Erick C. Jones Jr.

Assistant Professor · Industrial, Manufacturing, and Systems Engineering

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Education

University of Texas at Austin — *Austin, TX*

Ph.D. Operations Research and Industrial Engineering — *August 2021*

- Advisor: Benjamin Leibowicz
- Dissertation: Multi-Systems Optimization: Intermittent Production, Flexible Demand, Emerging Technologies
- Graduate Portfolios in Food-Energy-Water Systems and in Energy Studies

University of Texas at Austin — *Austin, TX*

M.S. Operations Research and Industrial Engineering — *May 2019*

Texas A&M University — *College Station, TX*

B.S. Chemical Engineering; Minor: Petroleum Engineering — *May 2014*

Research Appointments

2021-	**Assistant Professor**, Industrial, Manufacturing, and Systems Engineering, University of Texas at Arlington
2017-2021	**Graduate Research Assistant**, Operations Research and Industrial Engineering, University of Texas at Austin
2020-2021	**Researcher**, Texas Energy Poverty Research Institute (TEPRI)
2020-2021	**Research Fellow**, The Mickey Leland Energy Fellowship (DOE), Los Alamos National Lab
2020	**GHG Model Developer**, CRANE, Prime Coalition
2009-2014	**Undergraduate Research Assistant**, Chemical Engineering, Texas A&M University

Teaching Appointments

2021-	**Probability**, Assistant Professor, IMSE, University of Texas at Arlington
2018-2019	**Engineering Finance**, Teaching Assistant, ME, University of Texas at Austin
2018	**Experimental Fluid Mechanics**, Teaching Assistant, ME, University of Texas at Austin
2017	**Fluid Mechanics**, Teaching Assistant, ME, University of Texas at Austin
2018-2019	**Engineer Your World**, Grader, ME, University of Texas at Austin
2018-2019	**Visiting Lecturer**, Scientist in Residence, University of Texas at Austin
2018	**Curriculum Designer**, Planet Texas 2050, University of Texas at Austin

Industry Positions

2015-2017	**Project Engineer**, Johnson Controls	*Houston, TX*
2014-2015	**Process Engineer**, AMEC Foster Wheeler	*Houston, TX*
2012	**Engineering Intern**, HDL Power	*Brenham, TX*
2011	**Engineering Intern**, PWD Group	*Queretaro, MX*

Research Experience

University of Texas at Arlington *Arlington, TX*

Lab: Erick Jones Jr. *2021-*

- Investigate efficiency, generation, resilience, investment and operational decisions under uncertainty at the individual, community, and government level in the energy, water, food, and health sectors.
- Use and or develop tools for data collection, operational management, and other research tasks
- Present at conferences and other venues and submit work to peer reviewed journals.
- Write and submit grants to support research and students.
- Collaborations: RAID Labs, Create COVID-19 Supply Chain informed by social determinants of health, GIS, and AI.

University of Texas at Austin - Operations Research and Industrial Engineering *Austin, TX*

Advisor: Benjamin Leibowicz *2017 - 2021*

- Used mathematical programming software and solvers like GAMS, Gurobi, CPLEX to model optimization problems.
- Interpreted and organized data from various sources including online repositories SQL databases, Excel, HTML files and others.
- Used open source languages like R and Python to clean, analyze, and visualize data.
- Wrote articles for peer review and publication.
- Effectively presented information at conferences of peers and with the general public.
- Results included 4 publications and multiple presentations

Texas Energy Poverty Research Institute *Austin, TX*

Supervisor: Dana Harmon *2020 - 2021*

- Investigate energy poverty in different regions, municipalities, and electricity providing schemes.
- Use quantitative and qualitative research methods to help decision makers find ways to reduce energy burden.
- Parse data from public sources like the LEAD Tool and the ACS and private sources like utilities and surveys.
- Build credibility by presenting our work and submitting it to peer reviewed publications.
- Write and submit grants to bring in revenue to help support TEPRI's mission.
- Collaborative results have included multiple presentations, a published conference paper, and grant funding.

Los Alamos National Labs / Carbon Solutions *Los Alamos, NM / Okemos, MI*

Advisor: Richard Middleton *2020 - 2021*

- Further developed the SimCCS framework by adding and validating a temporal aspect.
- Developed a case study using the SimCCS simulation model to evaluate the effect of 45 Q credits visualized in GIS.
- Collaborative results have included a presentation and a paper.

CRANE, Prime Coalition

Supervisor: Seth Sheldon *2020*

- Built 12 technical solution models of low-GHG technologies and relevant markets through secondary research.
- Supported the work of another fellow by reviewing their draft models.
- Results now available live at app.cranetool.org.

