

OluFemi A. Omitaomu, Ph.D.

CONTACT INFORMATION

Senior R&D Staff
Computational Sciences and Engineering
Oak Ridge National Laboratory
Oak Ridge, Tennessee, U.S.A.
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Joint ORNL-UT Associate Prof.
Industrial & Systems Engineering
University of Tennessee
Knoxville, Tennessee, U.S.A.
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WEB PRESENCE

[Personal Website](#) – [Google Scholar](#) – [Linkedln](#) – [ResearchGate](#) – [ORCID](#)

RESEARCH EXPERTISE

Focus Areas:

- Artificial Intelligence in Energy Systems
- Cognitive Coupling of Human-Machine Systems
- Anomaly Detection in Complex Systems
- Energy Infrastructure Siting and Analysis
- Disaster Risk Analysis and Emergency Management

EDUCATION

University of Tennessee, Knoxville, TN

Ph.D., Information Engineering, May 2006

Thesis Topic: *Online Learning and Wavelet-Based Feature Extraction Methodology for Process Monitoring using High-dimensional Functional Data*

Adviser: Professor Adedeji B. Badiru (AFIT)

Co-adviser: Professor Myong K. Jeong (Rutgers)

University of Lagos, Akoka, Lagos, Nigeria

M.Sc., Mechanical Engineering, September 1999

Thesis Topic: *Mathematical Modeling of Temperature Distribution within the Wall Thickness of a Gas Turbine Combustion Chamber*

Lagos State University, Ojo, Lagos, Nigeria

B.Sc., Mechanical Engineering, December 1995

Thesis Topic: *Modification & Data Gathering of the Performance of Hovercraft*

PROFESSIONAL EXPERIENCE

Oak Ridge National Laboratory

April 2018 to Present

Senior R&D Staff, Computational Systems Engineering
Computational Sciences and Engineering Division

University of Tennessee

October 2014 to Present

Joint ORNL-UT Associate Professor, Systems Engineering
Department of Industrial and Systems Engineering

University of Tennessee

October 2014 to Present

Adjunct Associate Professor, Climate Change Impacts Analysis
Department of Civil and Environmental Engineering

Oak Ridge National Laboratory

January 2012 to March 2018

R&D Staff, Infrastructure Systems Modeling and Analysis
Computational Sciences and Engineering Division

Oak Ridge National Laboratory **October 2015 to September 2018**
Team Lead, Critical Infrastructure and Climate Impacts
Computational Sciences and Engineering Division

Oak Ridge National Laboratory **October 2015 to September 2018**
Theme Lead, Urban Resiliency
Urban Dynamics Institute

University of Tennessee **November 2009 to September 2015**
Adjunct Faculty, Climate Change Impacts Analysis
Department of Industrial and Systems Engineering

Oak Ridge National Laboratory **July 2009 to December 2011**
R&D Associate, Energy Systems Modeling and Analysis
Computational Sciences and Engineering Division

Oak Ridge National Laboratory **October 2006 to July 2009**
Postdoctoral Research Associate, Knowledge Discovery from Sensors Data
Computational Sciences and Engineering Division

McMaster University **February 2006 to September 2006**
Postdoctoral Research Fellow, Optimization in Data Mining
Department of Computing & Software

Mobil Producing Nigeria **June 1995 to December 2000**
Engineer, Bonny Island Liquefied Natural Gas Plant Project
Exploration & Production Department

GRANT
SUPPORT

Department of Energy - National Reactor Innovation Center (NRIC): \$115,000 for 1 year

Title: OR-SAGE for Selecting Advanced Reactors Demonstration Sites

Role: Task Lead

Duration: June 2020 to September 2020

ARPA-E - MEITNER Program: \$200,000 for 2 year

Title: Siting Tool Development

Role: Task Lead

Duration: March 2020 to September 2021

Department of Energy - Fuel Cycle Options: \$350,000 for 2 years

Title: Development of the ORACLE Tool

Role: Task Lead

Duration: March 2019 to September 2020

Department of Veterans Affairs: \$5,900,000 per year for 4 years

Title: Hazard Detection in Health Information Technology

Role: Task Lead

Duration: October 2017 to March 2021

Department of Energy: \$110,000 for 1 year

Title: Siting Reserve Power

Role: Principal Investigator

Duration: October 2017 to September 2018

Department of Energy: \$524,000 for 2 years

Title: Cognitive Energy Management System

Role: Principal Investigator

Duration: October 2016 to September 2018

National Geospatial-Intelligence Agency: \$328,561 for 1 year

Title: Energy Assurance and Resiliency Standardized Services (EARSS)

Role: Co-Investigator

Duration: October 2016 to September 2017

Laboratory SEED Program: \$187,135 for 2 years

Title: Precision Deicing Analysis

Role: Principal Investigator

Duration: October 2016 to September 2018

National Science Foundation: \$435,421 for 6 years

Title: Optimizing Green Infrastructure Investment to Improve Urban Storm Water System Resilience under Environmental Uncertainty (Award #: 1634975)

Role: Senior Personnel

Duration: August 2016 to July 2022

Laboratory Directed Research & Development: \$610,787 for 2 years

Title: Framework for Urban Climate Adaptation Tool (Urban-CAT)

Role: Principal Investigator

Duration: October 2015 to September 2017

Department of Energy: \$49,000 for 1 year

Title: Solar Deployment Analytics

Role: Co-Investigator

Duration: October 2016 to September 2017

University of Tennessee: \$26,440 for 1 year

Title: EARSS for Real-Time Deployment

Role: Co-Investigator

Duration: January 2017 to September 2017

LDRD Launch Program: \$49,907 for 1 year

Title: CoNNECT for Real-Time Analytics

Role: Principal Investigator

Duration: October 2013 to September 2014

National Rural Electric Cooperative Association: \$23,630 for 1 year

Title: Open Framework for Grid Network

Role: Co-Investigator

Duration: January 2013 to December 2013

Department of Energy: \$1,250,000 for 5 years

Title: OR-SAGE for Analyzing DOE and DOD Sites

Role: Task Lead

Duration: October 2010 to September 2015

Laboratory Directed Research & Development: \$328,871 for 2 years

Title: Citizens Engagement for Energy Efficient Communities (CoNNECT)

