

JOE FRANK BOZEMAN III

Joe.BozemanIII@gmail.com

EDUCATION

Ph.D. in Environmental Engineering: Sustainability	University of Illinois at Chicago	(2020)
Master of Science in Engineering: Renewable and Clean Energy	Wright State University	(2010)
Bachelor of Science in Mechanical Engineering	Wright State University	(2008)

RESEARCH

University of Illinois at Chicago (Advisor: Dr. Thomas L. Theis)

Researcher for the Institute of Environmental Science and Policy
08/2016-Present

Investigating Climate Change and Social Identity to Manage Food-Energy-Water (FEW) Impacts

Climate change is anticipated to facilitate more frequent extreme weather events, and the food system is particularly vulnerable to climate change effects. My research uses life cycle assessment, social identity, socioeconomic, and other socioecological factors to develop climate change adaptation and mitigation measures that could improve the viability of FEW nexus components. I also research carbon emission management more broadly; especially as it relates to urban and peri-urban ecosystems.

Key Skills: Sustainability, FEW Nexus, Life Cycle Assessment, Machine Learning, Neural Network Modeling, Python Coding, Agent-Based Modeling, Netlogo Coding, Policy Development, Food Systems, Research & Development

U.S. Department of Veterans Affairs & Department of Defense

Researcher & Developer for the Veterans Health Administration
03/2011-06/2013

The Cold Composting Calculator

Cold Composting is the process of naturally replenishing soil fertility through the proper mowing and storage of grass, twigs and leaves. The Cold Composting Calculator was developed to assist in waste-diversion data collection efforts since United States federal energy & environmental sustainability officers are mandated to perform such tasks. Research and mathematical data compilations, utilizing sources from the likes of the U.S. Environmental Protection Agency and National Oceanic and Atmospheric Administration, resulted in a developed tool that estimates the amount of cold compost yielded per acre, for any location in the U.S. The Cold Composting Calculator has been effective nationwide and for numerous federal agencies, including the Department of Veteran Affairs.

Key Skills: Sustainability, Environmental Engineering, Research & Development, Program/Project Management

Wright State University (Advisor: Dr. Hong Huang)

Research/Teaching Assistant
05/2008-06/2010

Sulfur-Tolerant Catalysts for the Solid Oxide Fuel Cell

JP-8 fuel is easily accessible, transportable, and has hydrogen content essential to solid oxide fuel cell (SOFC) operation. However, JP-8 fuel has sulfur content that can form poisonous hydrogen sulfide. This syngas degrades electrochemical activity and causes complete SOFC failure in some cases. In effort to mitigate this degradation, sulfur-tolerant catalysts supported on cerium oxide were cost-effectively synthesized and computationally analyzed. Specifically, catalyst compounds were synthesized using the low-cost sol-gel method; the material compounds were analyzed and verified using X-Ray Diffractometry and Scan Electron Microscopy; and sulfur-tolerance was analyzed using supercomputing techniques (i.e., Gaussian software) to administer quantum mechanical algorithms that simulated molecular motion and reactivity. Experimental syntheses of copper, platinum, and platinum-copper skin catalysts supported on cerium oxide were ultimately verified. The platinum-copper skin catalyst was determined to be the most cost-effective, sulfur-resistant catalyst.

Key Skills: Renewable & Clean Energy, Materials Synthesis, X-Ray Diffractometry, Scan Electron Microscopy, Supercomputing, Gaussian, Electrochemical System Analysis, Research & Development

Wright State University (Advisors: Dr. Joseph C. Slater and Dr. Ruby P. Mawasha)

Senior Design Project Team Leader

06/2007-08/2008

Triangular Truss Deployment in a Near Space Environment

Introducing large-scale structures into space is limited by the size of the transport vehicle, assembly time, and labor intensity among other limitations. Therefore, investigations of methods to optimize each aforementioned factor are essential to enhanced in-space operations. One such method was the development of a large-scale, lightweight truss structure that could be stowed a fraction of its deployed size and deployed using minimal resources. An unfolding triangular truss structure was developed utilizing shape memory polymer composite material. This structure was successfully deployed in a near space environment. The attained results were intended to bolster Defense Advanced Research Projects Agency research for potential military surveillance purposes.

Key Skills: Mechanical Engineering, Thermal Conductivity, Leadership, Materials Analysis, Research & Development, Project Management

PUBLICATIONS

Bozeman, J.F., W.S. Ashton, and T.L. Theis. (*Under Review*). Food-Energy-Water (FEW) Impact Disparities Across Demographics.

Bozeman III, J.F., R. Bozeman, & T.L. Theis. 2019. Overcoming Climate Change Adaptation Barriers: A Study on the Demographics of the Food-Energy-Water (FEW) Nexus for U.S. Food Consumption. *Journal of Industrial Ecology*. Accepted on Feb 6, 2019.

