

- 7+ years modeling, analyzing, and optimizing at the transportation-energy systems interface
- Design, development, and deployment of data analysis and simulation software tools

EDUCATION

Ph.D., Systems Engineering , Colorado State University	May 2023
<i>Dissertation: Modeling and Simulation to Investigate the Electrification Potential of Medium- and Heavy-Duty Vehicle Fleets</i>	
M.S., Mechanical Engineering , Colorado State University	May 2019
<i>Thesis: Predictive Energy Management Strategies for Hybrid Electric Vehicles Applied During Acceleration Events</i>	
B.S., Mechanical Engineering , magna cum laude, Colorado State University	May 2017
3.94 GPA (ranked second in graduating class)	

RESEARCH EXPERIENCE

State of Utah transportation and energy systems modeling **Dec 2023 – present**
Lead Research Scientist *Colorado State University / Sustainability Science, LLC*

- Applying tools and knowledge from broad-scope electrification analysis to high-fidelity inventory and modeling for the state of Utah
- Integrating data from across systems responsive to input from a wide range of stakeholders

Nationwide transportation and energy systems modeling **Jan 2023 – Dec 2023**
Engineer/Scientist IV *Electric Power Research Institute, Palo Alto, CA*

- Nation-spanning analysis and simulation leveraging big-data telematics to estimate EV charging needs at unprecedented spatial and temporal granularity
- Conceptualization and development of deployable simulation tools for fast, repeatable, and tunable analysis
- Harmonization of multiple and varied public and proprietary data sources

Agent-based modeling of electric fleet operations, charging, and adoption **Jan 2021 – May 2023**
Graduate Researcher *Colorado State University, Fort Collins, CO*

- Designed and developed a custom data analysis and behavior simulation tool in Python to investigate the efficacy of electrification incentives and policies
- Authored successful U.S. Department of Energy grant proposal to procure more than 3 years' worth of funding
- Deployed custom, novel text mining and analysis tools to populate statistical vehicle preference model
- Delivered a data science tool integrating cutting-edge theory from multiple disciplines: text mining and analysis, microeconomics, social network modeling, policy design, statistical analysis, mechanical engineering

SKILLS

Tools and Frameworks	Python (PyTorch, TensorFlow, numpy, pandas, matplotlib), SQL, CNN, RNN, LSTM, GAN, R, MATLAB, Simulink, Qt, Git, L ^A T _E X, C
Selected Coursework	Data Analytics in Systems Engineering, Artificial Intelligence, Machine Learning, Robust Control Systems, Modeling and Simulation, Finite Element Method
Research Focus Areas	Vehicle-grid integration, agent-based modeling and simulation, optimization, data visualization, science communication

SELECTED PUBLICATIONS

- **Trinko D**, Horesh N, Porter E, Dunckley J, Miller E, Bradley T. *Transportation and electricity systems integration via electric vehicle charging-as-a-service: a review of techno-economic and societal benefits*. Renewable and Sustainable Energy Reviews 2023;175:113180.
- **Trinko D**, Horesh N, Zane R, Song Z, Kamineneni A, Konstantinou T, et al. *Economic feasibility of in-motion wireless power transfer in a high-density traffic corridor*. Etransportation 2022;11:100154.
- **Trinko D**, Porter E, Dunckley J, Bradley T, Coburn T. *Combining Ad Hoc Text Mining and Descriptive Analytics to Investigate Public EV Charging Prices in the United States*. Energies 2021;14:5240.
- **Trinko D**, Wendt EA, Asher ZD, Peyfuss M, Volckens J, Quinn JC, et al. *An Adaptive Green Zone Strategy for Hybrid Electric Vehicle Control*. 2018 IEEE Transp Electrification Conf Expo ITEC 2018;00:939–43.
- Asher ZD, **Trinko D**, Bradley, T. H. *Increasing the fuel economy of connected and autonomous lithium-ion electrified vehicles*. In: Behaviour of Lithium-Ion Batteries in Electric Vehicles, Battery Health, Performance, Safety, and Cost. 2018; 129-151.