Kristen E Brown, PhD

Assistant Professor

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Highlights

Publications & Research Trajectory peer-reviewed journal articles published since 2023, including 6 as first and/or corresponding author.

Research Funding Lead PI on externally funded projects from NSF, City of San Antonio, and CPS Energy, with additional awards as Co-PI, totaling over $370k in attributable funding.

Scholarly Visibility & Engagement More than 20 invited presentations since joining UT San Antonio, including at national academic and policy venues; research featured in regional media and applied in local decision-making.

Mentoring & Education Mentored 11 undergraduate researchers and 3 PhD students, taught 856 students in formal courses, and guided undergraduate researchers (Ngo & Williams) as first authors on peer-reviewed publications.

Educational Background

Institution	Date	Degree	Field of Study
University of Colorado at Boulder	2016	PhD	Environmental Engineering
University of Colorado at Boulder	2013	MS	Mechanical Engineering
University of California at Berkeley	2010	BA	Physics

Dissertation: The Benefits of Internalizing Air Quality and Greenhouse Gas Externalities in the US Energy System

Professional Employment History

Institution	Dates	Position
University of Texas at San Antonio	2020-Present	Assistant Professor
Georgia Institute of Technology	Summer 2024	Energy Faculty Fellow
FTI Consulting	2023-2023	Independent Consultant
US Environmental Protection Agency	2016-2020	Environmental Engineer
University of Colorado at Boulder	2010-2016	Graduate Research Assistant
Space Sciences Laboratory	2008-2010	Research Assistant
Lawrence Berkeley National Laboratory	Summer 2005	Research Intern

Awards and Honors

Award	Institution	Date
Outstanding Young Faculty	GSW Section of ASEE	2025
Finalist for Women in Science Incentive Prize	The Story Exchange	2022
Honorable Mention for Scientific and Technological Achievement Award (STAA)	US EPA	2019
Participant (Competitive) at Advancing Careers in Academics with Diversity Education and Mentorship in Engineering (ACADEME)	NSF	2019
Superior Performance Award	US EPA	2019
Participant (Competitive) at National Science Communication Conference	ComSciCon	2015
Best Air Quality Talk at the Graduate Engineering Research Symposium	CU Boulder	2013
First Place Energy Policy Poster	Energy Frontiers Conference	2011

Recognition for Students

Award	Student	Institution	Date
Jane Findling Award (outstanding excellence in leadership and service)	Fiona Valorz	UTSA	2026
1st Place in Service Category ($500)	Fiona Valorz	Honors College, UTSA	2026
3rd Place in Professional Development Category ($500)	Fiona Valorz	Honors College, UTSA	2026
DDETFP Fellowship ($8,500)	Christina Kastely	US DOT FHWA	2025
DDETFP Fellowship ($4,000)	Divanhy “Nani” Salazar	US DOT FHWA	2025
DDETFP Fellowship ($2,500)	Katie Whatley	US DOT FHWA	2025
Klesse UG Research Program ($1,000)	Jennifer Dominguez	KCEID (UTSA)	2024
Outstanding Research Presentation	Dominic “Dom” Dorsa	Georgia Tech SURE program	2024
Eisenhower Fellowship ($10,000 award)	Christina Kastely	US DOT FHWA	2023
Undergraduate research $1,000	Stanley Ngo	KCEID (UTSA)	2022
Travel Award	Alyssa Arcos	SACNAS	2022

Research Activities

Publications

Student authors are italicized, students supervised by KEB in ***bold+italics***
* denotes corresponding author
Metrics: Citations from Google Scholar as of August 25, 2026 (C), Journal Impact Factor (JIF).

Peer Reviewed Journal Articles

Zuniga Herrera, A., Santiago, I.*, **Brown, K.E.**, (2026) Least-Cost Decarbonization Pathways for Light-duty Vehicles and Electricity Generation in the United States. *Cleaner Environmental Systems,* 23, 100529
https://doi.org/10.1016/j.cesys.2026.100529
(C: 0 | JIF: 5.3)

Ellis, F., Sanchez, A., Johnson, D.W.*, **Brown, K.E.**, Giacomoni, M.H., Kapoor, V., (2027) Performance Evaluation and Maintenance Cost Analysis of a Pleated Filter Cartridge Technology for Urban Stormwater Management. *Journal of Sustainable Water in the Built Environment*, 13(1), 04026016
https://doi.org/10.1061/JSWBAY.SWENG-755
(C: 0 | JIF: 1.7)

Williams, N., *Mendoza, S.,* Lopez Ochoa, E., **Brown, K.E.***, (2026) A Framework for Siting Public EV Charging During Renewable-Aligned Hours. *iScience, 29(9), 117198*
https://doi.org/10.1016/j.isci.2026.117198
(C: 0 | JIF: 4.5)

Najafian, P., ***Arias, T.,*** **Brown, K.E.**,* Lopez Ochoa, E., Hashemi, F., (2026) Waiting in the Heat: a low-cost data collection method to evaluate bus stop environmental exposure. *Transactions in Urban Data, Science, and Technology*
https://doi.org/10.1177/27541231261473369
(C: 0 | JIF: Not yet available)

Lee, R. J.*, *Rueda, S.*, **Brown, K.E.**, Zhai, W., Lopez Ochoa, E., Coleman, E., (2026) Walkable but Not Walkable? A Mismatch Between Urban Heat and Pedestrian-Oriented Environments in Promoting Equitable Climate Resilience. *Sustainable Cities and Society,* 148, 107622.
https://doi.org/10.1016/j.scs.2026.107622
(C: 0 | JIF: 13.3)

Brown, K. E.*, Zhai, W., & Lopez Ochoa, E. A. (2026). Prioritizing mitigation efforts for intra-urban heat vulnerability using a case study of San Antonio, Texas. *Journal of the Air & Waste Management Association*, *76*(4), 255–270.
https://doi.org/10.1080/10962247.2025.2607014
(C: 2 | JIF: 2.5)