Impact Factor: 4.123

Bozeman III, J.F. & R. Watson. (2012). The Cold Composting Calculator: A Novel Tool. *Internally Published Oct 2012. VHA Center for Engineering & Occupational Safety and Health (CEOSH)*.

Impact: Nationwide

Reach: Interagency (i.e., VA, DoD, and EPA)

Bozeman III, J.F. & H. Huang. (2011). Structural Characteristics of Bimetallic Catalysts Supported on Nano-Ceria. *Journal of Nanomaterials*. Article ID 329757, pp. 1-6. <http://dx.doi.org/10.1155/2011/329757>.

Impact Factor: 2.207

Bozeman, J. (2010). SULFUR-TOLERANT CATALYST FOR THE SOLID OXIDE FUEL CELL. (Electronic Thesis or Dissertation). Retrieved from <https://etd.ohiolink.edu/>.

https://etd.ohiolink.edu/pg_10?O::NO:10:P10_ETD_SUBID:85931.

Downloads: 1,000+

Reach: Open Access

TALKS

Association of Energy Engineers: Chicago/Illiana Chapter – Presented on international global climate change initiatives and U.S. Government energy and environmental sustainability

02/2019

Midwestern Association of Graduate Schools – Presented on food-energy-water (FEW) impacts as they relate to U.S. dietary intake and food insecurity (3-Minute-Thesis Regional Competition Finalist)

04/2018

BarnRaise 2017 – Presented on and designed a food system that alleviates food insecurity in urban environments

10/2017

Low Carbon Earth Summit - *Qingdao, China* - Presented on U.S. Interagency Sustainability
09/2014

Environmental Sustainability and Innovation at VA - Presented on the Cold Composting Calculator
07/2013

Region 5 Federal Green Challenge Symposium - Presented on sustainability program and cold composting
06/2013

2011 GreenGov Symposium - Presented on development of the Cold Composting Calculator
11/2011

Dayton Engineering Science Symposium - Presented on sulfur tolerance of the solid oxide fuel cell
10/2009

Ohio Aerospace Institute - Presented on high altitude balloon apparatus
09/2009

National Science Foundation - Presented on triangular truss system and thermal conductivity of Shape
Memory Polymer
06/2008

POSTER PRESENTATIONS

Gordon Research Conference: Industrial Ecology - *Les Diablerets, Switzerland* - Poster on the demographics
of food-energy-water (FEW) impacts as they relate to U.S. food commodity consumption
05/2018

2018 University of Illinois at Chicago Student Research Forum - Poster on food-energy-water (FEW) impacts
and their interplay with socioeconomic factors
04/2018

**2017 Joint Conference: International Society for Industrial Ecology - International Symposium on
Sustainable Systems and Technology** - Poster on food desert emergence as it relates to energy and
environmental sustainability
06/2017

Captain James A. Lovell Federal Health Care Center Research Symposium - Poster on the cold composting
calculator
12/2012

University Clean Energy Alliance of Ohio - Poster on sulfur-tolerant catalyst of the solid oxide fuel cell
04/2010

University Clean Energy Alliance of Ohio - Poster on thesis approach regarding the solid oxide fuel cell
04/2009

GRANT ACTIVITY

National Science Foundation (NSF) - Advancing Careers in Academics with Diversity Education and Mentorship in Engineering (ACADEME)

06/2018-Present

<u>Purpose:</u>	Enhance skills for a successful academic career
<u>Type:</u>	External
<u>Role:</u>	Primary writer (i.e., teaching philosophy, research statement, CV, mini lesson plan)
<u>Status:</u>	Granted

University of Illinois at Chicago

08/2016-Present

Research: Food-Energy-Water (FEW) Impacts as they relate to Dietary Intake and Food Insecurity
Type: Internal
Role: Primary researcher

Ohio Space Grant Consortium

05/2008-06/2010

Research: Sulfur-Tolerant Catalysts for the Solid Oxide Fuel Cell
Type: External
Role: Member of research team

Defense Advances Research Projects Agency

06/2007-08/2008

Research: Triangular Truss Deployment in a Near Space Environment
Type: External
Role: Member of research team

TEACHING

U.S. Department of Veterans Affairs

04/2016

Subject: Life Cycle Cost Analysis
Type: One-segment course
Mode: In-person
Audience: Program Managers from across the nation

U.S. Department of Veterans Affairs

04/2016

Subject: Understanding Energy and Energy Calculations
Type: One-segment course
Mode: In-person
Audience: Program Managers from across the nation

U.S. Department of Veterans Affairs

02/2016

Subject: Project Engineering and Green Environmental Management System Programming
Type: One-segment course
Mode: In-person
Audience: Program Managers from across the nation

U.S. Department of Veterans Affairs

12/2015

Subject: The Green Environmental Management System - Energy Connection
Type: One-segment course
Mode: Online
Audience: Program Managers from across the nation