Texas A&M University - Chemical Engineering *College Station, TX*

Advisor: Perla Balbuena *2009 - 2014*

- Used a form of Monte-Carlo simulation to computationally simulate atomic interactions in the growth of carbon nanotubes
- Analyzed the results to investigate the mechanisms of carbon nanotube growth and the formation of defects
- Results included in 2 publications.

Contributions to Funded Research

National Science Foundation Award: 2040979 *$ 97,130*

P.I.: Dana Harmon (TEPRI) *Awarded: 2020*

- NSF INCLUDES Planning Grant: 331 STEM:Energy 3 Universities, in 3 Cities, 1 Vision
- Helped develop the concept behind this grant, coordinated meetings, wrote, edited, and formatted the proposal documents.

Publications

Peer-Reviewed Research Articles

Erick Jones and Benjamin D. Leibowicz. "Co-Optimization and Community: Maximizing the Benefits of Distributed Electricity and Water Technologies." Sustainable Cities and Society Vol. 64, January 2021. DOI: 10.1016/j.scs.2020.102515

Jones, E. C., Azeem, Gohar, **Jones, Erick C.**, and Jefferson, F., "Impacting at Risk Communities using AI to optimize the COVID-19 Pandemic Therapeutics Supply Chain", International Supply Chain Technology Journal (ISCTJ), Vol. 6, No. 9 September 2020. DOI: 10.20545/isctj.v06. i09.02

Erick Jones and Benjamin Leibowicz "Contributions of Shared Autonomous Vehicles to Climate Change Mitigation", Transportation Research Part D: Transport and Environment, v. 72, 2019, pg. 279-298, 1361-9209, DOI: 10.1016/j.trd.2019.05.005.

Juan C. Burgos, **Erick Jones**, and Perla B. Balbuena "Dynamics of Topological Defects in Single-Walled Carbon Nanotubes during Catalytic Growth", The Journal of Physical Chemistry C 2014 118 (9), 4808-4817 DOI: 10.1021/jp412708h

Juan C. Burgos, **Erick Jones**, and Perla B. Balbuena "Effect of the Metal−Substrate Interaction Strength on the Growth of Single-Walled Carbon Nanotubes", The Journal of Physical Chemistry C 2011 115 (15), 7668-7675 DOI: 10.1021/jp200919j

Submitted Research Articles

Erick Jones, Tam Kemabonta, and Dana Harmon "Energy and Emissions Savings Potential of Renewable Thermal Technologies in Houston, Texas", Energy Economics

Erick Jones and Benjamin Leibowicz , "Climate Risk Management in Agriculture Using Alternative Electricity and Water Resources: A Stochastic Programming Framework", Environment, Systems, and Decisions

Erick C. Jones, Gohar Azeem, **Erick Christopher Jones**, Felicia Jefferson, Marcia Henry, Shannon Abolmaali and Janice Sparks, "Understanding the Convergence of Artificial Intelligence and the last mile Transportation concept impacted Underserved Global Communities to save lives during COVID-19 Pandemic", Frontiers in Future Transportation

Peer-Reviewed Conference Papers

Tam Kemabonta, **Erick Jones**, Dana Harmon, and Jason Pittman "A New Approach to Developing Community Solar Projects for LMI Communities in ERCOT's Competitive Electricity Markets", 2021 IEEE Global Humanitarian Technology Conference

Dana Harmon, **Erick Jones**, Emory Wolfe, and Jacquie Moss "Pathways for DERs to Reduce Energy Burdens in Harris County", 2020 ACEEE Summer Study on Energy Efficiency in Buildings proceedings

Erick Jones "Decomposing Systems: Illustrating the Utility of Distributed Energy Resources with Decomposition Techniques", Institute of Industrial and Systems Engineers Annual Conference and Expo 2020

Published Reports

Dana Harmon, Tam Kemabonta, Jacquie Moss, **Erick Jones**, and Andrew Robison, "When the Lone Star Froze Over - Winter Storm Uri and the lived experiences of Texas low income communities", Texas Energy Poverty Research Institute, 2021

Erick Jones, Jacquie Moss, and Tam Kemabonta, "Lived Experiences of Winter Storm Uri", Texas Energy Poverty Research Institute, 2021

Erick Jones, "Racial Disparities in Energy", Smart Energy Consumer Collaborative, 2021

Works in Progress

Erick Jones, Sean Yaw, Richard Middleton, "Temporal SimCCS 2.0: Adjusting SimCCS with relation to time to account for the 45Q Tax Credits "

Awards and Fellowships

Individual Awards

2019-2021 **National Research Trainee: INFEWS Scholar Program**, National Science Foundation