Ellis, F., Johnson, D. W.*, **Brown, K. E.**, Giacomoni, M. H., & Kapoor, V. (2025). Low impact development sand filter media replacement: Costs and effect on pollutant removal efficiencies. *Journal of Environmental Management*, 392, 126765.
https://doi.org/10.1016/j.jenvman.2025.126765
(C: 5 | JIF: 8.4)

Ngo, S., Murphy, B. N., Nolte, C. G., & **Brown, K. E.*** (2025). Bridging existing energy and chemical transport models to enhance air quality policy assessment. *Environmental*

Modelling & Software, 183, 106218. https://doi.org/10.1016/j.envsoft.2024.106218
(C: 4 | JIF: 4.8)

López Ochoa, E., **Brown, K.***, Lee, R. J., & Zhai, W. (2024). Quantifying the spatial aggregation bias of urban heat data. *Urban Climate*, 55, 101945. https://doi.org/10.1016/j.uclim.2024.101945
(C: 13 | JIF: 6.4)

Brown, K. E.*, & Sharma, B. (2024). A SEAT at the energy table. *Progress in Energy*, 6(4), 043006. https://doi.org/10.1088/2516-1083/ad828f
(C: 4 | JIF: 11.5)

Brown, K. E.*, Henze, D. K., & Milford, J. B. (2020). Comparing health benefit calculations for alternative energy futures. *Air Quality, Atmosphere & Health*, 13(7), 773–787. https://doi.org/10.1007/s11869-020-00840-8
(C: 8 | JIF: 5.8)

Brown, K. E., & Loughlin, D. H.* (2019). Market sensitivity of solar–fossil hybrid electricity generation to price, efficiency, policy, and fuel projections. *Clean Technology & Environmental Policy*, 21, 591–604. https://doi.org/10.1007/s10098-018-1659-3
(C: 2 | JIF: 4.7)

Brown, K. E.*, & Dodder, R. (2019). Energy and emissions implications of automated vehicles in the U.S. energy system. *Transportation Research Part D: Transport and Environment*, 77, 132–147. https://doi.org/10.1016/j.trd.2019.09.003
(C: 58 | JIF: 7.0)

Brown, K. E., Hottle, T. A., Bandyopadhyay, R., Babaee, S., Dodder, R. S., Kaplan, P. O., Lenox, C. S., & Loughlin, D. H.* (2018). Evolution of the United States Energy System and Related Emissions under Varying Social and Technological Development Paradigms: Plausible Scenarios for Use in Robust Decision Making. *Environmental Science & Technology*, 52(14), 8027–8038. https://doi.org/10.1021/acs.est.8b00575
(C: 25 | JIF: 11.4)

Brown, K. E.*, Henze, D. K., & Milford, J. B. (2017). How accounting for climate and health impacts of emissions could change the US energy system. *Energy Policy*, 102, 396–405. https://doi.org/10.1016/j.enpol.2016.12.052
(C: 50 | JIF: 7.6)

Brown, K. E., Henze, D. K., & Milford, J. B.* (2013). Accounting for Climate and Air Quality Damages in Future U.S. Electricity Generation Scenarios. *Environmental Science & Technology*, 47(7), 3065–3072. https://doi.org/10.1021/es304281g
(C: 46 | JIF: 11.4)

Peer Reviewed Conference Proceedings

Brown, K.E., (2026). Experiences with Digital Natives using Traditional Software. *ASEE-Gulf Southwest (GSW) Regional Conference*, College Station, TX. https://doi.org/10.18260/1-2--58046

Brown, K., Henze, D., Milford, J., (2014). Internalizing Life Cycle Externalities in the US Energy System, *Proceedings of the American Center for Life Cycle Assessment Conference (ACLCA XIV)*.
(C: 3)

Brown, K., Henze, D., Milford, J., (2014). The Effect of Criteria Pollutant and Greenhouse Gas Damage Based Fees on Emissions from the US Energy System, *Community Modeling and Analysis System (CMAS) conference proceedings* (C: 4)

Brown, K.E., Henze, D., Milford, J., (2012). Incorporating climate and air quality externalities in the US electricity system. *World Renewable Energy Forum* (WREF), 5, 3380-3387.

Manuscripts under Review

***Onuegbu, S.,* Brown, K.E.*,** Lopez Ochoa, E.A., Towards a common understanding of extreme heat burdens in the US. Submitted to *Environmental Research Letters* August 2026

Zhai, W., **Brown, K.E.**, Quattro, C., Hashemi, F., Lee, R. J., Dallmann, A., Debbage, N., Lopez Ochoa, E., Niyogi, D., City–University–Community Collaboration for Extreme Heat Mitigation and Resilience. Submitted to *Building and Environment* August 2026

Ellis, F., Johnson, D.W., **Brown, K.E.***, Giacomoni, M.H., Kapoor, V. "Life Cycle Assessment of Stormwater Management Practices: Evaluating Pollutant Removal Efficiency and Economic Performance" Revising for *Journal of Cleaner Production* after submission September 2026

Esfahani, M.T., Taah, S., Ruiz de Porras, D.G., Brown, K.E., Alamaniotis, M., Awolusi, I.G., Toward Proactive Heat-Risk Management: An Explainable Machine-Learning Framework for Early Prediction of Physiological Heat Strain in Construction Workers. Submitted to Technological Forecasting & Social Change October 2026.

Conference Proceedings - Not Peer-Reviewed

Brown, K., 2015. Internalizing Air Quality and Greenhouse Gas Externalities in the US Energy System, CU STEMinar Journal, Volume 1, Edition 1.

Reports – Not Peer-Reviewed

Brown, K.E., Lopez Ochoa, E., Lee, R.J., Zhai, W.; An Assessment of Urban Heat Vulnerability in San Antonio, TX. 2023. SanAntonio.gov

Peer Reviewed K-12 Curriculum

Brown, K., Hippel, B., Perez-Suarez, S.D., Straten, M., Zarske, M.S., Yowell, J., Samson, C., 2012. Oil on the Ocean, TeachEngineering.org.

Brown, K., Forbes, M., 2012. Hi Ho, Hi Ho, it's to the Mine We Go, TeachEngineering.org.

Brown, K., 2012. What Kind of Footprint? Carbon Footprint, TeachEngineering.org.

