helveston, J.P., *Undercutting Transit? Exploring potential competition between autonomous vehicles and public transportation in the U.S.* GW School of Engineering Research Showcase. 2022. (Poster)

17. **Kaplan, L.** & Helveston, J.P., *Undercutting Transit? Exploring potential competition between autonomous vehicles and public transportation in the U.S.* GW Research Showcase. 2022. (Poster)

18. **Kaplan, L.** & Helveston, J.P., *Undercutting Transit? Exploring potential competition between autonomous vehicles and public transportation in the U.S.* CESUN. 2021. (Poster)

19. **Kaplan, L.,** *Benefits for Whom? Considering Equity as a Design Goal for Autonomous Vehicle Development*, Society for Philosophy and Technology Conference. 2021. (Oral)

20. **Kaplan, L.,** John Nelson, and David Tomblin, *Informing the Governance of Geoengineering Research Through Public Deliberations*, Dec. 2019; American Geophysical Union Annual Conference (Oral)

21. **Kaplan, L.,** Mahmud Farooque, Kimberly Quach, and Jason Lloyd, *Boundary Spanning at the Science Policy Interface: Challenges and Opportunities*, Dec. 2019; American Geophysical Union Annual Conference (eLightning)

22. **Kaplan, L.**, John Nelson, *Our Driverless Futures – Informing Autonomous Vehicle Design and Deployment through Public Deliberation.* Oct. 2019. Phoenix Mobile and Emerging Tech Festival (Oral)

23. **Kaplan, L.**, John Nelson, *US Public Preferences in Geoengineering Funding and Governance*, Oct. 2019. The Science, Health and Engineering Policy and Diplomacy; Sustainable Development for the Americas Conference (Oral)

24. Tomblin, D., **Leah Kaplan**, JP Nelson, and Mahmud Farooque, *"Our Driverless Futures:" Informing Autonomous Vehicle Systems Design through Participatory Technology Assessment.* Oct. 2019. University of Maryland Do Good Robots Symposium (Oral)

25. Farooque, M. and **Leah Kaplan**, *Innovating with the Public – One Deliberation at a Time*, Aug. 2019. Symposium: Interrogating Innovation, Nanyang Technological University, Singapore.

26. Sarewitz, D., **Leah Kaplan** and Mahmud Farooque, *How can engaging public deliberations build bridges across the S&T enterprise?*, June. 2019. National Science and Technology Council "Building Bridges Across the S&T Enterprise" Conference (Poster)

27. **Kaplan, L.**, *Engaging Stakeholders in Future Change*. Jun. 2019. The Foresight Sandbox, Workshop on Strategic Foresight (Oral)

28. **Kaplan, L.**, and David Tomblin, *Why Public Engagement with Science and Technology*. Mar. 2019. Workshop with American Association for the Advancement of Science (AAAS) Fellows (Oral)

29. Tomblin, D., John Nelson, and **Leah R. Kaplan**, *Solar Radiation Management Forum Results Workshop*. Dec. 2019. Workshop hosted by Arizona State University (Oral)

30. **Kaplan, L.**., Hassan A. Vafai, and Kevin E. Lansey. *Sowing the seeds of understanding and interest: An example of university-sponsored incubation and collaboration for science diplomacy.* Nov. 2018. Science Policy Symposium, Science and Education Policy Association (Oral)

31. **Kaplan, L.,** *Drosophila astrocytes span functional neural domains with variable overlap.* Oct. 2017. Undergraduate Rapid-Fire Research Presentation Competition, Society of Women Engineers National Conference (Poster)

32. **Kaplan, L.**., Hector D. Garcia, Ernesto Hernandez, Leslie P. Tolbert, and Lynne A. Oland. *Drosophila astrocytes span functional neural domains with variable overlap*. Jan. 2017. Undergraduate Biology Research Conference (Poster)

33. Hernandez, E., Sarah E. MacNamee, **Leah R. Kaplan**, Julie A. Charlton, Dara S. Farhadi, Kimberly N. Lance, Leslie P. Tolbert, and Lynne A. Oland. *Drosophila astrocytes span functional neural domains*. Nov. 2016. Research, Society for Neuroscience Conference (Poster)

34. **Kaplan, L.**, Sarah E. MacNamee, Kimberly N. Lance, Leslie P. Tolbert, and Lynne A. Oland. *Presence of markers for Glutamate, GABA, and Acetylcholine in particular neurons provides evidence for neuron-glia interactions*. Jan. 2016. Undergraduate Biology Research Conference. (Poster)

Service

Mentor, Lockheed Martin Ethics in Engineering Case Competition, Bethesda, MD 2023, 2024

- Initiated George Washington University's involvement in the case competition, creating a new educational opportunity for engineering undergraduate students
- Recruited teams of two undergraduate students from across the engineering departments to represent GW in the competition
- Trained students on how to evaluate the ethical, business, and technical considerations of the case

EMSE Department Seminar Coordinator, George Washington University 08/2020 – 05/2023

- Coordinated monthly seminars including booking rooms, ordering food, and setting up AV systems
- Communicated with external speakers from both the public and private sector
- Hosted research workshops for Ph.D. students to solicit feedback on ongoing research projects

Coordinating Committee Member, STGlobal Conference 2021 06/2020 – 04/2021

- Served on a conference organizing committee for an international entirely graduate student-run conference
- Managed the web platform for the virtual conference
- Reviewed submitted abstracts and organized presentations into themed conference sessions

Conference Rapporteur, Science Diplomacy and Policy with Focus on the Americas, Univ. of Arizona 02/2017

- Extracted key points from lectures and panel discussions & wrote a summary paper for the post-conference proceedings
- Aided conference organizers in developing a graduate-level science diplomacy course for the University of Arizona

Skills

Analysis:	Multilevel Modeling, Survey Design, Open-coding, Theme-based coding, Statistical Analyses (T-Tests, ANOVA), Semi-structured interview design
Programming / Software:	Python (with some Machine Learning applications), R, Visual Basic, Matlab, Microsoft Project, Microsoft Office
Public Engagement:	Participatory Technology Assessment (pTA), Forum design, Facilitation

International Experience

IDEAS Study Abroad Program – Antigua, Guatemala 06/2016 – 08/2016

- Studied the relationship between governmental environmental policy and indigenous communities
- Taught English to 30 fifth-grade students and volunteered on a local organic farm

Anthropology and Sustainability in China – Beijing, Anshun, Tunpu Village, China 05/2015 – 06/2015

- Analyzed the environmental and cultural sustainability of food in China via visual anthropology
- Studied the economic and environmental challenges of China's rapidly growing economy