Wright State University

01/2010-04/2010

Course: Finite Element Analysis Lab
Type: Quarter-length course
Mode: In-person
Audience: Undergraduates

Wright State University

08/2009-11/2009

Course: Mechanical Vibrations Lab
Type: Quarter-length course

Mode: In-person
Audience: Undergraduates

Wright State University

02/17/2009

Course: Fundamental Engineering Exam Review Class: Statics
Type: Single class
Mode: In-person
Audience: Undergraduates

Central State University

01/2009-04/2009

Courses: Physics, Statics, and Dynamics
Type: Tutor
Mode: In-person
Audience: Undergraduates

EMPLOYMENT HISTORY

U.S. Department of Veterans Affairs, North Chicago, IL

Green Environmental Management System (GEMS) Program Manager

08/2011-Present

- ❖ Chairs the GEMS Committee which implements energy and environmental sustainability programming such as energy/environmental auditing & inspections, hazardous waste, air permitting, and recycling among others
- ❖ Oversees and executes programmatic budget
- ❖ Helps facility to avoid negative public relation outcomes and thousands of dollars in monetary fines
- ❖ Drafts interagency agreements and facilitates conflict resolution at local, regional, and national levels
- ❖ Writes and develops local and national-level policies, guidebooks, strategic plans, and directives
- ❖ Maintains facility compliance with EPA, OSHA, NRC, and other federal regulatory entities & federal mandates

Key Skills: Strategic Planning, Sustainability, Program/Project Management, Directive/Policy Writing, Environmental Compliance, Budgeting, Excellent Communication, Healthcare

U.S. Department of Veterans Affairs, Dayton, OH

GEMS Coordinator

07/2010-08/2011

- ❖ Managed and helped to implement energy and environmental sustainability programming
- ❖ Maintained facility compliance with EPA, OSHA and other federal regulatory entities

Key Skills: Sustainability, Program/Project Management, Environmental Compliance, Healthcare

Wright State University, Dayton, OH

Chief of Staff (Student Government)

08/2009-06/2010

- ❖ Supervised and managed the student government body
- ❖ Served as Chair of the Health Care Committee and participated on other university-wide committees
- ❖ Authored collegiate health care language that eventually became university policy and Ohio state law

Key Skills: Supervisorial Tact, Strategic Planning, Legislative Writing, Program/Project Management, Healthcare, Formal Governmental Procedure, Budgeting

Wright State University, Dayton, OH

Deans Student Advisory Board of Computer Engineering and Computer Science Chair

01/2009-03/2009

- ❖ Provided an organizational platform and appointed members representing each pertinent college
- ❖ Facilitated communication between the Dean of CECS and the student body

Key Skills: Supervisorial Tact, Strategic Planning

United Parcel Service (UPS), Sharonville, OH

Plant Engineer/ Part Time Supervisor

09/2006-06/2008

- ❖ Supervised 20+ employees for conveyor maintenance, drive maintenance, and porter related tasks
- ❖ Oversaw monthly budget and record keeping expenditures for projects and functional billing
- ❖ Prepared management reports, organized & led meetings, and maintained business partner relationships

Key Skills: Supervisorial Tact, Project Management, Budgeting

SERVICE

Gordon Research Seminar: Industrial Ecology

05/2018-07/2020

Type: Academic
Level: International
Role: Chair, session organizer, and budgeter

International Society for Industrial Ecology: Diversity in Industrial Ecology Academia

05/2018-Present

Type: Academic
Level: International
Role: Member

International Society for Industrial Ecology: Sustainable Urban Systems

05/2018-Present

Type: Academic
Level: International
Role: Member

University of Illinois at Chicago: Interview Session for Associate Vice Chancellor for Student Affairs

01/2018

Type: Academic
Level: University
Role: Student Interviewer

Joint Conference for International Society for Industrial Ecology - International Symposium on Sustainable Systems and Technology

06/2017

Type: Academic
Level: International
Role: Session manager and volunteer

Journal of Renewable and Sustainable Energy

2017-Present

Type: Academic
Level: International
Role: Peer reviewer (3)

Centers for Companies That Care

02/2012-07/2015

Type: Non-Profit
Level: City (Chicago, IL)
Role: STEM career representative and mentor

Department of Defense Educational Activity

04/2012

Type: U.S. Government
Level: National
Role: STEM Representative at Marine Corp Base Camp Lejeune

Wright State University: VISIONS Mentoring Program

08/2008 - 06/2010

Type: Academic
Level: University
Role: Mentor for underrepresented minorities in STEM

Wright State University: Leadership Education to Advance Development

07/2008 & 07/2014

Type: Academic
Level: International (Durban, South Africa)
Role: Volunteer

PROFESSIONAL LEADERSHIP

EEAB - Energy-GEMS sole representative for GEMSAG at U.S. Department of Veterans Affairs