Manuscripts in Preparation

***Onuegbu, S.**, Brown, K.E.* Cross Border Air Quality Analysis Draft being finalized for submission fall 2026

Mendoza, S.A., Lopez Ochoa, E., **Brown, K.E.***, Determining Electric Vehicle Charging Station Accessibility in Bexar County, TX Previously submitted; preparing resubmission. Preprint available at SSRN: https://doi.org/10.2139/ssrn.5314231

***Onuegbu, S.**, Brown, K.E.* AI-driven Remote Sensing for Urban Climate Resilience Invited to contribute to special issue in *Frontiers in Built Environment*

Lopez Ochoa, E.*, Hashemi, F., **Brown, K.**, Zhai, W., Lee, R.J., Housing decay and extreme weather: A community-engaged and urban sensing approach. Previously submitted; revising for resubmission to an alternative journal.

Huang, H., Zhai, W.*, Bai, X., *Ping, Y., Qin, H.,* **Brown, K.**, Mechanisms of Heat-Exposure Dose Effects on Urban Walking Behavior: A Comparative Scenario Analysis in San Antonio, Texas. Previously submitted; revising for resubmission to an alternative journal.

Dorsa, D., Ramshankar, A., **Brown, K.E.**, Turner, M., White, J., Bozeman, J., "Investigation of Obstacles to Achieving Equity in Electric Vehicle Adoption" Draft in progress

Luhrs, A., Tennant, M., Halvaksz, J., **Brown, K.E.**, "Measured and Perceived Environmental Quality in a Heat Stressed Urban Municipality" Data analysis is being finalized, a draft has been started

Popular Media Contributions – Not Peer-Reviewed

October 29, 2026	Interviewed for KSAT 12 about new vehicle emissions testing
October 8, 2026	Interviewed for Telemundo 60 about community air quality monitoring
August 12, 2026	Interviewed live on air for Texas Public Radio's "The Source"
July 6, 2026	Cited in UT San Antonio Today article "With rising temperatures, UT San Antonio researchers are creating solutions to mitigate extreme heat"
December 19, 2025	Cited in UT San Antonio Today article "Research in retrospect: How UT San Antonio expert researchers broke barriers in 2025"
September 2025	Cited in Sombrilla Magazine article "Beating the Heat: Community-Based Solutions to the Public Health Crisis in San Antonio"
August 23, 2024	Interviewed on camera for Kens5, the local CBS affiliate, for a story about heat-related mortality
August 12, 2024	Interviewed by Texas Public Radio for a story about air monitoring
August 12, 2024	Interviewed for and cited in Dallas Morning News article on cool pavement
May 11, 2024	Cited in San Antonio Report article on San Antonio's cool neighborhood pilot program

Scholarly Presentations

Invited Oral Presentations

20+ since joining UT San Antonio | Not Peer-Reviewed

Date	Venue*	Location	Title
May 2026	ScooterLab Workshop	San Antonio, TX	Bridging Research and Practice with Mobile Urban Sensing Panel
April 2026	UT San Antonio Office of Energy & Sustainability	San Antonio, TX	Watt's Next? Texas' Energy Future
April 2026	ComSciCon Houston Rice University	Houston, TX	Addressing Misleading Narratives Panel
July 2025	Johns Hopkins University guest lecturer	Virtual	Externalities and Automated Vehicles
May 2025	ScooterLab Workshop	San Antonio, TX	Panel on Micromobility-Supported Sensing
Jan 2025	Clean Air Force of Central Texas	Austin, TX	Atmospheric Air Quality Variability in San Antonio

Date	Venue*	Location	Title Invited, Continued
Oct 2024	CIVIC Innovation Challenge Community of Practice	Washington, DC	Measuring Atmospheric Variability to Manage Intra-Urban Heat and Air Quality
Sept 2024	Energy Justice Workshop & Policy Dialogue, sponsored by the Alfred P. Sloan Foundation and Resources for the Future	Washington, DC	A Seat at the Energy Table
May 2024	Climate Change, Aging, and Health across the Life Course Workshop	Madison, WI	Prioritizing Mitigation Measures Based on Varying Heath and Social Vulnerabilities
Apr 2024	State Energy Conservation Office & Alamo Area Council of Governments	San Antonio, TX	Energy Efficient Roofing Workshop
Apr 2024	Heat Island Research Workshop: Austin and San Antonio, Texas	San Antonio, TX	Prioritizing Mitigation Efforts for Urban Heat Vulnerability
Feb 2024	Civil & Environmental Graduate Seminar UTSA	Virtual	Variability and Justice in the Urban Environment
Feb 2024	Texas A&M Kingsville Environmental Engineering Graduate Seminar	Virtual	Variability and Justice in the Urban Environment
Jan 2024	American Petroleum Institute (API) Mechanical Integrity Summit	San Antonio, TX	Panel: Impacts on Operators Due to Methane Emissions are Real and Rapidly Escalating
Oct 2023	Energy Justice in the Energy Transition Pre-Publication Workshop	Dallas, TX	Advancing Equity in Energy through a Simplified Framework
Oct 2023	SmartSA	San Antonio, TX	Researching the Urban Environment in a Smart City
Sept 2023	Urban Sustainability Directors Network	Online	Urban Heat Priority Assessment
Oct 2022	USAEE	Houston, TX	How Emissions Reductions from the Energy System Affect Future Air Quality
Mar 2021	Geological Sciences & CEE Seminar Series, UTSA	San Antonio, TX (via Zoom)	Evolution of the United States Energy System and Related Emissions under Varying Social and Technological Development Paradigms
Mar 2021	Civil, Construction, and Environmental Engineering Seminar, UNM	Albuquerque, NM (via Zoom)	Evolution of the US energy system under varying paradigms