Role: Principal Investigator

Duration: October 2011 to September 2013

Electric Power Research Institute: \$750,000 for 2 years

Title: Development of Oak Ridge Siting Analysis for power Generation Expansion (OR-SAGE)

Role: Task Lead

Duration: October 2008 to September 2010

ISSUED
PATENTS

Authors: Olufemi A. Omitaomu and Budhendra L. Bhaduri

Title: Precision Snow Removal Analysis

US Patent #: 10,643,156 B2

Issued Date: May 5, 2020

Authors: Olufemi A. Omitaomu and Steven J. Fernandez

Title: Method for Estimating Power Outages and Restoration during Natural and Man-made Events

US Patent #: 9,230,289 B2

Issued Date: January 5, 2016

CERTIFICATES OF
REGISTRATION

Certificate #: TXu 2-001-550: Visual-SOLAR: Modeling and Visualization of Solar Potential on Individual Building Rooftops - **September 2015**

Certificate #: TX 7-699-427: CoNNECT: Citizen Engagement for Energy Efficient Communities - **March 2013**

Certificate #: TXu 1-852-650: GAEDA: GPU Accelerated Event Detection Algorithm Software - **February 2013**

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UT-Battelle Case # 500000014: VERDE Analytic Modules

INVENTION
DISCLOSURES

DOE #: **201603622 DOE S-138,261** - Sreenivas R. Sukumar, Supriya Chinthavali, **Olufemi A. Omitaomu**, Matt Lee. Predicting Propagation Consequences of Perturbations in Synergistically Interacting Infrastructure Networks

DOE #: **201503595 DOE S-138,232** - **Olufemi A. Omitaomu** and Budhendra L. Bahduri. Smart Snow Removal Analysis

DOE #: **201503477 DOE S-138,108** - **Olufemi A. Omitaomu**, Esther Parish, and Phil Nugent. Urban-CAT: Integrated Framework for Urban Climate Adaptation Tool

DOE #: - **Olufemi A. Omitaomu** and Budhendra L. Bhaduri. CoNNECT: Citizen Engagement for Energy Efficient Communities

DOE #: **DOE S-124,011** - Steven J. Fernandez, **Olufemi A. Omitaomu**, and others. Real-Time Simulation of Power Grid Disruptions

DOE #: **DOE S-115,121** - Auroop R. Ganguly and **Olufemi A. Omitaomu**. Anomaly Detection and Risk Assessment Tool for Security Decisions

HONORS AND
AWARDS

- **December 2017:** Technology Commercialization Award, Oak Ridge National Laboratory

- **October 2017:** UT-Battelle Mentor of Student Researchers Award, Oak Ridge National Laboratory
- **October 2017:** Best SEED Money Fund Poster Award, Oak Ridge National Laboratory
- **December 2016:** Significant Event Award, Transition of DOE's EAGLE-I to ORNL, Oak Ridge National Laboratory
- **July 2016:** Election as a Senior Member, Institute of Electrical and Electronic Engineers (IEEE)
- **May 2016:** ISERC Best Track Paper Award in Modeling and Simulation, A Decision Analysis Tool for Climate Impacts, Adaptations, and Vulnerabilities, Institute of Industrial and Systems Engineers
- **October 2015:** Significant Event Award, Development of a New Virtualization of the Evolving Power Grid, Oak Ridge National Laboratory
- **July 2015:** 2015 R&D 100 Award Finalist - Software/Services, CoNNECT 2.0: Activity-Based Recommender Systems for Energy Services, R&D World
- **June 2015:** ISERC Best Track Paper Award in Modeling and Simulation, Optimization Based Data Mining Approach for Forecasting Energy Demand, Institute of Industrial and Systems Engineers
- **January 2015:** Appreciation Award, Development of Oak Ridge Siting Analysis for Power Generation Expansion, Reactor and Nuclear Systems Division, Oak Ridge National Laboratory
- **December 2014:** Technology Commercialization Award, Oak Ridge National Laboratory
- **May 2013:** Elected as a Senior Member, Institute of Industrial and Systems Engineers (IISE)
- **November 2012:** Distinguish Employee Award, Computational Sciences and Engineering Division, Oak Ridge National Laboratory
- **August 2010:** Exceptional Mentoring Award, Research Alliance in Math and Science, U.S. Department of Energy, Office of Science
- **November 2009:** Engineering R&D Team Award, Oak Ridge National Laboratory
- **August 2008:** Significant Event Award, Successful Design and Implementation of Visualizing Energy Resources Dynamically on Earth (VERDE), Oak Ridge National Laboratory
- **May 2004:** Outstanding Ph.D. Student Award, Department of Industrial and Information Engineering, University of Tennessee, Knoxville
- **December 1995:** The Lagos State University Senate Award to the Best Graduating Student in the College of Engineering
- **December 1995:** Seriki Akodu's Award to the Best Student in the Faculty of Engineering, Lagos State University
- **December 1995:** Professor E.B. Lucas Award to the Best Graduating Student in the Department of Mechanical Engineering, Lagos State University
- **December 1995:** Dr. Biodun Noah's Award to the Best Student in the Department of Mechanical Engineering, Lagos State University
- **December 1995:** The Volkswagen Nigeria Limited Award to the Most Outstanding Student in the Department of Mechanical Engineering, Lagos State University

