NIK SAWE

251 Ventana Way, Aptos CA 95003
sawe@stanford.edu | Cell: (650) 814-4648

EDUCATION

Stanford University, Stanford, CA 2016
PhD in Environment and Resources
Emmett Interdisciplinary Program in Environment and Resources
Dissertation: The Neuroeconomics of Environmental Decision-Making: Individual Differences and Behavior
Advising Committee: Drs. Brian Knutson, Nicole Ardoin, Robert Sapolsky, Ursula Heise

Stanford University, Stanford, CA 2007
Bachelor of Science, Biology

RESEARCH INTERESTS

My work adapts neuroeconomics to study decision-making on environmental issues, using nationwide surveys in tandem with behavioral economics and neuroimaging experiments using fMRI, I assess individual decisions across topics from energy efficiency consumer behavior to environmental philanthropy and valuation of natural resources. The ultimate aim is to improve choice architecture and efficacy of environmental policies and valuation metrics, with neuroimaging experiments employed to enhance prediction of population-level environmental behavior impacts.

ACADEMIC APPOINTMENTS

***Lecturer**, Emmett Interdisciplinary Program in Environment and Resources, Stanford University* 2014 – Present
- Lead Capstone thesis project course for Stanford MBA and Law students pursuing a dual environmental M.S. degree.
- Designed and teach courses on decision-making, psychology of science communication, experimental research design, energy and sustainability, environmental risk perception, and environmental governance.
- Guest lecturer for Law, Civil and Environmental Engineering, Earth Systems, and Environmental Communication.

***Behavioral Scientist / Neuroeconomist**, Department of Psychology, Stanford University* 2010 – 2021
- Founded and lead Stanford's Environmental Decision-Making and Neuroscience Lab.
- Direct a multidisciplinary team combining NLP approaches and national surveys to test new terms/phrases for politicians and nonprofits to discuss climate change, renewables, and other environmental topics in less partisan ways.
- Partnered with National Geographic to forecast global social media response (liking & sharing behavior) to nature imagery on Instagram using brain data and nationally-representative surveys.
- Led neuroeconomics study on donations to protect state and national park land from development.

***Energy Analysis and Environmental Impacts Project Scientist,** Lawrence Berkeley National Laboratory* 2018 – 2020
- Designed and deployed longitudinal decision science field study examining incentives to encourage public transit use.
- Assessed effectiveness of combinations of behavioral economics techniques across 5 participant groups.

***Research Associate**, Graduate School of Education, Stanford University* 2019 – 2020
- Lead statistical analysis and data visualization and help design large multisite field experiments, behavioral interventions, and longitudinal surveys for the Social Ecology environmental education lab.

***Senior Fellow**, Effective Philanthropy Learning Initiative, Stanford University* 2017 – 2019
- Led analysis and design in behavioral experiments and stated choice surveys of high-net-worth philanthropists.
- Evaluated how content elements in online nonprofit organization profiles motivated donor decisions, and influenced readers' attention, emotion, and critical thinking skills for the Bill & Melinda Gates Foundation.

***Research Associate,** Precourt Energy Efficiency Center, Stanford University* 2016 – 2017
- Studied the influence of ecolabeling and branding such as Energy Star on consumer purchasing behavior, using neuroeconomic experiments and econometric stated choice surveys.
- Analyzed how individual differences (e.g., mathematical ability, impulsivity, environmental attitudes) differentially impacted the Energy Star label's ability to influence different systems in the brain, predicting purchasing behavior.

PUBLICATIONS

PEER-REVIEWED JOURNAL ARTICLES

Sawe, N., Srirangarajan, T., Sahoo, A., Tang, G.S., Knutson, B. 2022, "Neural Responses Clarify How Ecolabels Promote Sustainable Purchases." NeuroImage, 263.

Sawe, N., Chawla, K. 2021, "Environmental Neuroeconomics: How Neuroscience Can Inform Our Understanding of Human Responses to Climate Change", *Current Opinion in Behavioral Sciences*, 42, 147-154.

Sawe, N., Treviño, J., Chafe, C. 2020, "Using Data Sonification to Overcome Science Literacy and Numeracy Barriers in Science Communication," *Frontiers in Communication*, 5 (46).

Sawe, N. 2019, "Adapting Neuroeconomics for Environmental and Energy Policy," *Behavioural Public Policy*, 3 (1), 17-36.

Sawe, N. 2017, "Using Neuroeconomics to Understand Environmental Valuation," *Ecological Economics*, 135, 1-9.

