

Olufolajimi (Jimi) B. Oke

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APPOINTMENTS

University of Massachusetts Amherst, MA

2019 – date *Assistant Professor:* Civil and Environmental Engineering
Director: Networks for Accessibility, Resilience & Sustainability Laboratory (NARS Lab)

Massachusetts Institute of Technology, Cambridge, MA

2016 – 2019 *Postdoctoral Associate:* Civil and Environmental Engineering (Advisor: Moshe Ben-Akiva)
Project Manager: Future Urban Mobility, MIT Energy Initiative Mobility of the Future Study

The Pennington School, Pennington, NJ

2011 – 2012 *Faculty:* Department of Mathematics; Center for Learning
2010 – 2011 *Teaching Fellow:* Center for Learning

EDUCATION

Johns Hopkins University, Baltimore, MD

2016 *Doctor of Philosophy:* Civil Engineering (Advisor: Sauleh Siddiqui)
2014 *Master of Science in Engineering:* Civil Engineering

Williams College, Williamstown, MA

2010 *Bachelor of Arts:* Physics, Music
 Honors Thesis in Physics (Advisor: Jefferson Strait)
 Senior Recital, Classical Guitar (Teacher: Robert Phelps)

FUNDING

2020 Massachusetts Department of Transportation (\$122,522), *Tracking and Reducing the Energy, Emissions and Costs of Rapid Transit Vehicles (TREEM), PI*
2019 Research Support Fund (\$1000), *Massachusetts Society of Professors*
2019 Flex Grant for Teaching/Faculty Development (\$500), *Center for Teaching & Learning, UMass Amherst*

AWARDS & FELLOWSHIPS

Massachusetts Institute of Technology

2019 Kaufman Teaching Certificate, *Teaching & Learning Lab*
2017 Postdoctoral Teaching Fellowship, *Department of Civil and Environmental Engineering*

- 2013 Half-tuition Scholarship: “Modeling and Simulation of Transportation Networks”, *MIT Professional Education Short Programs*

Johns Hopkins University

- 2015 Gordon Croft Fellowship, *Environment, Energy, Sustainability & Health Institute (E²SHI)*
 2015 Article selected for Promotion, Elsevier, *Journal article “Tracking global bicycle ownership patterns”*
 2015 Civil Engineering Graduate Service Award, *G.W.C. Whiting School of Engineering*
 2015 Teaching-as-Research Fellowship, *Center for the Integration of Research, Teaching and Learning*
 2013 Educational Training Core Traineeship, *Global Obesity Prevention Center*
 2012 Whiting School of Engineering Research Fellowship

Williams College

- 2010 Howard P. Stabler Prize in Physics
 2010 William W. Kleinhandler Prize for Excellence in Music
 2010 Sigma Xi Honors
 2008, 09 Williams College Summer Science Research Fellowship

PUBLICATIONS

Journal Papers [Peer Reviewed]

