

Joshua Loughman
Curriculum Vitae
October 25, 2024

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PROFESSIONAL APPOINTMENTS

2022 – Present	Climate Interactive, Director of Modeling and Technology
2021 – 2022	Salt River Project, Senior Strategic Planner
2015 – 2021	Arizona State University, Fulton Schools of Engineering, Lecturer
2015 – 2021	Arizona State University, Fulton Schools of Engineering, Director, Engineering Projects in Community Service
2019 – 2021	Julie Ann Wrigley Global Institute of Sustainability and Innovation, Arizona State University, Senior Sustainability Scientist
2015 – 2021	Arizona State University, Barrett Honors College, Affiliated Faculty
2005 – 2015	Orbital ATK, Senior Mission Systems Engineer

EDUCATION

2025 (expected)	Ph.D., Human and Social Dimensions of Science and Technology, School for the Future of Innovation in Society, Arizona State University
2015	Graduate Certificate, System Dynamics, Social Science and Policy Studies, Worcester Polytechnic Institute
2013	M.Eng., Systems Engineering, Computing, Informatics, and Decision Systems Engineering, Arizona State University
2007	B.S.E., Aerospace Engineering, School of Energy, Matter, and Transport Engineering, Arizona State University

PUBLICATIONS

REFEREED JOURNAL ARTICLES

J. Collofello, D. Fox, L. Jamieson, E. Lindsay, J. Loughman, J. Morgan, W. Oakes, J. Schoepf, C. Smith. 2021. "Dissemination and Adaptation of the EPICS, Engineering

Projects in Community Service, Model”, *Advances in Engineering Education*.

M. Emanuelli, G. Federico, J. Loughman, D. Prasad, T. Chow, M. Rathnasabapathy. 2014. “Conceptualizing an Economically, Legally, and Politically Viable Active Debris Removal Option.” *Acta Astronautica*, 104(1): 197-205.

PUBLISHED REPORTS

C Miller, LW Keeler, J Loughman, B Davis. 2022. Pathways to a Carbon-Neutral Arizona Economy. Tempe, Arizona: Arizona State University, School for the Future of Innovation in Society, College of Global Futures. Report. DOI 10.17605/OSF.IO/DRT7X.

CONFERENCE PROCEEDINGS

J. Loughman. 2020. “Energy and prospective methodological choice”. Changing Values and Energy Systems Workshop, TU Delft.

J. Loughman. 2020. “Reciprocal Social Innovation – Reimagining university service-learning enterprises”. 4S/EASST Conference 2020.

L. Keeler, S. McAllister, J. Loughman, S. Wiener, J.P. Nelson, J. Cordero, E. Hajric, M.A. Comisso. 2020. “Emoji technology assessment: experiment in sociotechnical engagement”. 4S/EASST Conference 2020 Making and Doing.

J. Loughman. 2020. “Model Structure and Scenario Analysis Archetypes Translation – An Approach to Mixing Methods”. 38th International System Dynamics Conference.

J. Loughman. 2020. “Making Futures – Deep Decarbonization and Alternative Ways of Imagining Energy Futures”. SPRU PHD Forum 2020, Science Policy Research Unit, University of Sussex.

S. Gillespie, M.V. Huerta, J. Schoepf, J. Loughman. 2019. “The Impact of Multidisciplinary Teams on Sustainability Projects in EPICS”. 2019 American Society for Engineering Education Annual Conference & Exposition. (Best Paper)

N. Irshad, J. Loughman, C.A. Miller. 2019. “Community Solar Financial Model”, Quantum Energy and Sustainable Solar Technologies, Annual Site Visit.

J. Loughman. 2018. “Scenarios and Simulations – Methods for Constructing Futures”. 4S Sydney 2018.

J. Loughman. 2018. “Current and Future Efforts to Model the Sustainability of PV Configurations”, Quantum Energy and Sustainable Solar Technologies, Annual Site Visit.

J. Loughman. 2017. “Thought experiments on problematizing solar energy transitions”, Society for the Studies of New and Emerging Technologies.

J. Loughman. 2017. “Analysis of Solar Energy Scenarios and Sustainability”, Quantum Energy and Sustainable Solar Technologies, Annual Site Visit.

J. Loughman. 2017. “Comparative Analysis of Scenario Projects and their Conception of

Solar Futures”, 1st International Energy Research and Social Science Conference.