Date	Venue*	Location	Title Invited, Continued
Sept 2020	Environmental Science Seminar, UTSA	San Antonio, TX (via Zoom)	Evolution of the US energy system under varying paradigms
Feb 2020	CEE Seminar, UTSA	San Antonio, TX	Emissions Projections of Possible Energy System Futures
Feb 2020	Gillings School of Public Health, UNC	Chapel Hill, NC	Health Effects Associated with Vehicle Automation
Jan 2020	CEE Seminar, OSU	Stillwater, OK	Energy and Emissions Implications of Vehicle Automation
Dec 2019	Science Technology and Public Policy seminar at RIT	Rochester, NY	How technological development affects the implementation of Renewable Portfolio Standards
Jan 2019	Center for Energy Studies at LSU	Baton Rouge, LA	Accounting for Health Impacts of Energy Related Emissions
May 2018	Information Exchange with DOT, DOE, EPA	Webinar	Information Exchange on Connected, Autonomous, Shared, Electric Vehicles
April 2018	General Education Seminar for Cal Alumni Club of North Carolina	Durham, NC	How Air Quality Affects your Health
April 2018	EPA Office of Transportation and Air Quality	Research Triangle Park, NC	Potential regional impacts of automated vehicles.
Feb 2018	EPA Office of Transportation and Air Quality	Webinar	Potential emission impacts of automated vehicles
April 2017	EPA Office of Air Quality Planning and Standards	Research Triangle Park, NC	Impact of various energy pathways on future emissions
Sept 2016	Environmental Water Resources, and Coastal Engineering, seminar, NC State	Raleigh, NC	Internalizing Externalities of the US Energy System
June 2015	Harvard TH Chan School of Public Health	Boston, MA	Calculating the health effects of a policy to internalize health-based damages in the US Energy System
Oct 2014	LCA XIV Conference	San Francisco, CA	Internalizing Life Cycle Externalities in the US Energy System

Oral Presentations - Not Peer-Reviewed

Date	Venue & Location*	Presenter	Title
Sept 2026	Public Health in the Rockies Conference; Keystone, CO	H. Huanchun	Heat-Exposure Dose Effect for Walkability
Apr 2026	National Conference on Undergraduate Research; Richmond, VA	F. Valorz	Securing the Grid: Challenges and Strategies to Maintaining Energy Availability Amidst Projected Increases in Energy Demand in the United States
Mar 2026	Gulf Southwest Section of ASEE; College Station, TX	K. Brown	Experiences with Digital Natives Using Traditional Software
Mar 2026	UTSA Graduate Seminar; Virtual	H. Huang	Mechanisms of Heat-Exposure Dose Effects on Urban Walking Behavior: A Comparative Scenario Analysis in San Antonio, Texas
Feb 2026	18th College of Education and Human Development Research Colloquium; Artificial Intelligence Versus The Authentic Mind; San Antonio, TX	K.E. Brown & F. Valorz	Preliminary Strategies and Challenges to Maintaining Energy Availability Amidst Increased Projected Energy Demand in the United States
Jan 2026	UTSA Graduate Seminar; Virtual	K. Brown	Identifying Intra-urban Heat Islands
Nov 2025	Texas 3 Minute Thesis; San Antonio, TX	F. Valorz (Finalist)	Watt's Next? Strategies and Challenges to Maintaining Energy Availability Amidst Increased Projected Energy Demand in the United States
Nov 2025	USAEE; Fort Worth, TX	KE Brown	Demand Response through EV Charger Placement
July 2024	SURE program; Atlanta, GA	D. Dorsa (Best Speaker Award)	Identifying Barriers and Opportunities for Equity in Green Accessibility
Oct 2023	Association of Collegiate Schools of Planning; Miami, FL	RJ Lee	Planning for walkable communities through the lens of equity: The relationship between walkable environment and heat exposure in San Antonio, Texas
Apr 2023	Urban Affairs Association Conference; Nashville, TN	W. Zhai	Walkable but not walkable? A geospatial relationship between urban environment and heat exposure through the lens of equity in San Antonio, Texas

Date	Venue & Location*	Presenter	Title Oral, Continued
Mar 2023	Council of Educators in Landscape Architecture; San Antonio, TX	RJ Lee	A spatial analysis of the heat island effect and green infrastructure: a case study of San Antonio, Texas
Jan 2020	TRB; Washington, DC	K. Brown	Monetized Health Benefits of Regional Emissions Changes Due to Scenarios of Vehicle Automation
Oct 2019	USAEE; Denver, CO	K. Brown	How External Factors Influence Policy Goals Using the Example of Renewable Energy Standards
Oct 2019	CMAS; Chapel Hill, NC	K. Brown	Comparing Projected and Modeled Health Benefits of Alternative Energy Futures
June 2019	Energy and Society in Transition; Tempe, AZ	K. Brown	Plausible Energy Scenarios for use in robust decision making
Jan 2019	TRB; Washington, DC	K. Brown	Energy and Emissions Implications of Automated Vehicles in the US Energy System (Research was selected for presentation, but due to a partial government shutdown was not presented.)
Oct 2017	CMAS; Chapel Hill, NC	K. Brown	Plausible Energy Scenarios for use in robust decision making
Oct 2015	USAEE; Houston, TX	K. Brown	Sensitivity of Solar Fossil Hybrid Electricity Technology Penetration to Price and Efficiency Projections
Oct 2015	CMAS; Chapel Hill, NC	K. Brown	Air Quality Impacts of Damage Based Emissions Fees
Oct 2014	CMAS; Chapel Hill, NC	K. Brown	The Effect of Criteria Pollutant and Greenhouse Gas Damage Based Fees on Emissions from the US Energy System
June 2014	GEIA Conference; Boulder, CO	K. Brown	The Effect of Damage Based Emissions Fees on Future US Emissions
May 2012	World Renewable Energy Forum; Denver, CO	K. Brown	Incorporating Climate and Air Quality Externalities in the US Electricity System
Mar 2011	American Chemical Society; Denver, CO	K. Brown	The Effect of Incorporating Air Quality and Climate Externalities in Future US Electricity Scenarios
Nov 2006	American Physical Society; Dallas TX	K. Brown	Characterizing Deuteron Breakup on Thin Targets at 20 MeV