- [J12] B. Nahmias-Biran, **J. B. Oke**, N. Kumar, A. P. Akkinipally, C. L. Azevedo, P. C. Zegras, J. Ferreira, M. Ben-Akiva, *Who Benefits from AVs? Social Implications of Autonomous Vehicle Policies in Full-Scale Cities*, (In review, 2020).
- [J11] **J. B. Oke**, A. P. Akkinipally, S. Chen, Y. Xie, Y. M. Aboutaleb, B. Nahmias-Biran, C. L. Azevedo, C. Zegras, J. Ferreira, M. Ben-Akiva, *Simulation and Evaluation of Automated Mobility On-Demand Strategies in Dense Transit-Oriented Cities*, (In review, 2020).
- [J10] **J. B. Oke**, A. P. Akkinipally, S. Chen, Y. Xie, Y. M. Aboutaleb, C. L. Azevedo, C. Zegras, J. Ferreira, M. Ben-Akiva, *Evaluating systemic effects of automated on-demand services through large-scale, agent-based simulation of auto-dependent, prototype cities* Transportation Research Part A, (In press, 2020).
- [J9] D. A. Martinez, J. Cai, **J. B. Oke**, A. Jarrell, F. Feijoo, J. Appelbaum, E. Klein, S. Barnes, S. R. Levin, *Where is my Infusion Pump? Harnessing Network Dynamics for Improved Hospital Equipment Fleet Management*, *Journal of the American Medical Informatics Association*, 27(6): 884-892 (2020).
- [J8] B. Nahmias-Biran, **J. B. Oke**, N. Kumar, C. L. Azevedo, M. Ben-Akiva, *Evaluating the impacts of shared automated mobility on-demand: an activity-based accessibility approach*, *Transportation*, [10.1007/s11116-020-10106-y](https://doi.org/10.1007/s11116-020-10106-y) (2020).
- [J7] **J. B. Oke**, Y. M. Aboutaleb, C. L. Azevedo, Y. Han, A. Akkinipally, P. C. Zegras, J. Ferreira, M. E. Ben-Akiva, *A novel global urban typology framework for sustainable mobility futures*, *Environmental Research Letters*, 14(9), 95006 (2019).
- [J6] B. Nahmias-Biran, **J. B. Oke**, C. L. Azevedo, N. Kumar, A. Araldo, K. Basak, R. Seshadri, M. Ben-Akiva, *From traditional to automated mobility on demand: a comprehensive framework for modeling mobility on demand services in SimMobility*, *Transportation Research Record*, 2673(12), 15–29 (2019).
- [J5] **O. Oke**, D. Huppmann, M. Marshall, R. Poulton, S. Siddiqui, *Multimodal transportation flows in energy networks with an application to crude oil markets*, *Networks and Spatial Economics*, 19(2): 521-555 (2019).

- [J4] **O. Oke**, K. Bhalla, D. C. Love, S. Siddiqui, *Spatial associations in global bicycle ownership*, Annals of Operations Research, 263: 529-549 (2018).
- [J3] **O. Oke**, K. Bhalla, D. C. Love, S. Siddiqui, *Tracking global bicycle ownership patterns*, Journal of Transport and Health, 2(4): 490-501 (2015).
- [J2] **O. Oke**, S. Siddiqui, *Efficient automated schematic map drawing using multiobjective mixed integer programming*, Computers and Operations Research, 61:1-17 (2015).
- [J1] C. Chudzicki, **O. Oke**, W. K. Wootters, *Entanglement and Composite Bosons*, Physical Review Letters, 104(7):070402 (2010).

Conference Papers & Extended Abstracts [Peer Reviewed]

- [C5] A. Apostolov, **J. B. Oke**, *Investigating country-level activity and mobility patterns and their interdependencies on COVID-19 outcomes*, TRB Annual Meeting (2021).
- [C4] B. Nahmias-Biran, **J. B. Oke**, N. Kumar, *Activity-based contact network scaling and epidemic propagation in metropolitan areas*, TRB Annual Meeting (2021).
- [C3] B. Nahmias-Biran, **J. B. Oke**, N. Kumar, A. P. Akkinipally, C. L. Azevedo, P. C. Zegras, J. Ferreira, M. Ben-Akiva, *Who Benefits from AVs? Equity Aspects of Autonomous Vehicles Policies in a Full-Scale Prototype Cities*, TRB Annual Meeting (2020).
- [C2] E. Gross, **J. Oke**, A. P. Akkinipally, B. Nahmias-Biran, C. L. Azevedo, C. Zegras, J. Ferreira, M. Ben-Akiva, *Accessibility and energy consumption evaluation under different strategies of mobility on-demand deployment*, TRB Annual Meeting (2019).
- [C1] Y. Han, **J. Oke**, S. Hua, J. Zhou, C. L. Azevedo, C. Zegras, J. Ferreira, M. Ben-Akiva, *Global urban typology discovery with a latent class choice model*, TRB Annual Meeting (2018).