BOOK CHAPTERS

J. Loughman. “Lessons from the Snake: Energy and Society”, *The Weight of Light: A Collection of Solar Futures*”, J. Eschrich, C.A. Miller, Eds., March 2019, Center for Science and the Imagination, Arizona State University.

C.A. Miller, J. Loughman, W. Herche, D. Ravikumar, J. Eschrich, R. Wylie, E. Finn, C. Honsberg, S. Bowden. “Designing in Sunlight”, *The Weight of Light: A Collection of Solar Futures*”, J. Eschrich, C.A. Miller, Eds., March 2019, Center for Science and the Imagination, Arizona State University.

ESSAYS AND OTHER SCHOLARLY WORK

En-ROADS Technical Reference, October 2024. Lori S. Siegel, Chris Campbell, Adem, Delibas, Sibel Eker, Tom Fiddaman, Travis Franck, Khaled Gaafar, Jack Homer, Andrew P. Jones, Charles Jones, Joshua Loughman, Stephanie McCauley, Elizabeth Sawin, Chris Soderquist, John Sterman. Link: <https://docs.climateinteractive.org/projects/en-roads-reference-guide/en/latest/index.html>

“Strengthening the Community by Activating the Skunk Creek Trail – A Fall 2019 Collaborative Project with Arizona State University’s Project Cities and the City of Peoria”, ASU Sustainable Cities Network, August, 2020. (Project advisor, editor, and contributor).

J. Loughman. May 14, 2020. “An intentional energy transition after COVID-19 will generate gains for climate and society”, World Economic Forum Global Agenda.

MANUSCRIPTS IN PREPARATION

J. Loughman, C. Miller, L. Keeler, B. Davis, D. Hernandez-Cortes, L. Boyle, “Organizational Change and Energy Transition: Building Capacity for Anticipatory Work in Electric Utilities”, (in preparation for a Special Issue of the Journal *Futures*).

J. Loughman, C. Selin. “Comparative Analysis of Scenario Projects and Their Conception of Solar Futures”.

AWARDS AND HONORS

2019 – Present	Expert, Future of Energy, World Economic Forum Expert Network
2019 – 2020	Copenhagen Institute for Futures Studies Internship Programme
2017	Aspen Institute Socrates Fellow

2017 Human and Social Dimensions Advancement Award
2015 Aspen Institute Socrates Fellow

GRANTS AND FELLOWSHIPS

2024 Resilience Fellow, Alumni Capstone Team, Knowledge Exchange for Resilience, Arizona State University.

2021 Center for Philosophical Technologies Fellowship, Arizona State University

2020 Diversity and Inclusion Initiative (DII) @ FSE Seed Funding Program.

2020 Resilience Fellow, Knowledge Exchange for Resilience, Arizona State University.

2019 Global Sustainability Summer School Fellow, Santa Fe Institute.

2018 – 2019 PLuS Alliance International Interdisciplinary Researchers (PIIRs) Program Fellow.

2017 STEPS (Social, Technological, and Environmental Pathways to Sustainability) Summer School Fellow, Institute for Development Studies, University of Sussex.

INVITED TALKS

“Exploring Global Transition Scenarios with the En-ROADS Climate Solutions Simulator”, September 24, 2024, Building an Advanced Energy Ecosystem New Mexico Conference, Albuquerque, NM.

“Simulating the future: exploring climate scenarios and the consequences of today’s decisions”, December 10, 2023, UNFCCC Resilience Frontiers Pavilion, UN Conference of the Parties (COP 28), Dubai, UAE.

“Knowledge in Action: Visions of the Future(s) After 2020”, December 18, 2020. STGlobal Consortium. Virtual Webinar.

“Overview of the EPICS Program at ASU”, 2018. International EPICS Consortium. Purdue University.

CONFERENCE ACTIVITY

Invited Paper, Energy Systems and Changing Values Workshop, October 2020, Delft University of Technology.

Reviewer, 38th International System Dynamics Conference, 2020.

Panelist, *PluS Global Pathways*, 2019 PluS Alliance Symposium, Tempe, AZ, November 2019.

Co-Chair, STGlobal Consortium, Washington, D.C., 2019.

Fellow, PLoS Alliance International Interdisciplinary Researchers (PIIR) Program Collaborative Research Workshop, University of New South Wales, Sydney, 2019.

Participant, Solar Futures Workshop, Center for Science and the Imagination, 2018.

University Representative, Kern Family Foundation Engineering Entrepreneurship Network, 2018.