Poster Presentations - Not Peer-Reviewed

Date	Venue*	Presenter	Title
Aug 2026	Undergraduate Research Summer Showcase	F. Valorz	Securing the Future Grid: Preliminary Strategies and Challenges to Maintain Energy Availability Amidst Increased Projected Energy Demand in the US
May 2026	Viva Science San Antonio; San Antonio, TX	S. Onuegbu	Shade, Asphalt, and Inequality: Who Bears the Heat in San Antonio
May 2026	AIM Health R&D Summit; San Antonio, TX	F. Valorz	Securing the Future Grid: Evaluating Strategies and Challenges to Maintaining Energy Availability Amidst Increased Projected Energy Demand in Texas
April 2026	UTSA Graduate Student Appreciation Week; San Antonio, TX	S. Onuegbu	Urban Heat Vulnerability Across the 25 Largest US Metropolitan Areas: A Census-Tract Level Evaluation of Thermal Variance and Socioeconomic Characteristics
Nov 2025	Annual Biomedical Research Conference for Minoritized Scientists (ABRCMS); San Antonio, TX	F. Valorz	Securing the Future Grid: Preliminary Strategies and Challenges to Maintaining Energy Availability Amidst Increased Projected Energy Demand in the United States
Oct 2025	McNair Scholars Research Conference; Miami, FL	F. Valorz	Securing the Future Grid: Preliminary Strategies and Challenges to Maintaining Energy Availability Amidst Increased Projected Energy Demand in the United States
Mar 2025	ASEE-GSW; Arlington, TX	J. Dominguez	Bexar Air: Quality Assurance Plan
Jan 2025	TRB; Washington, DC	S. Mendoza	Determining Equitable Locations for EV Charging Stations in Bexar County, TX
Dec 2024	AGU; Washington, DC	Y. Vargas	Assessing Air Quality and Environmental Justice with Satellite Data: Monitoring $PM_{2.5}$, NO_2, and HCHO Exposure, Social Vulnerability, and the Present-Day Influence of Redlining in Bexar County
Jan 2024	TRB; Washington, DC	F. Ellis	Best Management Practices Maintenance Requirements to Ensure Protection of Edwards Aquifer Water Quality
Sept 2023	ASPIRE research center; Boulder, CO	A. Zuniga Herrera	Technologies Needed for CO_2 Reductions based on Least Cost Optimization using TIMES modeling
Jun 2023	AEESP; Boston MA	F. Ellis	Maintenance of Structural BMPs and Water Quality

Date	Venue*	Presenter	Title Poster, continued
Jan 2023	TRB; Washington, DC	C. Kastely	Implementing a sensor network to capture current and changing concentrations of PM2.5 as the Bexar County transportation system evolves
Oct 2022	SACNAS NDiSTEM; San Juan, PR	A. Arcos	Quantifying Inequitable Exposure to Air Pollution in Bexar County, TX
Oct 2022	ASPIRE research center; Logan, UT	A. Zuniga Herrera	Emissions Outlook of Different Degrees of Adoption of Light Duty Electric Vehicles Using Energy Information Administration's Priorities
Aug 2022	CIMA LSAMP; San Antonio, TX	A. Arcos	Quantifying Inequitable Exposure to Air Pollution in Bexar County, TX
Dec 2019	AGU; San Francisco, CA	K. Brown	Increasing the Use of Near-zero Emission Energy Technologies Depends on Social, Technological, and Policy Factors
May 2019	Climate Change and Resilience Symposium; Chapel Hill, NC	K. Brown	Energy and Emissions Implications of Automated Vehicles
April 2013	Energy Frontiers Conference; Boulder, CO	K. Brown	The Effect of Damage Based Fees on Future US Electricity Generation
April 2011	Energy Frontiers Conference; Boulder, CO	K. Brown	The Effect of Accounting for Costs of Air Quality and Climate Impacts on the Future US Electricity Mix. Awarded 1st Place Energy Policy poster
Dec 2008	AGU; San Francisco, CA	K. Brown	Dispersive Ion Injection Signatures Observed at FAST Altitudes during Times of Northward IMF: Characteristics and Origins

*Abbreviations for conferences

AEESP: Association of Environmental Engineering and Science Professors; AGU: American Geophysical Union; ASEE: American Society of Engineering Education; CMAS: Community Modeling and Analysis System; SACNAS NDiSTEM: Society for Advancement of Chicanos/Hispanics & Native Americans in Science National Diversity in STEM conference; TRB: Transportation Research Board; USAEE: United States Association of Energy Economics

Granting Activities

Funded and in Progress

Agency†	Submit date	Title	Project dates	Role‡ Effort	*	Request Amount	Award
EPA	3/2/ 2026	Teaching Responsible Artificial Intelligence Through Visual Assessment of Vegetated Stormwater Treatment Systems	10/15/2026 to 10/14/2028	Co-PI 25%	I	$250k	$250k
UTSA Institute for Integration of Medicine & Science	3/25/ 2026	AI-driven environmental assessment and spatial data analysis to predict and prevent childhood lead (Pb) poisoning	9/1/2026 to 8/31/2027	Co-PI 25%	R	$5k	$5k
Robert Wood Johnson Foundation	3/3/ 2026	Breathe Easy SA: Community-Led Air Quality & Compliance Monitoring Community award administered directly to investigator	7/1/26 to 3/31/27	Co-I 20%	R	$50k	$50k
City of San Antonio	7/26/ 2024	Sensor Air Temperature and Air Quality Evaluation related to Urban Heat Island Mitigation Measure Implementation	8/1/2024 to 12/31/2026	Co-I 10%	R	$460k	$460k
City of San Antonio	9/16/ 2026	Bus Shelter Heat Relief Performance Evaluation Grant from City of San Antonio	9/30/2026 to 2/28/2028	PI	R	$249k	$249k
NIST (sub to SwRI)	5/15/ 2026	Community Air Sensor Network for TX20	10/1/2026 to 9/30/2028	Sub-PI 50%	R	$253k	

Funded and Completed or Terminated

Agency†	Submit date	Title	Project dates	Role‡ Effort	*	Request Amount	Award
MSRDC (sub to UTEP)	11/28/ 2023	Hispanic Alliance for Clean Energy Education and Research (HACEER)	10/01/2024 to 01/31/2027	Co-I 5%	I	$650k	$520k Stop work order issued 6/9/25