Working Papers

- [W2] Z. Han, **J. B. Oke**, *Sustainability of mass transit systems: a review* (2020).
- [W1] **O. Oke**, D. Huppmann, M. Marshall, R. Poulton, S. Siddiqui, *Mitigating environmental and public-safety risks of United States crude-by-rail transport*, DIW Discussion Papers, 1575 (2016).

Theses and Reports

- [R5] W. H. Green et al., *Insights Into Future Mobility: A Report from the Mobility of the Future Study*, MIT Energy Initiative, Cambridge, MA, November 2019.
- [R4] **O. Oke**, *Network modeling and optimization for energy and sustainable transit*, Doctoral Dissertation in Civil Engineering, Johns Hopkins University, May 2016.
- [R3] **J. Oke**, S. Siddiqui, K. Bhalla, D.C. Love, J. De Vito, M. Van Doren, Max Marshall, *Making Baltimore More Bike Friendly*, Department of Civil Engineering, Johns Hopkins University, March 2014.
- [R2] **O. Oke**, *Bicycling in Baltimore: key concerns*, Report (submitted to Baltimore DOT), Department of Civil Engineering, Johns Hopkins University, January 2013.
- [R1] **O. Oke**, *A nonlinear optical loop mirror modelocked fiber laser*, Honors Thesis in Physics, Williams College, May 2010.

COMMUNICATIONS

Invited Presentations

- [IP16] *Mobility and epidemics in urban typologies*, Diversity, Equity and Inclusion Seminar, Department of Civil and Environmental Engineering, Massachusetts Institute of Technology, MA, June 2020.
- [IP15] *Analysis of future mobility on-demand systems in global urban typologies*, INFORMS Annual Meeting, Seattle, WA, October 2019.
- [IP14] *New urban typologies for sustainable mobility*, Department of Civil and Environmental Engineering, University of Illinois Urbana-Champaign, IL, February 2019.
- [IP13] *New urban typologies for sustainable mobility*, Department of Civil and Environmental Engineering, University of Massachusetts Amherst, MA, February 2019.
- [IP12] *Discovering new urban typologies*, Department of Civil and Environmental Engineering, University of Pittsburgh, PA, January 2019.
- [IP11] *Discovering sustainable future urban mobility policies via simulation of prototype cities from global urban typologies*, Systematizing and upscaling urban solutions for climate change mitigation, Berlin, Germany, September 2018.
- [IP10] *Discovering Robust Urban Mobility Futures via Agent Based Simulation in Prototype Cities*, 7th TRB Innovations in Travel Modeling Conference, Atlanta, GA, June 2018.
- [IP9] *Need for and Uses of Risk Analysis: Technical approaches from the university perspective*, Risk Analysis Workshop, 7th TRB Innovations in Travel Modeling Conference, Atlanta, GA, June 2018.
- [IP8] *Urban mobility simulation for scenario discovery in globally representative prototypes*, Physics Colloquium, Department of Physics, Williams College, MA, October 2017.
- [IP7] *Exploring sustainable mobility strategies in future cities*, Log Lunch Series, Center for Environmental Studies, Williams College, MA, October 2017.
- [IP6] *A Crude Oil Market Model for the United States*, INFORMS Annual Meeting, Philadelphia, PA, November 2015.
- [IP5] *An Equilibrium Model of the US Crude Oil Market*, the 22nd International Symposium on Mathematical Programming, Pittsburgh, PA, July 2015.
- [IP4] *Redefining Infrastructural Space*, Environment, Energy, Sustainability & Health Institute Art/Science Roundtable, Maryland Institute College of Art, Baltimore, May 2015.
- [IP3] *Tracking Global Bicycle Ownership Patterns*, INFORMS Data Mining and Analytics Workshop, San Francisco, CA, November 2014.
- [IP2] *An efficient automated multiobjective programming approach to map schematization*, Systems/Policy/Energy Seminar, Johns Hopkins University, March 2014.
- [IP1] *A Mixed-integer Programming Tool for Creating Effective Schematic Urban Transit Maps*, INFORMS Annual Meeting, Minneapolis, MN, October 2013.