University Representative, Ashoka UExchange Conference, 2017.

WORKSHOPS AND SEMINARS ORGANIZED

“En-ROADS Climate Workshop and Training – Exploring the New Structure on Land, Agriculture, Electrification, and Economic Damage”, July 27th, 2023. International System Dynamics Conference, Chicago, IL.

“EPICS Trainer Master Class”, Webinar, 2019.

“EPICS New Faculty Workshop” & “EPICS Curriculum Integration Workshop”, Ho Chi Minh, Danang, Vietnam, 2019.

“The Future of Humans and Space”, Generator Think Tank Series, Arizona State University, 2018.

“The Future of Our Robotic Society”, Generator Think Tank Series, Arizona State University, 2018.

“EPICS Train-the-Trainer Workshop”, Ho Chi Minh, Hanoi, Danang, Vietnam, 2017.

DEPARTMENTAL TALKS

“EPICS Program Train-the-Trainer”, Higher Engineering Education Alliance Program (HEEAP) Summer Program, Arizona State University, 2017.

“Design-based service-learning and the EPICS program”, Grand Challenges Scholars Program Summer Institute, Arizona State University, 2017.

“Project-based learning and the EPICS program”, Higher Engineering Education Alliance Program (HEEAP) Summer Program, Arizona State University, 2016.

TEACHING EXPERIENCE

COURSES

Capstone (FSE 570), Data Science, Analytics, and Engineering. Ira A. Fulton Schools of Engineering, ASU, Spring 2025.

Stochastic Operations Research (IEE 470). Ira A. Fulton Schools of Engineering, ASU.

Spring 2021.

EPICS Gold I (FSE 104). Ira A. Fulton Schools of Engineering, ASU. Fall 2015 – Spring 2021.

EPICS in Action (FSE 404). Ira A. Fulton Schools of Engineering, ASU. Fall 2015 – Spring 2021.

Introduction to Engineering (FSE 100). Ira A. Fulton Schools of Engineering, ASU. Fall 2016 – Fall 2020.

Introduction to Engineering – Online (FSE 100). Ira A. Fulton Schools of Engineering, ASU. Fall 2015 – Fall 2020.

EPICS Summer in Action (FSE 294). Ira A. Fulton Schools of Engineering, ASU. Summer 2020.

Life Without Earth (HUL/AME/FSE 394). Humanities Lab, ASU. Spring 2020.

Global Intensive Experience: Projects in Human-Centered Design – Global Experience (study abroad, Vietnam). Ira A. Fulton Schools of Engineering, ASU. Summer 2019 & 2020.

Introduction to Systems Engineering (IEE 456). Ira A. Fulton Schools of Engineering, ASU. Summer 2019.

Special Topics: Systems & Models (FSE 394). Ira A. Fulton Schools of Engineering, ASU. Spring 2019.

Honors Thesis (FSE 493). Ira A. Fulton Schools of Engineering, ASU. Spring 2019.

Topic: EPICS in Action (FSE 598). Ira A. Fulton Schools of Engineering, ASU. Fall 2017 – Fall 2018.

Honors Directed Study (FSE 492). Ira A. Fulton Schools of Engineering and Barrett the Honors College, ASU. Spring 2018.

MENTORING

Frasier Mentor, School of Sustainability, ASU, 2023 – 2024.

Research Advisor, Fulton Undergraduate Research Initiative, Spring 2018, Fall 2018, Spring 2020, Summer 2020.

Honors Project Advisor, Barrett the Honors College, Spring 2018 – Spring 2019.

SCHOLARLY & RESEARCH EXPERIENCE

Participant, Global Futures Laboratory Research Accelerator. Fall 2020 – 2021.

Participant, Sensing Network, School of International Futures (SOIF). Spring 2020 – Present.

Affiliated Researcher, Society, Policy, Engineering Collective (SPEC), Institute for the Future of Innovation in Society, ASU. Spring 2020 – 2021.

Affiliated Researcher, Center for the Study of Futures, Institute for the Future of Innovation in Society, ASU. Fall 2017 – Present.

Affiliated Researcher, Center for Energy and Society, ASU. Spring 2016 – Present.

Program Advisor, Space Governance Lab, Institute for the Future of Innovation in Society, ASU. Spring 2020 – Present.

QESST Scholar, Quantum Energy and Sustainable Solar Technologies, Engineering Research Center, ASU. Fall 2016 – Spring 2020.