Agency†	Submit date	Title	Project dates	Role‡ Effort	*	Request Amount	Award
CPS Energy	6/30/ 2023	Optimize EV Charging Infrastructure for Grid Management	09/01/2023 to 08/31/2025	PI 50%	R	$500k	$250k
NSF	5/1/ 2024	Civic-PG Track A: Measuring and Managing Intra-urban heat islands	10/1/2024- 3/31/2025	PI 20%	R	$75k	$75k
City of San Antonio	9/26/ 2023	Enabling Informed Site Selection for Heat Mitigation	12/21/2023 to 12/31/2024	PI 20%	R	$50k	$50k
City of San Antonio	12/7/ 2022	How Can We Direct City Resources Toward the Areas Most Impacted by Extreme Heat?	03/01/2023 To 12/31/2023	PI 25%	R	$25k	$35k
UTSA	3/24/ 2021	Changing Environment in the Glacial Watershed of the Cordillera Blanca, Peru under the Warming Climate: Understanding the shifting local dynamics of water availability, agriculture, and energy product	10/01/2021 To 07/31/2022	Co-I 33%	R	$20k	$20k
SARA San Antonio River Authority	11/23/ 2020	Best Management Practice (BMP) Maintenance Requirements to Ensure Protection of Edwards Aquifer Water Quality	5/1/2021 To 4/30/2024	Co-I 10%	R	$619k	$619k

Pending

Agency†	Submit date	Title	Project dates	Role‡ Effort	*	Request Amount
DOE	3/6/ 2026	Integration of Extreme Heat into Earth-Energy Systems Modeling for Resilience Planning	9/1/2026 to 8/31/2029	PI 34%	R	$956k

Unfunded

Agency†	Submit date	Title	Project dates	Role‡ Effort	*	Request Amount
NIH R21 (sub to UTHSC)	6/16/ 2026	AI-driven environmental assessment and spatial data analysis to predict and prevent childhood lead (Pb) poisoning	10/1/2026 to 9/30/2028	Co-PI 50%	R	$102k
SAGE (sub to MIG)	6/12/ 2026	Reconnecting Communities Project	8/1/2026 to 4/30/2027	Co-PI 25%	R	$250k
DOT Center TransIPIC	9/26/ 2025	IoT-Driven Digital Twin for Enhancing the Design and Fabrication of Precast Concrete Elements	1/1/26 to 12/31/26	Co-PI 30%	R	$70k
NIH R01 (Sub to UTHSCSA)	10/15/ 2025	Air for All: Leveraging Near-Real-Time Mobile Monitoring for Air and Heat-Related Hazards and Associated Health Outcomes.	7/1/2026 to 6/30/2031	Sub-PI 100%	R	$250k
NSF	3/3/ 2025	Civic-FA Track A: Measuring Atmospheric Variability to Manage Intra-urban Heat and Air Quality	10/1/2025 to 09/30/2026	PI 30%	R	$1M
Health Research Challenge (UTSA)	12/19/ 2025	AI-driven environmental assessment and spatial data analysis to predict and prevent childhood lead (Pb) poisoning	8/1/2026 To 7/31/2027	Co-I	R	UTSA: 15,438 total 97,014
Health Research Challenge (UTSA)	12/18/ 2025	Population-based Estimations of Drug Use in Wastewater	8/1/2026 To 7/31/2027	Sub-PI 100%	R	UTSA: 27,219 total 85,907
NSF	7/23/ 2025	CAREER: Promoting Health through Data Assessment and Data Literacy	9/1/2026 to 8/31/2031	PI 100%	R	$590k
Burroughs Wellcome Fund	8/7/ 2025	ARCH Center– Advancing Resilience in Climate and Health	08/01/2026 to 07/31/2031	Co-I 25%	R	$10M
NASEM Gulf Research Program	7/23/ 2025	Early-Career Research Fellowship	11/1/2025 to 10/31/2027	PI 100%	R	$76k

Agency†	Submit date	Title	Project dates	Role‡ Effort	*	Request Amount
UTSA & Tec de Monterrey	5/21/ 2025	AI-Driven Urban Living Labs (AI-LABS): Collaborative Sensing for Sustainable Energy Solutions & Air Quality Action	10/1/2025 to 9/30/2026	Co-I 25%	R	$40k
NSF (sub to OkSU)	1/16/ 2025	NSF R2I2: Community-Driven Climate Resilience Solutions in the Southern Great Plains: Addressing Rising Temperatures from Averages to Extremes	10/1/2025 to 9/30/2027	Co-I 30%	R	$132k
TxDOT	3/25/ 2025	PS 26-100: The Effects of Road Types and Construction Activities on Particulate Matter and Development of Best Practices for PM2.5 Reduction	9/1/2025 to 8/31/2027	PI 30%	R	$455k
US EPA (sub to City of San Antonio)	11/21/ 2024	UTSA's Partnership for Community Engagement and Program Evaluation	6/1/25 to 5/31/27	Co-PI 8%	R	$1.5M
US EPA	06/25/ 2024	Integration and assessment of a community driven air sensing system to promote environmental justice	9/1/2025 to 8/31/2028	PI 25%	R	$1.25M
NASA	05/03/ 2024	From space to community action: Remote Sensing and Digital Twins for empowering communities towards heat and air quality resilience and advocacy.	10/1/24-9/30/27	Co-I 10%	R	$875k
NASEM	4/10/ 2024	Our City Our Future, Place-Based Education Program Empowering Youth to Construct a Sustainable Future	09/03/2024 to 08/31/2026	Co-I 17%	I	$485k
NSF	11/17/ 2023	DISES: The Local Dynamics of Climate Change, Food Production, and Water Management in a Tropical Glacier System: a 6,000-year perspective on Andean human-environment relationships	08/01/2024 to 07/31/2028	Co-I 27%	R	$1.8M
UTSA	03/06/ 2024	Techno-Ecological Synergy for Solar Photovoltaic Integration	10/07/2024 to 04/30/2026	PI, 50%	R	$20k