1. Lim, M, **Olufemi A. Omitaomu** and S. J. Bae. “A Step-Down Test Procedure for Wavelet Shrinkage Using Bootstrapping.” *IEEE Access* 8 (2020): 174763-174772. doi: 10.1109/ACCESS.2020.3025103.
2. Langholtz, Matthew, Ingrid Busch, Abishek Kasturi, Michael R. Hilliard, Joanna McFarlane, Costas Tsouris, Srijib Mukherjee, **Olufemi A. Omitaomu**, Susan M. Kotikot, Melissa R. Allen-Dumas, Christopher R. DeRolph, Maggie R. Davis, Esther S. Parish. 2020. “The Economic Accessibility of CO2 Sequestration through Bioenergy with Carbon Capture and Storage (BECCS) in the US.” *Land* 9 (2020): 299.
3. Allen-Dumas, Melissa R., Amy N. Rose, Joshua R. New, **Olufemi A. Omitaomu**, Jiangye Yuan, Marcia L. Branstetter, Linda M. Sylvester, et al. “Impacts of the morphology of new neighborhoods on microclimate and building energy.” *Renewable and Sustainable Energy Reviews* 133 (2020): 110030.
4. Kotikot, Susan M., Bandana Kar, and **Olufemi A. Omitaomu**. “A Geospatial Framework Using Multicriteria Decision Analysis for Strategic Placement of Reserve Generators in Puerto Rico.” *IEEE Transactions on Engineering Management* (2020).
5. Ramshani, Mohammad, Xueping Li, Anahita Khojandi, and **Olufemi A. Omitaomu**. “An agent-based approach to study the diffusion rate and the effect of policies on joint placement of photovoltaic panels and green roof under climate change uncertainty.” *Applied Energy* 261 (2020): 114402.
6. Ramshani, Mohammad, Anahita Khojandi, Xueping Li, and **Olufemi A. Omitaomu**. “Optimal planning of the joint placement of photovoltaic panels and green roofs under climate change uncertainty.” *Omega* 90 (2020): 101986.
7. Rodriguez, Tony K., **Olufemi A. Omitaomu**, and James A. Ostrowski. “Allocating limited deicing resources in winter snow events.” *Journal on Vehicle Routing Algorithms* 2, no. 1-4 (2019): 75-88.
8. **Omitaomu, Olufemi A.**, Ozgur Ozmen, Mohammed M. Olama, Laura L. Pulum, Teja Kuruganti, James Nutaro, Hilda B. Klasky et al. “Real-Time Automated Hazard Detection Framework for Health Information Technology Systems.” *Health Systems* 8, no. 3 (2019): 190-202.
9. Sylvester, Linda, **Olufemi A. Omitaomu**, Esther S. Parish, and Budhendra L. Bhaduri. “Evaluating the Implications of Climate Projections on Heat Hardiness Zones for Green Infrastructure Planning.” *Current Environmental Engineering* 6, no. 1 (2019): 55-73.
10. Fialkoff, Marc R., **Olufemi A. Omitaomu**, Steven K. Peterson, and Mark A. Tuttle. “Using geographic information science to evaluate legal restrictions on freight transportation routing in disruptive scenarios.” *International Journal of Critical Infrastructure Protection* 17 (2017): 60-74.
11. Nugent, Philip J., **Olufemi A. Omitaomu**, Esther S. Parish, Rui Mei, Kathleen M. Ernst, Mariya Absar, and Linda Sylvester. “A web-based geographic information platform to support urban adaptation to climate change.” *In Advances in Geocomputation*, pp. 371-381. Springer, Cham, 2017.
12. Fialkoff, Marc R., and **Olufemi A. Omitaomu**. “The Jones Act and its Effect on Freight Transportation in the Aftermath of Disruptive Events: A GIS Perspective.” *The CIP Report* 16, no. November (2016).
13. Jafari-Marandi, Ruholla, Mengqi Hu, and **Olufemi A. Omitaomu**. “A distributed decision framework for building clusters with different heterogeneity settings.” *Applied Energy* 165 (2016): 393-404.

14. **Omitaomu, Olufemi A.**, Alex Sorokine, and Varun Chandola. "Virtualization of the Evolving Power Grid." *IEEE Smart Grid Newsletter Compendium 2015 – Smart Grid: The Next Decade*, September, (2015). **1 of 32 (out of some 215 articles) described as "best of the best" insightful articles from the IEEE Smart Grid Newsletter.**
15. **Omitaomu, Olufemi A.**, Nagendra Singh, and Budhendra L. Bhaduri. "Mapping suitability areas for concentrated solar power plants using remote sensing data." *Journal of Applied Remote Sensing* 9, no. 1 (2015): 097697.
16. Bekera, Behailu B., Royce A. Francis, and **Olufemi A. Omitaomu**. "Drought risk modelling for thermoelectric power plants siting using an excess over threshold approach." *International Journal of System of Systems Engineering* 5, no. 1 (2014): 25-44.
17. Allen, M., S. Fernandez, **Olufemi A. Omitaomu**, and K. Walker. "Application of hybrid geo-spatially granular fragility curves to improve power outage predictions." *J Geogr Nat Disast* 4, no. 127 (2014): 2167-0587.
18. Kodysh, Jeffrey B., **Olufemi A. Omitaomu**, Budhendra L. Bhaduri, and Bradley S. Neish. "Methodology for estimating solar potential on multiple building rooftops for photovoltaic systems." *Sustainable Cities and Society* 8 (2013): 31-41.
19. Mays, Gary T., R. J. Belles, **Olufemi A. Omitaomu**, and W. P. Poore III. "Application of Spatial Data Modeling and Geographical Information Systems for Identification of Potential Siting Options for Small Modular Reactors." *Transactions* 109, no. 1 (2013): 2241-2244.
20. **Omitaomu, Olufemi A.**, Brandon R. Blevins, Warren C. Jochem, Gary T. Mays, Randy Belles, Stanton W. Hadley, Thomas J. Harrison, Budhendra L. Bhaduri, Bradley S. Neish, and Amy N. Rose. "Adapting a GIS-based multi-criteria decision analysis approach for evaluating new power generating sites." *Applied Energy* 96 (2012): 292-301.
21. **Omitaomu, Olufemi A.**, Alex Sorokine, and Varun Chandola. "Virtualization of the Evolving Power Grid." *IEEE Smart Grid Newsletter*, June, (2012).
22. **Omitaomu, Olufemi A.**, Vladimir A. Protopopescu, and Auroop R. Ganguly. "Empirical mode decomposition technique with conditional mutual information for denoising operational sensor data." *IEEE sensors journal* 11, no. 10 (2011): 2565-2575.
23. Jeong, Young-Seon, Myong K. Jeong, and **Olufemi A. Omitaomu**. "Weighted dynamic time warping for time series classification." *Pattern recognition* 44, no. 9 (2011): 2231-2240.
24. **Omitaomu, Olufemi A.**, Myong K. Jeong, and Adedeji B. Badiru. "Online support vector regression with varying parameters for time-dependent data." *IEEE Transactions on Systems, Man, and Cybernetics-Part A: Systems and Humans* 41, no. 1 (2010): 191-197.
25. Fang, Yi, **Olufemi A. Omitaomu**, and Auroop R. Ganguly. "Incremental Anomaly Detection Approach for Characterizing Unusual Profiles." *Knowledge Discovery from Sensor Data Series*, LNCS 5840, (2010): 190-202.
26. **Omitaomu, Olufemi A.**, Auroop R. Ganguly, Bruce W. Patton, and Vladimir A. Protopopescu. "Anomaly detection in radiation sensor data with application to transportation security." *IEEE Transactions on Intelligent Transportation Systems* 10, no. 2 (2009): 324-334.
27. Kwon, Yongjin, **Olufemi A. Omitaomu**, and Gi-Nam Wang. "Data mining approaches for modeling complex electronic circuit design activities." *Computers & Industrial Engineering* 54, no. 2 (2008): 229-241.