Project Advisor, Sustainable Bioenergy for Development in Nepal, ASU. Spring 2018 – Spring 2019.

SERVICE TO PROFESSION

Advisory Board, Pacific Northwest National Laboratory, 2022-2023.

Editorial Assistant, *Journal of Responsible Innovation*. Summer 2018 – 2021.

External Reviewer, Project Drawdown, 2020.

Expert Reviewer, *Renewables 2020 Global Status Report*, REN21 Renewables Now, 2020.

Contributor, “Response to the U.S. House Select Committee on the Climate Crisis Request for Information”, Julie Ann Wrigley Global Institute of Sustainability, Arizona State University. Submitted November 22, 2019.

Data Contributor and Reviewer, *Renewables in Cities – 2019 Global Status Report*, REN21 Renewables Now, 2019.

Expert Reviewer, *Special Report on Global Warming of 1.5 C (SR15)*, International Panel for Climate Change. 2017.

UNIVERSITY SERVICE

Project Cities Faculty, ASU Project Cities, Arizona State University, 2019 – 2021.

Member, The Engineering and Design Institute (TEDI) Curriculum Development Workshop, November 2019.

Member and Secretary, New Faculty Advisory Committee, Ira A. Fulton Schools of Engineering, ASU. Fall 2016 – Spring 2018.

Member, Search Committee for Assistant Professor, School for the Future of Innovation in Society. Spring 2018.

Planning Committee, Emerge Festival of Futures, ASU. Spring 2018.

ADDITIONAL TRAINING

The Politics of Climate Change, Brooklyn Institute for Social Research, 2024.

Mastering En-ROADS, Climate Interactive, 2023.

Power Systems University, Salt River Project, 2021-2022.

Management of Technology: Strategy & Portfolio Analysis, professional development short course, Massachusetts Institute of Technology Professional Education, February 2022.

Management of Technology: Roadmapping & Development, professional development short course, Massachusetts Institute of Technology Professional Education, February 2021.

Analyzing/Presenting Data/Information: An Online Video Course, Edward Tufte, 2021.

Technology, Policy and Pathways to Possible Worlds: Imagining Year 2050 Now, Eu-SPRI Mini Course 2020, Science Policy Research Unit (SPRU), University of Sussex, 2020.

WriteNow Workshop, National Center for Faculty Development and Diversity, 2020.

Training in Science Policy Memo Workshop, National Science Policy Network, 2020.

Certificate in Energy Innovation and Emerging Technologies, Stanford University, 2017.

Research Methods Workshops: Qualitative Data Analysis, Grounded Theory, Content Analysis, Positionality and Reflexivity, Institute for Social Science Research, Arizona State University, 2016 & 2020.

Innovating Curriculum with Entrepreneurial Mindset Workshop, Melbourne, FL, 2016.

Professional Development Training in Management, Excellence in Management Program, Orbital Sciences Corporation, 2015.

Systems Engineering Validation and Verification, Professional Development Course, American Institute of Aeronautics and Astronautics (AIAA), 2011.

COMMUNITY ENGAGEMENT

Project Manager, Engineers Without Borders, Phoenix Professionals Chapter, 2023 – Present.

Board of Directors, Southern Arizona Museum of Science and Technology, 2023 – Present.

Frasier Global Mentor Program, Arizona State University, 2023 – Present.

Chairman, Architecture Committee, Encanto Palmcroft Historic Preservation Association, 2023 - Present.

Valley Leadership Impact Maker Team, 2023 – Present.

Valley Leadership Explore Program, 2023.

Valley Leadership Catalyze Program, 2022-2023.

Piper Academy, Virginia G. Piper Charitable Trust, 2022.

Director, Board of Directors, Stardust Building Supplies. September 2017 – 2022.

Director, Engineering Projects in Community Service. Fall 2015 – 2021.

Contributor, National Renewable Energy Laboratory (NREL) Solar Energy Technologies Office (SETO), *Solar Tomorrows Workshop*.

Community Catalyst, Kern Foundation Entrepreneurial Engineering Network (KEEN). Fall 2019 – Spring 2020.

PROFESSIONAL MEMBERSHIP

Member, System Dynamics Society (SDS). 2020 – Present.

Member, National Science Policy Network (NSPN). 2020 – Present.

Member, Institute of Electrical and Electronics Engineers (IEEE). 2019 – Present.

Member, Society for Social Studies of Science. 2017 – Present.

Member, International Council of Systems Engineers, 2015 – Present.