02/2012-Present

Type: U.S. Government
Level: National
Role: GEMSAG member

GEMS Committee

08/2011-Present

Type: U.S. Government
Level: National
Role: Member

GEMSAG - Chair

01/2015-03/2016

Type: U.S. Government
Level: National
Role: Chair

Chicago Interagency Sustainability Council

09/2014-07/2015

Type: U.S. Government
Level: Regional
Role: Chair

Intergovernmental Affairs Committee

07/2013-07/2015

Type: U.S. Government
Level: Regional
Role: Member

Chicago Interagency Sustainability Council

06/2013-07/2014

Type: U.S. Government
Level: Regional
Role: Member

CERTIFICATIONS

Certified Energy Manager (CEM)

10/2013-Present

Federal Acquisition Certification for Program/Project Managers (FAC-P/PM)

10/2012-Present

Contracting Officer's Representative (COR/COTR)

11/2011-Present

Engineer-in-Training (EIT)

05/2011-Present

AWARDS

The [Bayer]-Monsanto Diversity STEM Fellowship - 2018-2019 Monsanto

Carl Storm Underrepresented Minority Fellowship - 2018 Industrial Ecology Gordon Research Conference

3-Minute-Thesis (3MT) Winner: 1st Place - 2018 University of Illinois at Chicago

Dr. Martin Luther King, Jr. Scholarship - 2017 - 2018 University of Illinois at Chicago

Green Partner for Change Award - 2017 Practice Greenhealth Environmental Excellence Awards

Tuition Support for Sustainability Ph.D. - 2017 U.S. Department of Veterans Affairs

Green Partner Recognition Award - 2016 Practice Greenhealth Environmental Excellence Awards

Young Energy Professional of the Year Award: Region III - 2015 The Association of Energy Engineers

Green Partner for Change Award - 2015 Practice Greenhealth Environmental Excellence Awards

Regional Education and Outreach Award - 2015 Environmental Protection Agency Federal Green Challenge

Regional Transportation Award - 2014 Environmental Protection Agency Federal Green Challenge

National Transportation Award - 2013 Environmental Protection Agency Federal Green Challenge

Regional Overall Achievement Award - 2013 Environmental Protection Agency Federal Green Challenge

Regional Innovation Award - 2013 Environmental Protection Agency Federal Green Challenge

Legend in Energy - 2012 Association of Energy Engineers

Excellence: Certificate of Appreciation - 2012 Department of Defense Education Activity STEM Activity

Member of the Quarter - Fall Quarter 2009 Wright State University's Student Government

OSEA Certificate of Achievement - 2008 Glenn Stokes Summer Research Internship Program; NSF conference

Dean Honorable Mention - High Altitude Balloon Team (Senior Design Project)

Best Student Paper Award - Won award for technical paper and presentation; 2008 ASEE NCSC

OSEA Certificate of Achievement - 2007 Glenn Stokes Summer Research Internship Program; NSF conference

2004 Student Athlete Achievement for Outstanding Grade Point Average

AFFILIATIONS

Association of Environmental Engineering and Science Professors (AEESP)

12/2017-Present

Type: Academic/ U.S. Government
Level: International
Role: Member

American Planning Association (APA)

12/2017-Present

Type: Academic/ U.S. Government
Level: National

Role: Member

International Society for Industrial Ecology (ISIE)

11/2017-Present

Type: Academic/U.S. Government

Level: International

Role: Member

Association of Energy Engineers (AEE)

01/2012-Present

Type: Academic/U.S. Government

Level: National

Role: Member (Illiana, IL Chapter)

TRAINING

NSF - ACADEME: Selective, 2-Week Teaching and Research Workshop

06/04/2018 - 06/13/2018

Survey Experiments

11/08/2017

Social Desirability in Survey Research

11/01/2017

Life Cycle Cost Estimating Course

12/2014

FEMP 19 Fundamentals of Life Cycle Costing for Energy Conservation

06/2014

Intermediate Green Environmental Management Systems

09/2013

Certified Energy Auditor Training

04/2013

Storage Tank Operator Training: Illinois Class A/B/C

04/2013

Underground Storage Tank Operator Training: A/B/C

04/2013

OSHA 30-Hour Construction Safety Training

02/2013

Certified Energy Manager for Energy Managers

01/2012

Contracting Officer's Representative

11/2011

ISO14001 Lead Auditor Training

08/2011

Basic Green Environmental Management Systems

04/2011

Basic Safety, Industrial Hygiene, Environmental, Emergency Management and Fire Protection

02/2011

How to Develop and Deliver Dynamic Presentations

01/2011

Environmental Technical Career Field

09/2010

Problem Solving and Decision Making

08/2010

Critical Thinking

08/2010

Oral and Written Communication

08/2010