28. Jeong, Myong K., Seong G. Kong, and **Olufemi A. Omitaomu**. "Data Mining of Multi-Dimensional Functional Data for Manufacturing Fault Diagnosis." *Recent Advances in Data Mining of Enterprise Data: Algorithms and Applications* 6 (2008): 463.
29. **Omitaomu, Olufemi A.**, Myong K. Jeong, Adedeji B. Badiru, and J. Wesley Hines. "Online support vector regression approach for the monitoring of motor shaft misalignment and feedwater flow rate." *IEEE Transactions on Systems, Man, and Cybernetics, Part C (Applications and Reviews)* 37, no. 5 (2007): 962-970.
30. **Omitaomu, Olufemi A.**, and Adedeji Badiru. "Fuzzy present value analysis model for evaluating information system projects." *The Engineering Economist* 52, no. 2 (2007): 157-178.
31. Cho, Seong-Hoon, **Olufemi A. Omitaomu**, Neelam C. Poudyal, and David B. Eastwood. "The impact of an urban growth boundary on land development in Knox County, Tennessee: A comparison of two-stage probit least squares and multilayer neural network models." *Journal of Agricultural and Applied Economics* 39, no. 1379-2016-112648 (2007): 701-717.
32. **Omitaomu, Olufemi A.**, Myong K. Jeong, Adedeji B. Badiru, and J. Wesley Hines. "On-line prediction of motor shaft misalignment using fast fourier transform generated spectra data and support vector regression." *ASME Transactions, Journal of Manufacturing Science and Engineering* 128, no 4 (2006): 1019-1024.
33. Kwon, Yongjin, Myong K. Jeong, and **Olufemi A. Omitaomu**. "Adaptive support vector regression analysis of closed-loop inspection accuracy." *International Journal of Machine Tools and Manufacture* 46, no. 6 (2006): 603-610.
34. Badiru, Adedeji B., O. Asaolu, and **Olufemi A. Omitaomu**. "Eyewitness Information Management System Using Neuro-fuzzy Classification Schemes." *Journal of Information Science & Technology* 2, no. 3 (2006).
35. **Omitaomu, Olufemi A.**, Levi D. Smith, and Adedeji B. Badiru. "The ENGINEering Economic Analysis (ENGINEA) Software: Enhancing Teaching and Application of Economic Analysis Techniques." *ASEE Computers in Education Journal* 15, no. 4 (2005): 32-38.
36. Badiru, Adedeji B., and **Olufemi Omitaomu**. "Design and Analysis of Tent Cash Flow Models for Engineering Economy Lectures." *The Engineering Economist* 48, no. 4 (2003): 363-374.

REFEREED
CONFERENCE
PROCEEDINGS

37. Haoran Niu, **Olufemi A. Omitaomu**, Qing (Charles) Cao, Mohammed Olama, Ozmen, Ozgur, Hilda B. Klasky, Teja Kuruganti, Merry Ward, Jean M. Scott, Angela Laurio, Frank Drews, and Jonathan R. Nebeker.. "Anomaly Detection in Sequential Health Care Data using Higher-Order Network Representation." *Proceedings of the Industrial and Systems Engineering Research Conference* May 2020.
38. Jordan R. Pellett, **Olufemi A. Omitaomu**, Mohammed Olama, Ozmen, Ozgur, Hilda B. Klasky, Teja Kuruganti, Merry Ward, Jean M. Scott, Angela Laurio, Frank Drews, and Jonathan R. Nebeker. "Detection of Anomalous Events in Electronic Health Records." *Proceedings of the Industrial and Systems Engineering Research Conference* May 2020.
39. Ozmen, Ozgur, Hilda B. Klasky, **Olufemi A. Omitaomu**, Mohammed Olama, Teja Kuruganti, Merry Ward, Jean M. Scott, Angela Laurio, Frank Drews, and