Lukacs, H., **Sawe, N.**, Ulibarri, N. 2017, "Risk, Uncertainty, and Institutional Failure in the 2014 West Virginia Chemical Spill," *Case Studies in the Environment*, 1, 1-7.

Sawe, N., Knutson, B. 2015, "Neural Valuation of Environmental Resources," *NeuroImage*, 122, 87-95.

Sawe, N., Steinberg G K, Zhao H. 2008, "Dual Roles of the MAPK/ERK1/2 Cell Signaling Pathway After Stroke," *Journal of Neuroscience Research*, 86 (8), 1659-1669.

REPORTS & WORKING PAPERS

Spurlock, C.A., Belal, S., Fujita, S.K., **Sawe, N.** 2020, "Enabling Behavior Through Personal Commitment Statements: Why Do They Work?" Lawrence Berkeley National Laboratory, Report #LBNL-2001373.

Sahoo, A., **Sawe, N.** 2015, "The Heterogeneous Effects of Eco-Labels on Internalities and Externalities," Stanford Graduate School of Business Research Paper.

IN PREPARATION

Sawe, N., Sahoo, A., Hershfield, H., Knutson, B. "Distinct Roles of Future Self-Continuity and Temporal Discounting in Asset Accumulation and Allocation," Under Revision for *Marketing Science*.

Sawe, N., Thys, T., MacNiven K.H., Knutson, B. "Neural Prediction of Nature Imagery's Popularity on Social Media and Influence on Conservation Philanthropy." In Preparation for *Nature Sustainability*.

Sahoo, A., **Sawe, N.** "Differences in Numeracy and Pro-Environmental Attitudes Influence Individual Response to Eco-Labels."

RESEARCH GRANTS

Woods Environmental Ventures Project Grant: "The Environmental Lexicon Project: Optimizing Environmental Communication Through Natural Language Processing, Psychometric Surveys, and Field Experiments," w/ B. Knutson, D. Jurafsky, N. Ardoin ($200,000)	2020
National Geographic Society Education Grant: "Assessing the Impact of Nature Imagery Across Cultures," w/ T. Thys ($24,820)	2019
Precourt Institute for Energy's Bits and Watts Seed Funding Grant: "Using Behavioral Economics to Forecast Energy Consumer Engagement and Response." ($28,000)	2017
National Geographic Society Education Grant: "Using Neuroimaging to Advance Conservation Education," w/ T. Thys ($75,000)	2017
Precourt Energy Efficiency Center Research Grant, w/ B. Knutson and A. Sahoo ($143,000)	2012
Center for Cognitive and Neurobiological Imaging Research Grants ($14,740)	2011 – 2018
Emmett Interdisciplinary Program in Environment and Resources Summer Research Grants ($16,000)	2011 – 2014
Stanford School of Earth Sciences McGee Grant ($6,000)	2011 – 2014
Stanford Angel Grant ($3,000)	2007

TEACHING

EnvRes 240. Environmental Decision-Making and Risk Perception
Lecturer and Course Developer

EnvRes 245. Psychological Insights for Science Communication
Lecturer and Course Developer

EnvRes 250. Environmental Governance
Lecturer and Course Developer

EnvRes 280. Topics in Environment and Resources
Lecturer and Course Developer

EnvRes 290. Capstone Project Seminar in Environment and Resources
Lecturer

EnvRes 315. Environmental Research Design Seminar
Lecturer

EnvRes 330. Research Approaches for Environmental Problem-Solving
Lecturer

EnvRes 200/EarthSys 200. Sustaining Action: Research, Analysis, and Writing for the Public
Teaching Assistant (2012) and Guest Lecturer (2013-2015)

See below for further guest lecture history.

INVITED TALKS AND LECTURES

CONFERENCES

"Using Neuroscience to Predict Consumer Social Media Engagement and Energy-Efficient Purchases." Oral Presentation. Behavior, Energy, and Climate Change Conference, November 2019.

"Forecasting the Social Media Impact of Nature Imagery With Neural Data." Oral Presentation. Society for Neuroeconomics Annual Meeting, October 2019.

"Using Neuroscience to Predict Nationwide Energy Decisions." Oral Presentation. Behavior, Energy, and Climate Change Conference, October 2017.

"Neural Predictors of Energy-Efficient Purchases." Oral Presentation. Interdisciplinary Symposium for Decision Neuroscience, June 2017.

"The Influence of Eco-Labeling on Neural Predictors of Energy-Efficient Purchases." Poster Presentation. Society for Neuroscience Annual Conference, November 2016.

"Neural Valuation of Eco-Labeled and Energy-Efficient Purchases." Oral Presentation. Association for Psychological Science Annual Conference, May 2016.