Agency†	Submit date	Title	Project dates	Role‡ Effort	*	Request Amount
US EPA	08/30/ 2023	Cumulative Environmental Health Impact as a Function of Community Resilience and Presence of Threats	07/01/2024 to 06/30/2027	PI 30%	R	$2M
US Dept of Housing & Urban Dev	06/01/ 2023	Housing Research Center for Advancement of Sustainability & Affordability	07/03/2023 to 07/03/2026	Co-I 10%	R	$2.5M
NASEM	05/03/ 2023	Environmental Protection in the Gulf	09/01/2023 to 08/31/2025	PI 100%	R	$76k
UTSA	04/19/ 2023	Heat exposure during non-motorized travel: Implications for transportation policy of San Antonio	09/01/2023 to 08/31/2024	Co-I 25%	R	$25k
UTSA	03/22/ 2023	Unifying climatological measurements across spatial and temporal scales and heights	09/01/2023 to 08/31/2024	PI 40%	R	$50k
US Dept of Agriculture	12/14/ 2022	Cultivating Future Workforce for Agriculture 4.0 through Informing, Engaging, and Incentivizing STEM Students	08/01/2023 To 07/31/2027	Co-I 20%	I	$4.9M
NASA (via SwRI)	11/22/ 2022	Urban heat island modeling and socioeconomic outcome modeling: The case of San Antonio, TX	03/01/2023 To 03/03/2025	Co-I 15%	R	$645k
US DOT	8/25/ 2022	C-CLEAN IT – Center for CLimate and Environmental Abatement kNowledge for Infrastructure and Transportation	11/15/2022 To 11/14/2023	Co-I 20%	R	$3M
NSF	7/26/ 2022	CAREER: Planning for a Sustainable, Healthy, Energy Rich Future	9/1/2022 To 8/31/2027	PI 100%	R	$780k
US DOE	6/16/ 2022	Urban Integrated Field Laboratory for Climate Research and Environmental Justice in the South Central US	09/01/2022 To 08/31/2027	Co-I 12.5 %	R	$12.4M
NSF	5/5/ 2022	Civic-PG Track A: Equitable measures to improve heat wave resilience in San Antonio TX	10/10/2022 To 3/31/2023	Co-I 14%	R	$50k
CPS Energy	11/22/ 2021	Interaction Between Vehicle Electrification, Emissions, and Capacity Expansion	1/1/2022 To 1/31/2023	PI 100%	R	$288k

Agency†	Submit date	Title	Project dates	Role‡ Effort	*	Request Amount
TxDOT	3/10/ 2021	Quantify the Real Impact of Transportation Activity on Regional Ozone and Near-Road PM Concentrations	09/01/2021 To 08/31/2023	PI 70%	R	$384k
NSF (sub to SMU)	1/7/ 2021	SRS RN: Next-Generation Regional Transportation Systems: Sustainability-Driven Framework for Infrastructure Engineering and Social Welfare Optimization	06/01/2021 To 05/31/2022	PI 100%	R	$5k

*R = Research, I = Instructional, S = Public service

† **Agency abbreviations**: Department of Energy (DOE), Department of Transportation (DOT), Environmental Protection Agency (EPA), MSI STEM Research & Development Consortium (MSRDC), National Aeronautics & Space Administration (NASA), National Academies of Sciences Engineering and Medicine (NASEM), National Institutes of Health (NIH), National Science Foundation (NSF), San Antonio for Growth on the Eastside (SAGE), Southwest Research Institute (SwRI), Texas Department of Transportation (TxDOT), University of Texas at San Antonio (UTSA)

‡ Role, effort, and amounts for granting activities refer to the institutional total. i.e. sub-PI indicates leadership of the UT San Antonio portion of a multi-institutional award.

Intellectual Property

None

Teaching Activities

Courses Taught

Course Number	Course Title	Semester(s) Taught		Instructor Rating	Enrollment Grad	Enrollment UG
CE 1301	Intro to Civil Engineering	Fall 2026		IP		110
		Spring 2026		4.54/5		73
		Fall 2025		4.46/5		101
		Spring 2024		4.43/5		58
		Fall 2023	▪	4.22/5		90
EGR 1403	Technical Communication	Fall 2025	▪	4.58/5		58
CE 2633	Environmental Engineering	Fall 2026		IP		76
		Spring 2026	◘	4.45/5		48
		Spring 2025		3.93/5		49
		Fall 2024		3.91/5		61
		Spring 2024		3.19/5		55
		Spring 2023		4.20/5		54
		Spring 2022	▪◘	4.11/5		47
CE 4633	Water & Wastewater Treatment	Spring 2023	▪x	3.35/5		44
CE 5613/ CE 4613	Environmental Chemistry	Fall 2024		4.6/5	9	3
		Fall 2022		3.75/5	8	
		Spring 2021	▪	5/5	7	
CE 5733	Air Pollution	Fall 2023		4.17/5	10	
		Fall 2021	*	5/5	6	
CE 6953	Life Cycle Analysis	Summer 2022	*	NA	Indep. Study	
CE/ES 5991 CE 6621 CE 6991	Graduate Seminar	Spring 2026		4.82/5	48	
		Spring 2024		4.76/5	31	

*Newly developed course, not previously taught at UTSA
▪New preparation of course previously taught by another instructor
◘Peer observation report available
x co-taught course

Students mentored

Primary Mentorship

Professionals Advised Directly		
Huang Huanchun	Aug 2025-present	Visiting Scholar