- Jonathan R. Nebeker. "Feature Engineering and Process Mining to Enable Hazard Detection in Health Information Technology." *AMIA Summits on Translational Science Proceedings* (2020): 469.
40. Ozmen, Ozgur, Hilda B. Klasky, **Olufemi A. Omitaomu**, Mohammed M. Olama, Teja Kuruganti, Laura Pullum, Merry Ward, Jeanie M. Scott, Angela Laurio, and Jonathan Nebeker. "Topic Modeling to Discern Irregular Order Patterns in Unlabeled Electronic Health Records." In *2019 IEEE EMBS International Conference on Biomedical & Health Informatics (BHI)*, pp. 1-4. IEEE, 2019.
 41. Chen, Yang, **Olufemi A. Omitaomu**, Mengqi Hu, Saiid Kassae, Adewale Odukamaiya, Patrick O'connor, Ayyoub M. Momen, Brennan T. Smith, and Xiaobing Liu. "Allocation and Operation of A Hydropneumatic Energy Storage with Building Microgrid." In *2019 IEEE Power & Energy Society General Meeting (PESGM)*, pp. 1-5. IEEE, 2019.
 42. Chen, Yang, **Olufemi A. Omitaomu**, Mengqi Hu, Saiid Kassae, Adewale Odukamaiya, Patrick O'connor, Ayyoub M. Momen, Brennan T. Smith, and Xiaobing Liu. "Allocation and Operation of A Hydropneumatic Energy Storage with Building Microgrid." In *2019 IEEE Power & Energy Society General Meeting (PESGM)*, pp. 1-5. IEEE, 2019.
 43. Kotikot, Susan M., Christine Ajinjeru, Adewale Odukamaiya, and **Olufemi A. Omitaomu**. "Geospatial Framework for Estimating Household Electricity Demand for Urban Infrastructure Planning in Select African Countries." In *2018 IEEE PES/IAS PowerAfrica*, pp. 613-618. IEEE, 2018.
 44. **Omitaomu, Olufemi A.** and Bandana Kar. "Understanding Infrastructure Dependency During Natural Hazards Events for Actionable Disaster Responses." *Proceedings of the Industrial and Systems Engineering Research Conference*. May, 2018.
 45. Ajinjeru, Christine, Adewale Odukamaiya, and **Olufemi A. Omitaomu**. "Development of a modeling framework to forecast power demands in developing regions: Proof of concept using Uganda." In *2017 IEEE PES PowerAfrica*, pp. 506-511. IEEE, 2017.
 46. Li, Xueping, Mohammad Ramshani, Anahita Khojandi, **Olufemi Omitaomu**, and Jon Michael Hathaway. "An agent based model for joint placement of PV panels and green roofs." In *2017 Winter Simulation Conference (WSC)*, pp. 1133-1144. IEEE, 2017.
 47. Rodriguez, Tony, **Olufemi A. Omitaomu**, Jim Ostrowski, and Budhendra L. Bhaduri. "Modeling Road Vulnerability to Snow Using Mixed Integer Optimization." In *IIE Annual Conference Proceedings*, pp. 1326-1331. Institute of Industrial and Systems Engineers (IISE), 2017.
 48. Chapin, F., **Olufemi A. Omitaomu**, and Bhaduri, B.L. "Making Roads Safer: Optimizing De-icing Using Snowmelt Rates and Slope Data." *Proceedings of the 2nd World Congress on Civil, Structural, and Environmental Engineering (CSEE'17)*, Barcelona, Spain, April 2-4, 2017.
 49. **Omitaomu, Olufemi A.**, Parish, E.S., Nugent, P.J. "A Decision Analysis Tool for Climate Impacts, Adaptations, and Vulnerabilities." *Proceedings of the Industrial and Systems Engineering Research Conference*. May, 2016. **Won the 2016 Best Track Paper Award in Modeling and Simulation.**
 50. Yuan, Jiangye, Hsiu-Han Lexie Yang, **Olufemi A. Omitaomu**, and Budhendra L. Bhaduri. "Large-scale solar panel mapping from aerial images using deep

- convolutional networks.” *In 2016 IEEE International Conference on Big Data (Big Data)*, pp. 2703-2708. IEEE, 2016.
51. Smith, Amanda D., **Olufemi A. Omitaomu**, and Jaron J. Peck. “Modeling the impacts of solar distributed generation on US water resources.” *In ASME Power Conference*, vol. 56604, p. V001T02A004. American Society of Mechanical Engineers, 2015.
 52. **Omitaomu, Olufemi A.**, Xueping Li, and Shengchao Zhou. “Optimization Based Data Mining Approach for Forecasting Real-Time Energy Demand.” *In IIE Annual Conference Proceedings*, p. 536. Institute of Industrial and Systems Engineers (IISE), 2015. **Won the 2015 ISERC Best Track paper Award in Modeling and Simulation.**
 53. Tao, Changxia, Yong Ge, Qinbao Song, Yuan Ge, and **Olufemi A. Omitaomu**. “Metric ranking of invariant networks with belief propagation.” *In 2014 IEEE International Conference on Data Mining*, pp. 1001-1006. IEEE, 2014.
 54. **Omitaomu, Olufemi A.** “Profiling Real-Time Electricity Consumption Data for Process Monitoring and Control.” *In IIE Annual Conference Proceedings*, p. 59. Institute of Industrial and Systems Engineers (IISE), 2013.
 55. **Omitaomu, Olufemi A.**, Cheng Liua, Mustafa S. Cetiner, Randy Bellesb, Gary T. Mays, and Mark A. Tuttlea. “Identifying potential areas for siting interim nuclear waste facilities using map algebra and optimization approaches.” *In IIE Annual Conference Proceedings*, p. 268. Institute of Industrial and Systems Engineers (IISE), 2013.
 56. Barker, Alan M., Eva B. Freer, **Olufemi A. Omitaomu**, Steven J. Fernandez, Supriya Chinthavali, and Jeffrey B. Kodysh. “Automating natural disaster impact analysis: An open resource to visually estimate a hurricane’s impact on the electric grid.” *In 2013 Proceedings of IEEE Southeastcon*, pp. 1-3. IEEE, 2013.
 57. **Omitaomu, Olufemi A.**, Budhendra L. Bhaduri, Christopher S. Maness, Jeffrey B. Kodysh, and Amanda M. Noranzyk. “CoNNECT: Data Analytics for Energy Efficient Communities.” *In ASME International Mechanical Engineering Congress and Exposition*, vol. 45226, pp. 559-569. American Society of Mechanical Engineers, 2012.
 58. **Omitaomu, Olufemi A.**, Jeffrey B. Kodysh, and Budhendra L. Bhaduri. “Modeling and analysis of solar radiation potentials on building rooftops.” *In ASME International Mechanical Engineering Congress and Exposition*, vol. 45226, pp. 1681-1686. American Society of Mechanical Engineers, 2012.
 59. **Omitaomu, Olufemi A.**, Christopher S. Maness, Ian S. Kramer, Jeffrey B. Kodysh, Budhendra L. Bhaduri, Chad A. Steed, Rajasekar Karthik, Philip J. Nugent, and Aaron T. Myers. “An Integrated Geovisual Analytics Framework for Analysis of Energy Consumption Data and Renewable Energy Potentials.” *Proceedings of the Seventh International Conference on Geographic Information Science (GIScience 2012)*, September 18-21, 2012.
 60. **Omitaomu, Olufemi A.**, and Adedeji B. Badiru. “An economic evaluation framework for assessing renewable energy projects.” *In IIE Annual Conference Proceedings*, p. 1. Institute of Industrial and Systems Engineers (IISE), 2012.
 61. Li, Xueping and **Olufemi A. Omitaomu**. “Optimal solar PV arrays integration for distributed generation.” *In IIE Annual Conference Proceedings*, p. 1. Institute of Industrial and Systems Engineers (IISE), 2012.
 62. **Omitaomu, Olufemi A.**, Budhendra L. Bhaduri, and Jeffrey B. Kodysh. “Prediction of Solar Radiation on Building Rooftops: A Data Mining Approach.” *In*