"The Neuroeconomics of Energy-Efficient Purchases." Oral Presentation. Behavior, Energy, and Climate Change Conference, October 2015.

"The Neuroscience of Environmental Decision-Making." Oral Presentation. Association for Environmental Studies and Sciences Annual Conference, June 2015.

"Neural Valuation of Environmental Resources." Poster Presentation. Society for Neuroeconomics Annual Conference, September 2014.

"Neural Valuation of Environmental Resources." Poster Presentation. Interdisciplinary Symposium on Decision Neuroscience, June 2014. *Awarded Silver Medal for Best Poster Presentation.*

"The Impact of the Energy Star Label on Consumer Decision-Making." With Anshuman Sahoo, Oral Presentation. United States Association of Energy Economics North American Conference, July 2013.

"Neural Correlates of Environmental Valuation." Poster Presentation. Social and Affective Neuroscience Society Meeting, April 2013.

"Neuroimaging of Environmental Valuation." Oral Presentation. Society for Risk Analysis Annual Meeting, December 2012.

INVITED LECTURES

"The Psychology of Science Communication." University of Colorado Boulder, January 2021.

"With Nature in Mind: Exploring the Power of Nature Imagery to Promote Conservation," National Geographic Headquarters, Washington, DC, September 2018.

"Using Neuroscience to Predict Nationwide Energy Decisions," Energy Star Partners Meeting, Phoenix, Arizona, September

2018.

"Exploring Our Environmental Decisions: From an Individual Brain to National Behavior," National Geographic Institute, Teton Science School, Jackson Hole, Wyoming, July 2018.

"Using Neuroimaging to Understand How Nature Imagery Drives Engagement and Philanthropy." National Geographic Workshop: *The Science of Visual Storytelling*, London, December 2017.

"Exploring Our Environmental Decisions: From an Individual Brain to National Behavior." National Geographic / Wall Street Journal Expedition, *Celebrating Human Ingenuity: An Exploration of Technology and Creativity by Private Jet*, October 2017.

"The Psychology of Science Communication." UC Santa Cruz, October 2017.

"The Science of Decision-Making." Panel Discussion. Worldview Stanford (Executive Ed.), April & July 2015, April 2017.

"Neural Valuation of Environmental Resources." Seminar lecture, with Brian Knutson. UC Merced, Mind, Technology, and Society seminar series, February 2016.

"Environmental Risk and Resilience." Panel Discussion. Worldview Stanford (Executive Ed.), December 2014.

"The Climate Debate Demystified: The Psychology, Media, and Communication Behind Climate Change." Panel Discussion. Stanford School of Earth Sciences, November 2014.

"Neuroeconomics, Behavioral Nudges, and Environmental Valuation." University of Wisconsin-Madison, October 2014.

SELECTED GUEST LECTURES

EarthSys 291. Introduction to Environmental Communication (2015-2020), EnvRes 315. Environmental Research Design Seminar (2017-2018), CEE 146A. Engineering Economy (2016), EnvrInst 220. The Social Ocean: Ocean Conservation, Management, Ethics, and Policy (2016), Law 330. Judgment and Decision-Making (2013).

PUBLIC OUTREACH

SELECTED PUBLIC TALKS

"Our Brains and the Environment: Exploring How We Think." National Geographic Student Expeditions, July 2018.

"Our Brains, Our Choices, and the Environment." Blue Mind Summit, Monterey, CA, May 2016.

"Your Brain, The Environment, and Our Decisions." TEDx Stanford, May 2015.

"How Our Brains Motivate Environmental Protection." Bioneers Summit Conference, San Rafael, CA, October 2014.

"Nature, the Brain, and Our Decisions." Blue Mind Summit, Cornwall, UK, June 2014.

"Heuristics and Biases in the Perception of Climate Change Risk." with Fran Moore. Breakout Session. Connecting the Dots 2014: The Climate, Energy, Food, and Water Nexus, Stanford University, April 2014.

"Visual Cortex String Quartet: Sonification of fMRI Data." Talk and Concert Piece. Center for Computer Research in Music and Acoustics Spring Concert, Bing Concert Hall, Stanford University, May 2013.

"Your Brain on Nature: Using fMRI to Understand How We Value the Environment." Blue Mind Summit, San Francisco, June 2012.

"Behavioral Economics and Environmental Activism." Environmental Defense Fund, San Francisco, June 2011.

"The Neuroeconomics of Environmental Decision-Making." Environmental Defense Fund, San Francisco, March 2011.