2020 **Mickey Leland Energy Fellowship**, Department of Energy

2017-2021 **GEM Fellowship**, The National GEM Consortium

2010-2014	**Louis Stokes Alliance for Minority Participation Scholarship (LSAMP)**, National Science Foundation
2012	**Artie McFarren Department of Chemical Engineering Scholarship**, Texas A&M University
2012	**12th Man Kickoff Team Scholarship**, Texas A&M University
2011	**Distinguished Student Award for Outstanding Academic Achievement**, Texas A&M University
2010	**Dwight Look Engineering College Scholarship**, Texas A&M University

Teaching Experience

Engineering Finance (ME 353), University of Texas *Austin, TX*

Instructor: Dr. Erhan Kutanoglu *2018-2019*

- Created and/or repackaged homework questions, case studies, and exam questions for a class of 150+ students.
- Led 3 sessions of 30+ students each through different case studies exploring key class ideas.
- Held office hours for students. Tutored, helped with conceptual problems, and guided them through various problems.
- Graded students work following a rubric. Fielded questions about exam grades and corrected as needed.
- Proctored exams for students. Answered exam related questions and maintained order.

Experimental Fluid Mechanics (ME 130L), University of Texas *Austin, TX*

Instructor: Dr. Adela Ben-Yakar *2018*

- Attended appropriate trainings for leading the lab, answering common questions and difficulties, and proper laboratory procedure.
- Guided 45+ students in sections of 15+ students through labs, enforced safety rules, and ensured each student received good experimental results
- Graded students work following a rubric. Fielded questions about corrections as needed.

Fluid Mechanics (ME 330), University of Texas *Austin, TX*

Instructor: Dr. Vaibhav Bahadur *2017*

- Held office hours for the 80+ students in the class, tutored them, helped them with conceptual problems, and guided them through applied problems.
- Graded students work following a rubric. Fielded questions about exam grades and corrected as needed.
- Proctored exams for students. Answered exam related questions and maintained order.

Scientist in Residence, University of Texas *Austin, TX*

Supervisor: Dr. Jay Banner *2018-2019*

- Engaged High School Physics students in the excitement of scientific discovery.
- Helped teachers address TEKS through innovative learning activities that incorporated university research.
- Attended appropriate trainings and professional development to build presentation, teaching, and story telling skills

Planet Texas 2050, University of Texas *Austin, TX*

Supervisor: Dr. Jay Banner *2018*

- Developed lesson plans around the core areas for Planet Texas 2050: Urbanization, Energy, Water, Ecosystem Services
- Worked in a multi-disciplinary team and met weekly to collaborate and discuss ideas
- Published finalized lesson plans on the SciRes website: https://www.esi.utexas.edu/outreach/k12-resources/pt2050_lessonplans/

Talks and Presentations

Invited Talks

May 13, 2021. *Energy and Water Efficient Building for Affordable Housing Developers*. **Invited talk:** Energy Opportunities Coalition (TEPRI)

April 29, 2021. *Renewable Thermal Technologies*. **Invited talk:** Yale Center for Business and the Environment: Renewable Thermal Technologies

February 25, 2021. *Racial Disparities in Energy*. **Invited talk:** SECC Research Brief: Racial Disparities in Energy

August 11, 2020. *Pathways for Reducing Energy Burdens in Harris County*. **Invited talk:** City Efficiency Leader Council North Texas Round-table

April 29, 2020. *Renewable Thermal Technology Potential in Harris County*. **Invited talk:** Renewable Thermal Alliance Webinar

Presentations

2021. *Stochastic Optimization Modeling of an Agriculture, Water and Energy System under Future Water Uncertainty*. **Oral Presentation:** Annual IISE Conference

2020. *Co-Optimization and Community*. **Oral Presentation:** Annual IISE Conference

2020. SimCCS Gulf Coast Project. **Oral presentation:** Mickey Leland Energy Fellowship Program Technical Forum

2020. Co-Optimizing Distributed Energy, Water, and Transportation: An Optimization Based Decomposition Approach **Poster:** Energy Week 2020, Austin, TX

2019, 2020. Building a Sustainable Future: Co-Optimizing Community Energy and Water, Transportation and Power. **Poster:** Texas Energy Summit and Graduate and Industry Networking Event, Austin, TX

2018, 2019. The Role of SAVs in Climate Change Mitigation. **Poster:** GEM Conference and Graduate and Industry Networking Event, Los Angeles, CA and Austin, TX

2018. The Role of SAVs in Climate Change Mitigation. **Oral presentation:** GEM Conference 2018, Los Angeles, CA.

Industry Experience

Project Engineer, Johnson Controls *Houston, TX*
2015-2017

- Estimated, schedule, forecast, and manage secured projects ranging from $50k to $5MM.
- Designed systems and processes for clients that satisfy their specifications and compliances.
- Created bids and manage the initiation of open projects ranging from $50k to $5MM.
- Oversaw job procurement, implementation, and overall execution on the construction site.
- Participated in Start-up and Delivery Inspection of applied equipment.