Graduate Research Assistants		Program[1]
Samuel Oseji	Aug 2026-present	ESE PhD
Somtochukwu Onuegbu	Aug 2024-present	CE PhD
Tristan Arias	Aug 2024-present	ESE PhD
Christina Kastely	Jan 2022-Feb 2025	ESE PhD
Bradley W. Abbott	Jan 2024-Mar 2024	MS Urban and Regional Planning
Abhishek Tiwari	Oct 2023-Dec 2023	MS Computer Science
Fariha Afnan	Jan 2021-May 2021	ESE PhD
Undergraduate Research Assistants		**Affiliation**
Fiona Valorz	Aug 2025 – present	BA Environmental Studies UTSA
Daniela Gaytan	Aug 2025 - present	BS Civil Engineering UTSA
Makayla Palacios	Jan 2025 – May 2026	BS in Civil Engineering UTSA
Dom Dorsa	May 2024-Aug 2024	BS Civil Engineering UTSA
Jennifer Dominguez	May 2024-Aug 2024	BS Civil Engineering UTSA
Divanhy Salazar	May 2024-Aug 2024	BS Civil Engineering UTSA
Katie Whatley	Apr 2024-May 2025	BS Civil Engineering UTSA
Nicolas Williams	Jan 2024-May 2025	BS Chemical Engineering UTSA
Natalie Martinez	May 2024-Aug 2024	BS Civil Engineering UTSA
Alyssa Arcos	Jun 2022-Aug 2023	CIMA-LSAMP, BS Civil UTSA
Stanley Ngo	Jan 2021-May 2023	BS Mechanical Engineering UTSA

Committee Member

Dissertation Committees

Hannah Martinez (ESE PhD) Oct 2026-present
Yuan Ping (CE PhD) Feb 2026 - present
Carlos Romero Vazquez (ESE PhD) Oct 2025-present
Mehdi Torbat Esfahani (CE PhD) Mar 2025- present
Felicia Ellis (ESE PhD) Apr 2024-present
Karmann Kessler (ESE PhD) Jan 2024-present
Aimee Steinbrecher (ESE PhD) Jan 2024-present
Arahim Zuniga Herrera (ESE PhD at UTEP) Aug 2023 - Present
Sandra Montalbo (CE PhD) Feb 2021-present
Haoming Qin (CE PhD) Sept 2024 – Apr 2026
Hazem Mahmoud (ESE PhD) Spring 2022 -Apr 2025
Sahar Koohfar (CE PhD) Spring 2024-Aug 2024
Arash Jafarzadeh (CE PhD) Fall 2022-Summer 2024

[1] ESE = Environmental Science and Engineering; CE = Civil Engineering

Thesis Committees
Chinedu Okonkwo (CE MS) 2024
Fahmida Akter (CE MS) 2021

Qualifying Exam Committees
13 PhD Students (2-3 per year)

Instructional Mentorship
Supervised graduate teaching assistants and graders across multiple undergraduate courses.

Academic Advising
Advisor for ~14 civil engineering undergraduates annually (2021- present)

Professional Development

Professional Development Activities

Activity	Description	Dates	Hours
ADVANCE Women in Writing	Women in STEM Scholarly Writing Retreat and accountability groups that meet monthly and spent 48 hours in dedicated writing time	August 2024-May 2025	72
Faculty Success Alumni Program	Weekly accountability group meetings, daily writing progress check ins	August 2023-July 2024	60
Faculty Success Program	Weekly accountability group meetings, daily writing progress check ins, weekly development activities	May -August 2023	36
Tenure Track Networking Club	Quarterly meetings via Teams with tips from tenured faculty at UTSA	Aug 2020 – May 2022	10
New Faculty Workshops	Attended a series of webinars from Academic Innovation regarding available resources	Aug 2020 – May 2021	15
ACADEME workshop	Met with new engineering faculty from around the country in Alexandria, VA to exchange ideas and make connections	May 17-18, 2022	15
New Faculty Peer Mentor Group	Met weekly with other new faculty via Zoom to discuss insights and challenges of the new position	Aug 2020-May 2021	15

Professional Affiliations

Organization		Since
AEESP	Association of Environmental Engineering and Science Professors	2022
ASEE	American Society for Engineering Education	2025
CleanTX	Formerly TREIA	2026
ESWN	Earth Science Women's Network	2015
TRB	Transportation Research Board	2019
United Way	United Way Emerging Leaders and Women United	2023
USAEE	US Association of Energy Economics	2017

Service Activities

Activity	Role	Timing	Hrs/yr
Department School of Civil and Environmental Engineering and Construction Management			
Recommendation Letters	Writer	Spring 2023 – present	15
ASCE Student Chapter	Faculty Advisor	AY 26-27	5
ASCE Sustainable Solutions Team	Faculty Mentor	AY 25-26	3
Mentorship Committee	Member	Spring 2022-Spring 2023	6
Recruitment Activities	Participant	2023 – present	1
Department Environmental Science and Engineering Program			
Committee of Graduate Studies (COGS)	Member	Spring 2023 – present	10
College Klesse College of Engineering and Integrated Design			
Awards Committee	Member	Fall 2024 – present	30
College Executive Advisory Committee	Member	AY 24-25	2
Diversity and Inclusivity Committee	Member	AY 22-23	5
Internal Proposal Reviews	Reviewer	2021 – present	10
College Laptop Requirement Task Force	Member	Spring 2021	10
Panels for Current Students	Panelist	2022 – present	2
Recruitment Activities	Participant	2022 – present	2
Engineering BBQ Cookoff	Judge	Oct 2024 & Oct 2022	3
University University of Texas San Antonio			
Climate Research Interest Group	Lead	Fall 2025 – present	20
Awards Committee	Reviewer	Fall 2024 – present	10
Internal Funding & Limited Submission	Reviewer	2023 – present	10
New Faculty Academy	Panelist	Summer 2023 & 2025	2
Graduate Student Appreciation Week	Poster Judge	2022 – present	2
Commencement	Attendee	F: ‘21, ‘24, ’25; Sp: ’23, ‘26	4
Commencement	Banner Marshall	Spring 2025; Fall 2022	6
UT System Postdoctoral Symposium	Poster Judge	Sept 2024	2
Professional			
Peer review of journal articles	Peer Reviewer	2020 – present	35
NSF Proposal Review Panel	Reviewer	2026	30
USAEE	Session chair	2025 & 2026	10
Powerhouse Texas Energy Network	UTSA Liaison	2023 – present	2
CMAS conference	Session Co-chair	Oct 2018	--
Community			
C2ES Resilience Accelerator	Participant	Mar – May 2026	20
Cooling Committee	Member	May – Nov 2025	10