- IIE Annual Conference Proceedings*, p. 1. Institute of Industrial and Systems Engineers (IISE), 2012.
63. Chandola, Varun, **Olufemi A. Omitaomu**, Auroop R. Ganguly, Ranga R. Vatsavai, Nitesh V. Chawla, Joao Gama, and Mohamed M. Gaber. "Knowledge discovery from sensor data (SensorKDD)." *ACM SIGKDD Explorations Newsletter* 12, no. 2 (2011): 50-53.
 64. Huang, Yu, Xueping Li, and **Olufemi Omitaomu**. "Conceptual supernetwork model for coordination mechanisms in humanitarian relief chain." In *IIE Annual Conference Proceedings*, p. 1. Institute of Industrial and Systems Engineers (IISE), 2011.
 65. Gary T. Mays, Randy Belles, and **Olufemi A. Omitaomu**. "A Geographic Information System-Based Tool for Evaluating Siting Options." *International High-Level Radioactive Waste Management Conference*, 2011.
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28. **Omitaomu, Olufemi A.**. “A Parallel Disintegrated Model for Uncertainty Analysis in Estimating Electrical Power Outage Areas”. *Presented at the 2008 AGU Session on Impacts of Severe Weather on Environment, Economy, and Society* (Abstract No.: U41A-02), Fort Lauderdale, FL, May 27 – 30, 2008.
29. Vatsavai, Raju, Auroop R. Ganguly, **Olufemi A. Omitaomu**, and Budhendra L. Bhaduri. “Geospatial-temporal Data Mining for Infrastructure under Stress from Severe Weather Events”. *Presented at the 2008 AGU Session on Impacts of Severe Weather on Environment, Economy, and Society* (Abstract No.: U41A-01), Fort Lauderdale, FL, May 27 – 30, 2008.
30. Walker, Randy M., **Olufemi A. Omitaomu**, Auroop R. Ganguly, R.K. Abercrombie, and F.T. Sheldon. “Multimodal Integrated Safety, Security, and Environmental Program Strategy”. *Presented at the 87th Annual Meeting of the Transportation Research Board*, January 2008, Washington, DC, 08-2644, 2008.
31. Ganguly, Auroop R., **Olufemi A. Omitaomu**, Vladimir Protopopescu, Bruce Patton, Randy Walker, Yi Fang, Amrudin Agovic, and Arindam Banerjee. “Anomaly Detection from Heterogeneous Sensor Data with Application to Transportation Security”. *Presented at the 2007 National Rural Intelligent Transportation Systems Conference*, Oct. 7-10, Traverse City, Michigan, 2007.
32. Badiru, Adedeji B., **Olufemi A. Omitaomu**, Godswill Nsofor, and Lynn A. York. “Concept of Program Management: Product Assurance of Command and Control Processes”. *Presented at the 10th International Command and Control Research and Technology Symposium (CCRTS): The Future of C2*. McLean, VA. June 13-16, 2005.
33. **Omitaomu, Olufemi A.**, Myong K. Jeong, Adedeji B. Badiru, and J. Wesley Hines. “A support vector regression approach to machinery misalignment prediction using high-dimensional power spectrum data”. *Presented at the 2005 Maintenance and Reliability Conference (MARCON 2005)*, Gatlinburg, Tennessee, May 3-6, 2005.
34. **Omitaomu, Olufemi A.**, Levi D. Smith, and Adedeji B. Badiru. “The Design and Development of ENGINEering Economic Analysis (ENGINEA) Software”.

Presented at the 2005 Industrial Engineering Research Conference (IERC), Atlanta, Georgia, May, 2005.

35. **Omitaomu, Olufemi A.**, Myong K. Jeong, Adedeji B. Badiru, and J. Wesley Hines. "Motor Shaft Alignment Prediction Using On-line Support Vector Regression". *Presented at the 2005 INFORMS Annual Meeting*, November 13-16, San Francisco, California, 2005.
36. **Omitaomu, Olufemi A.**, C. Godswill Nsofor, and Adedeji B. Badiru. "Integrative Present Value Analysis Model for Evaluating Information System Projects". *Presented at the 2004 Industrial Engineering Research Conference (IERC)*, Houston, Texas, May, 2004.
37. Badiru, Adedeji B., Vincent Delgado, Jamie Ehresman-Gunter, **Olufemi A. Omitaomu**, Godswill Nsofor, Sirisha Saripalli. "Graphical and Analytical Methodology for Cost Benchmarking for New Construction Projects". *Presented at the 13th International Conference on Management of Technology (IAMOT)*, Washington, DC, April 3-7, 2004.
38. **Omitaomu, Olufemi**, and Adedeji B. Badiru. "Incorporation of Information Systems Economics into Engineering Economic Analysis Courses." ASEE Conference, page 9 (2004).
39. Badiru, Adedeji B. and **Olufemi A. Omitaomu**. "Tent Cash Flow Designs and Analysis for Gradient Cash Flow Lectures". *Presented at the 2003 ASEE Annual Conference and Exposition: Staying in Tune with Engineering Education*, 2003, pp. 3427-3441, 2003.
40. Badiru, Adedeji B. and **Olufemi A. Omitaomu**. "Integrative Learning and Forgetting Models for Quality and Productivity Improvement Analysis". *Presented at the 2003 INFORMS Annual Meeting*, Atlanta, Georgia, October, 2003.
41. Badiru, Adedeji B., Don McDaniel, and **Olufemi A. Omitaomu**. "An Integrative Study of Factors of Industrial Development in East Tennessee". *Presented at the 31st International Conference on Computers and Industrial Engineering*, San Francisco, California, February, 2003.
42. Badiru, Adedeji B. and **Olufemi A. Omitaomu**. "Application of Data Mining to Maintenance Management Systems". *Presented at the 6th Africa-USA International Conference in Manufacturing Technology*, Abuja, Nigeria, May, 2002.
43. Badiru, Adedeji B., **Olufemi A. Omitaomu**, and F.B. Odunayo. "Design of a Matrix Knowledge Base Framework for Plant Maintenance Planning and Control". *Presented at the 2001 Maintenance and Reliability Conference*, Gatlinburg, Tennessee, May, 2001.