Process Engineer, AMEC Foster Wheeler *Houston, TX*
2014-2015

- Created, modify, and/or backcheck process calculations, equipment datasheets, instrument datasheets, Process Flow Diagrams (PFDs), Piping and Instrumentation Diagrams (P&ID) with an emphasis on safety and efficiency.
- Calculated hydraulics for PSVs and hydraulic circuits to ensure proper line size.
- Helped solve Coker antifoam problems by modifying and modernizing design.
- Helped implement P&ID and process changes to modernize designs.
- Designed or checked instruments, control valves, PSVs, pumps, and vessels.
- Checked fluid properties for PL&T instruments and verified pressure profiles.

Engineering Intern, HDL Power *Brenham, TX*
2012

- Used Six Sigma methodology to identify a number of problems with loss and efficiency.
- Identified problems with the manufacturing process with a new product.
- Identified solutions with common problems in the plant.
- Created and implemented numerous solutions for the identified problems.
- Presented those solutions in several classes to the employees and management to improve overall quality.

Engineering Intern, PWD Group *Queretaro, MX*
2011

- Used Design for Six Sigma methodology and techniques with a RFID focus to identify a number of problems with loss and efficiency for a food processing plant
- Created a Spanish report and presentation with engineering observations and improvements.

Outreach & Professional Development

Conferences and Workshops

2021	**TEPRI's Energy Opportunities Coalition**, Speaker / Attendee	*Virtual*
06/2021	**National Academies of Sciences, Engineering, and Medicine Climate Conversations: Infrastructure**, Attendee	*Virtual*
05/2021	**IISE Annual Conference**, Speaker	*Virtual*
05/2021	**"Accelerating Sustainable Systems for Food Security in Extreme Environments and Food Deserts" NSF Convergence Accelerator Conference**, Attendee	*Virtual*
04/2021	**SimCCS Pro Workshop**, Attendee	*Virtual*
04/2021	**Energy Week 2021**, Attendee	*Austin, TX*
04/2021	**BIPOC Climate Justice Dialogue**, Attendee	*Virtual*
12/2020	**The Energy Systems and Optimization Workshop**, Attendee	*Virtual*
11/2020	**INFORMS Annual Conference**, Attendee	*Virtual*
11/2020	**IISE Annual Conference**, Speaker	*Virtual*
11/2020	**UT COVID-19 Conference**, Attendee	*Virtual*
10/2020	**Inclusive Teaching and Learning Fall Symposium**, Attendee	*Virtual*
09/2020	**Stanford Workshop: Macro-Energy Systems**, Attendee	*Virtual*
09/2020	**The GEM Foundation Annual Conference**, Attendee	*Virtual*
08/2020	**Mickey Leland Energy Fellowship Program Technical Forum**, Presenter	*Virtual*
08/2020	**City Efficiency Leadership Council North Texas Roundtable**, Presenter	*Virtual*
04/2020	**Renewable Thermal Alliance Webinar**, Presenter	*Virtual*
02/2020	**Energy Week 2020**, Presenter	*Austin, TX*
02/2020	**Graduate and Industry Networking Event**, Volunteer	*Austin, TX*
2020	**Sustainable Buildings Austin Climate Action Plan**, Subject Matter Expert	*Austin, TX*
11/2019	**Texas Energy Summit**, Presenter	*Austin,TX*
06/2019	**Alliance for Graduate Education and the Professoriate (AGEP) Research Exchange**, Visiting Researcher	*Berkeley, CA*
03/2019	**3 Minute Thesis**, Competitor	*Austin, TX*
02/2019	**Graduate and Industry Networking Event**, Volunteer	*Austin, TX*
09/2018	**The GEM Foundation Annual Conference**, Presenter	*Los Angeles*

Service and Outreach

2019-2021	**Institute for Operations Research and Management Sciences (INFORMS)**, Relations Chair	*Austin, TX*
2017-2020	**Graduate Engineering Council**, Vice President, New Activities Chair, Department Rep	*Austin, TX*
2020	**City of Austin Sustainable Buildings Taskforce**, Committee Member	*Austin, TX*
2019-2020	**Urban Roots Farm**, Project Development Volunteer	*Austin, TX*
2010-2014	**National Society of Black Engineers (NSBE)**, Programs Chair, Officer	*College Station, TX*
2014-2017	**United Way**, Volunteer	*Houston, TX*
2016-2017	**Baker Ripley**, Volunteer	*Houston, TX*
2016	**All-Earth Ecobot Challenge**, Volunteer	*Houston, TX*
2014-2017	**Big Brother Big Sisters**, Volunteer	*Houston, TX*

Professional Memberships

Institute of Industrial and System Engineers (IISE)
Institute for Operations Research and the Management Sciences (INFORMS)
The National GEM Consortium
National Society of Black Engineers