"The Yellowstone Reintroduction." Lecture Series on wolf reintroduction, numerous schools, libraries, and camps, 2001.

SELECTED POPULAR WRITING

Sawe, N., Treviño, J., Oakes, L. 2017. "The Sound of Alaska's Yellow Cedar Trees," in *We Can Stay Here While We Wait – Voices in the Anthroposcene*, M. Byskov, S. Thastum, L. Thastum, eds., Narayana Press, Århus, Denmark, 204-211.

Sawe, N. March 14, 2014. "California Drought: Why It Is Hard to Conserve." San Francisco Chronicle op-ed.

***Wolf Trails*, Novel** 2001

- Young Adult fiction novel chronicling the lives of a wolf pack reintroduced to the wild.

SELECTED MEDIA COVERAGE

"What Colored Blobs in the Brain Can Tell Us About Environmental Decision-Making." Ensia, April 2, 2019.

"Costing the Earth: Art and the Environment." BBC Radio, November 21, 2018.

"How to Listen to Data." Science Friday, February 7, 2017.

"This Music Was Composed by Climate Change." Smithsonian.com, September 23, 2016.

"Tree Loss Is Put to Music." Scientific American, September 20, 2016.

"The Sound of Science." Outside Podcast, September 20, 2016.

"The Sound of Climate Change." The Atlantic, September 16, 2016.

"The Art of Turning Climate Change Into Music." Outside Magazine Online, September 6, 2016.

"A Penny for Your Thoughts." National Parks Magazine, Spring 2016.

"How Emotions Sway Decisions." Stanford News, October 16, 2015.

"Stanford Scientists See How the Brain Makes Environmental Decisions." Stanford News, September 11, 2015.

ADVISING & MENTORING

M.S. Thesis Committee Advisor:

Francis Aguisanda, Stem Cell Biology and Regenerative Medicine, Stanford University (2019)
Nouschka Veerman, Cognitive Neurobiology and Clinical Neurosciences, University of Amsterdam (2019)

Undergraduate/M.S. Research Mentor, Rebecca Layne, B.S., Mathematical and Computational Sciences (2016 – 2018), B. Gibbons, M.S., Earth Systems (2017 – 2018), Armelle Coutant, B.S., Biology (Neuroscience) (2017), Elise Miller, B.S., Earth Systems (2016 – 2017), Valerie Gamao, B.S., Management Science and Engineering (2015 – 2017), Caroline Ferguson, B.S. & M.S., Earth Systems (2013 – 2015), Taurean Butler, B.A., Human Biology, M.A., Psychology (2011 – 2014)

ACADEMIC SERVICE

Stanford School of Earth Sciences Graduate Student Advisory Committee 2011 – 2012

Reviewer, *Nature Sustainability; Energy Policy; Neuroimage; Frontiers in Psychology; Cognition and Emotion; Journal of Neuroscience, Psychology, and Economics*

HONORS AND FELLOWSHIPS

Team Leader for United Nations' Data for Climate Action Challenge	2017
Behavior, Energy, & Climate Change Conference Student Scholarship	2013, 2015
Ethics in Society Graduate Fellowship	2014
Haas Center Graduate Public Service Fellowship	2014
Stanford Woods Institute Rising Environmental Leaders Fellowship	2014
International Association for Energy Economics Best Student Paper Award (w/ A. Sahoo)	2014
National Socio-Environmental Synthesis Center Course Travel Award	2014
Kimmelman Family E-IPER Fellowship	2013 – 2014
Stanford Center on Philanthropy and Civil Society PhD Research Fellowship	2012
William C. and Jeanne M. Landreth Fellowship	2011
Stanford School of Earth Sciences Graduate Fellowship	2010

PROFESSIONAL AFFILIATIONS (PAST & PRESENT)

Society for Neuroeconomics, Society for Neuroscience, Association for Environmental Studies and Sciences, Society for Risk Analysis, The Social and Affective Neuroscience Society

SELECTED ADDITIONAL ACADEMIC RESEARCH & EMPLOYMENT

Medical & Technical Writer – ArthroCare Corporation 2008 – 2010

- Authored numerous papers on clinical studies in ENT, Sports Medicine, Spine, and Interventional Therapies.
- Designed experimental protocols for clinical studies as part of the Clinical Affairs team.

Undergraduate Research - Neuroprotective Measures Against Stroke 2005 – 2008
Zhao/Sapolsky/Steinberg Lab

- Researched neuroprotection against stroke by means of pre- and postconditioning and hypothermia, via cellular responses utilizing the Akt, Wnt, and ERK protein pathways.