INVITED
TALKS

- **Public Lecture Guest Speaker**, Decision Support Tools for the Emerging Smart and Connected Infrastructures, part of the Presidential Dream Course on Analytics of Resilient Cyber-Physical-Social Networks, School of Industrial and Systems Engineering, University of Oklahoma, Feb 2018
- **Classroom Lecture Guest Speaker**, Decision Support Tools for Infrastructures Resiliency and Security, part of the Presidential Dream Course on Analytics of Resilient Cyber-Physical-Social Networks, School of Industrial and Systems Engineering, University of Oklahoma, Feb 2018
- **Invited Lecture**, Urban Resiliency Research at ORNL, Department of Civil and Environmental Engineering, Northeastern University, April 2017
- **Invited Speaker**, Analytics for the Smart Grids, Department of Systems Engineering, Air Force Institute of Technology, April 2012

- **Invited Speaker**, Data Product for Situational Awareness of the Electric Grid System, AFIT-AFRL Product Development Research Symposium, Air Force Institute of Technology, December 2010
- **Guest Speaker**, Advanced Data Mining for Engineering, Department of Industrial and Systems Engineering, University of Tennessee, March 2007
- **Guest Instructor**, Advanced Data Mining for Engineering and Manufacturing, Department of Industrial and Information Engineering, University of Tennessee, October 2005

TEACHING
EXPERIENCE

- **Instructor**, Engineering Economic Analysis (Required Undergraduate Course), Department of Industrial and Information Engineering, University of Tennessee, August 2003-July 2005
- **Laboratory Instructor/Teaching Assistant**, Engineering Statics and Dynamics, College of Engineering ENGAGE Program, University of Tennessee, August 2002
- **Teaching Assistant**, Advanced Engineering Economic Analysis, Department of Industrial and Information Engineering, University of Tennessee, January 2001-July 2002

PROFESSIONAL
MEMBERSHIPS

- Institute of Industrial and Systems Engineers (IISE)
Since 2002, Senior Member since 2008
- Institute of Electrical and Electronics Engineers (IEEE)
Since 2010, Senior Member since 2016
- Institute for Operations Research and the Management Sciences (INFORMS)
Since 2005

PROFESSIONAL
SERVICES

Guest Editor of Special Journal Issue

- Smart Cities, Applied Artificial Intelligence in Energy Systems (forthcoming)
- Intelligent Data Analysis, Knowledge Discovery from Data Streams, Vol. 13, No. 3, 2009

Professional Services

- Track Co-Chair, Modeling and Simulation Division, 2020 Institute of Industrial and Systems Engineers (IISE) Annual Conference.
- Workshop Co-Organizer, ARIC 2019 - The 2nd ACM SIGSPATIAL International Workshop on Advances in Resilient and Intelligent Cities, Chicago, IL, USA November 5, 2019.
- Session Co-organizer, Data Mining Applications in Electronic Health Records, 2019 INFORMS Annual Meeting, October 20-23, 2019.
- Workshop Co-Organizer, ARIC 2018 - The 1st ACM SIGSPATIAL International Workshop on Advances in Resilient and Intelligent Cities, Seattle, WA, USA November 6, 2018.
- Program Committee Member, 1st International Workshop on Data-intensive Process Management in Large-scale Sensor Systems (DPMSS-2012): From Sensor Networks to Sensor Clouds, 12th IEEE/ACM International Symposium on Cluster, Cloud, and Grid Computing, May 13-16, 2012
- Session Organizer and Chair, Distributed Renewable Generation, 2012 Industrial and Systems Engineering Research Conference, May 19-23, 2012

- Program Committee Member, Energy Mapping and Modeling, 2012 Annual Conference of the Association of American Geographers, February 2012
- Session Chair, Energy Mapping and Modeling, 2011 Annual Conference of the Association of American Geographers, April 12-16, 2011
- Workshop Co-Organizer and Lead-Chair, Fourth International Workshop on Knowledge Discovery from Sensor Data (SensorKDD-2010), 16th ACM SIGKDD Conference on Knowledge Discovery and Data Mining, July 25-28, 2010
- Workshop Co-Organizer and Lead-Chair, Third International Workshop on Knowledge Discovery from Sensor Data (SensorKDD-2009), 15th ACM SIGKDD Conference on Knowledge Discovery and Data Mining, June 28-July 1, 2009
- Program Committee Member, First International Workshop on Data Warehousing and Knowledge Discovery from Sensors and Streams, 5th International Conference on Distributed Computing in Sensor Systems (DCOSS 2009), June 8-10, 2009
- Workshop Co-Organizer and Co-Chair, Second International Workshop on Knowledge Discovery from Sensor Data (SensorKDD-2008), 14th ACM SIGKDD Conference on Knowledge Discovery and Data Mining, June 8-10, 2008
- Workshop Co-Organizer and Co-Chair, First International Workshop on Knowledge Discovery from Sensor Data (SensorKDD-2007), 13th ACM SIGKDD Conference on Knowledge Discovery and Data Mining, August 12-15, 2007
- Workshop Program Committee Member, International Workshop on Knowledge Discovery from Ubiquitous Data Streams, 18th European Conference on Machine Learning (ECML) and the 11th European Conference on Principles and Practice of Knowledge Discovery in Databases (PKDD), September 17-21, 2007
- Conference Session Co-organizer and Co-Chair, Software Tools for Engineering Economic Analysis Session, Institute of Industrial Engineers Annual Research Conference, May 14-18, 2005
- Elected Board Member, Engineering Economy Division, Institute of Industrial Engineers, May 2002-May 2006

Referee Services

- Applied Energy
- Infrastructures
- Applied Intelligence
- Journal of Homeland Security and Emergency
- IEEE Transactions on Systems, Man and Cybernetics: Systems
- IEEE Transactions on Sustainable Energy
- Sustainability
- Energies
- Water
- Risk Analysis
- The Engineering Economist
- Advances in Building Energy Research
- Sustainability and Disaster Risk Management
- Knowledge and Information Systems
- International Journal of Disaster Response and Emergency Management

- International Journal of Geo-Information
- Nuclear Engineering and Design
- IEEE Transactions on Intelligent Transportation Systems
- Data Mining and Knowledge Discovery
- International Journal of Knowledge and Learning
- International Journal of Multi-Sensor, Multi-Source Information Fusion
- International Journal of Operations Research and Information Systems
- IEEE Transactions on Automation Science and Engineering
- ASME Journal of Manufacturing Science and Engineering
- Journal of Computing in Civil Engineering
- Journal of Optimization Methods and Software
- IEEE Smart Grid Communication
- Soft Computing Journal
- Sensors

Panelist

- DOE Early Career Research Program Review
- DOE ASCR SBIR Review
- NSF IIS
- NSF Big Data
- NSF DM/ML

NEWS ARTICLES

DOE News

- [City of Knoxville demonstrates new precision de-icing technology developed by ORNL](#) – newswise.com, Dec 11, 2018.
- [Paper Boats to Energy Efficiency](#) – web.ornl.gov, Aug 4, 2014.

ORNL News

- [City of Knoxville demonstrates new precision de-icing technology developed by ORNL](#) – ornl.gov, Dec 11, 2018.
- [Using Big Data to Build Better Cities](#) – ornl.gov, Jan 22, 2018.
- [Precision De-icing](#) – ornl.gov, Dec 4, 2017.
- [Improving Resiliency One Community at a Time](#) – ornl.gov, Sept 28, 2016.

News Media

- [ORNL, UT and Knoxville invent eco-friendly way to de-ice roads](#) – knoxnews.com, May 6, 2020.
- [New GPS technology on brine trucks could help cut down costs this winter](#) – wbir.com, Nov 6, 2019.
- [New technology to help salt Knoxville roads in snow](#) – wbir.com, Dec 5, 2018.
- [A lidar-equipped truck knows exactly how much de-icer to apply on roads](#) – digitaltrends.com, Dec 12, 2018.
- [‘Femi’ has program for safer winter roads](#) – farragutpress.com, Dec 14, 2017.

THESIS
SUPERVISED

Ph.D. Committee Members

- Marc Fialkoff (Ph.D. Advisor: Rob Buehler) - May 2018
Department of Urban Affairs & Planning
Virginia Polytechnic Institute and State University
- Behailu B. Bekera (Ph.D. Advisor: Royce Francis) - May 2015
Department of Engineering Management and Systems Engineering
George Washington University

M.S. Committee Member

- Katherine E. Barnett (Thesis Advisor: Shima Mohebbi) - May 2020
(Won the Best M.S. Thesis Award in the School)
School of Industrial and Systems Engineering
University of Oklahoma

RESEARCH
MENTEES

Post-Doc Research Associate

- Dr. Melissa R. Allen (January 2015 - December 2016)
Ph.D. Energy Science and Engineering
University of Tennessee, Knoxville

Post-Master Research Associates

- Susan Kotikot (June 2017 - June 2019)
M.S. Earth System Science, University of Alabama at Huntsville
Now Ph.D. Student at Penn State University
- Parul Kaushal (January 2017 - May 2019)
M.S. Electrical Engineering, University of Tennessee, Knoxville
- Linda Sylvester (January 2015 - October 2017)
M.S. Earth Science, Purdue University

Post-Bachelor Research Associates

- Nicholas Roberts (October 2019 - Present)
B.S. Environmental Science, University of Alabama at Huntsville
- Thomaz M. Carvalhaes (May 2014 - May 2017)
B.S. Environmental Science, University of Michigan, Dearborn
- Jeffrey B. Kodysh (May 2011 - May 2013)
B.S. Geography, University of Toledo
- Brandon Blevins (November 2010 - July 2011)
B.A. Environmental Science, University of Tennessee, Knoxville

Graduate Student Interns

- Parul Kaushal (August 2016 - December 2016)
M.S. Student, Electrical Engineering, University of Tennessee, Knoxville
- Marc R. Fialkoff (June - August 2015; January - December 2016)
Ph.D. Student, Urban Affairs and Planning, Virginia Tech
- Hakeem Jones (June - August 2015)
Ph.D. Student, Computer Science, Clemson University
- Behailu B. Bekera (June - August 2014)
Ph.D. Student, Systems Engineering, The George Washington University
- Jason Bank (June - December 2009)
Ph.D. Student, Electrical Engineering, Virginia Tech

- Christopher Ian Lanclos (May - August 2012)
Ph.D. Student, Computer Science, Norfolk State University

Undergraduate Student Interns

- Jordan Pellett (May - August, 2019)
B.S. Student, Mathematics, Williams College
- Jack Sebring (May - August, 2019)
B.S. Student, Environmental Science
- Jordan Pellett (August - December, 2018)
B.S. Student, Mathematics, Williams College
(Jordan's research was awarded the Best Poster Award)
- Sydney Ishmael (June - August, 2018)
B.S. Student, University of Tennessee
- Gabriel Brookman (June - August, 2018)
B.S. Student, Carleton College
- Peter Lin (June - August, 2018)
B.S. Student, University of Florida
- Angela Burke (June - August 2017)
B.S. Student, Earth System Science, University of Alabama at Huntsville
- Jeb Gary (June - August 2017)
B.S. Student, Mechanical Engineering, Clemson University
- Connor Bihlmeyer (June - August 2017)
B.S. Student, Mechanical Engineering, University of Tennessee
- Adam Sisco (September - December 2016)
B.S. Student, Environmental Science, University of Alabama at Huntsville
- Fletcher Chapin (June - August 2016)
B.S. Student, Environmental Engineering, Cornell University
- Sang Jun Park (June - August 2016)
B.S. Student, Computer Science, Columbia University
- Dallas Hamlin (June - August 2016)
B.S. Student, Electrical Engineering, University of Tennessee
- Grant T. Powell (June - August 2015)
B.S. Student, Industrial and Systems Engineering, University of Tennessee
- David T. Herberich (June - August 2015)
B.S. Student, Industrial and Systems Engineering, University of Tennessee
- David Lu (June - August 2014)
B.S. Student, Computer Science, University of Tennessee
- Amy Albaugh (June - August 2014)
B.S. Student, Energy Science and Engineering, University of Tennessee
- Daniel Noteboom (June - August 2013)
B.S. Student, Computer and Engineering, University of Washington
- Christopher Scott Maness (October 2011 - May 2012)
B.S. Student, Computer Science, East Tennessee State University
- Amanda Noranzyk (June - August 2011)
B.S. Student, Mechanical Engineering, Clemson University

- Jeffrey B. Kodysh (June - August 2010; January - May 2011)
B.S. Student, Geography, University of Toledo
(Jeff's research outputs during this period was awarded 3rd Place in the Energy Category at the 2010 DOE's Science and Energy Research (SERCh) Competition at Argonne National Laboratory Chicago on November 15, 2010)
- Cornelius M. Singleton, Jr. (June - August 2010)
B.S. Student, Computer Science, South Carolina State University