Contributed Presentations

- [CP8] *Assessing the energy impacts of automated on-demand service deployment strategies in sprawling, auto-dependent cities*, Transatlantic Infraday Conference, Federal Energy Research Commission, Washington, DC, November 2018.
- [CP7] *Discovering Urban Typologies For Future Mobility Scenarios In Prototype Cities*, INFORMS Annual Meeting, Houston, TX, October 2017.

- [CP6] *Analyzing United States Crude Oil Flows*, Transatlantic Infraday Conference, Federal Energy Research Commission, Washington, DC, October 2015.
- [CP5] *An Oil Market Model for the United States*, Modeling and Optimization: Theory and Applications, Lehigh University Department of Industrial and Systems Engineering, Bethlehem, PA, July 2015.
- [CP4] *Solving the Crude on Rail Problem using an Equilibrium Model of the US Crude Oil Market*, Critical Infrastructure Symposium, Linthicum, MD, April 2015.
- [CP3] *Global Bicycle Availability*, INFORMS Annual Meeting, San Francisco, CA, November 2014.
- [CP2] *Multiobjective optimization for automatic schematic map drawing*, Modeling and Optimization: Theory and Applications, Lehigh University Department of Industrial and Systems Engineering, Bethlehem, PA, August 2014.
- [CP1] *Schematic map automation and optimization*, Civil Engineering Graduate Seminar, Johns Hopkins University, November 2013.

TEACHING

University of Massachusetts Amherst, MA

Instructor, Department of Civil and Environmental Engineering

- Fall 2020 Probability & Statistics in Civil Engineering (Undergraduate)
60 students
- Spring 2020 Big Data and Machine Learning for Engineers (Graduate)
16 students; new course
- Fall 2019 Probability & Statistics in Civil Engineering (Undergraduate)
127 students

Massachusetts Institute of Technology, MA

Teaching Assistant, Department of Civil and Environmental Engineering

- Fall 2018 Transportation Systems Analysis: Demand and Economics (Graduate)
15 students, recitations, content development
- Summer 2018 Modeling and Simulation of Transportation Networks (Professional)
content development
- Fall 2017 Transportation Systems Analysis: Demand and Economics (Graduate)
25 students, recitations, content development, assessments

Teaching Fellow, Department of Civil and Environmental Engineering

- Spring 2016 Multivariate Data Analysis (Undergraduate)
16 students, recitations, lectures, Jupyter notebook development, innovative assessments, project

Johns Hopkins University, MD

Instructor, Hopkins Engineering Applications & Research Tutorials Program

- Fall 2015 Reality Distortion: The Impact and Automation of Schematic Maps (Undergraduate)
3 students, content development: GAMS, Python, optimization, visualization

Spring 2015 **Teaching-as-Research Fellow**, Department of Civil Engineering
Probability and Statistics in Civil Engineering (Undergraduate)
97 students, designed 12 applied MATLAB projects, surveys & focus group to measure impact

Oct 2013 **Teaching Assistant**, Department of Civil Engineering
Optimization and Equilibrium Modeling in Systems Engineering (Graduate, day-long)
11 students, GAMS installation and programming help

Spring 2013 Probability and Statistics in Civil Engineering (Undergraduate)
55 students, office hours, wrote and graded quizzes & exam problems

Fall 2012 Statics and Mechanics of Materials (Undergraduate)
110 students, taught 10 of 12 lab sections, assessed lab reports, course grade manager

The Pennington School, NJ

2011 – 2012 **Faculty Member**, Mathematics Department
Algebra II Honors, Precalculus (Course Leader)
developed innovative assessments, redesigned Precalculus curriculum

2010 – 2012 **Teaching Fellow – Faculty Member**, Center for Learning
Algebra II, Math Skills Tutorial, Writing Skills Tutorial, Communication Skills
small classes, students with learning differences, focused mentorship

Williams College, MA

2008 – 2010 **Physics Tutor**, Office of Academic Resources
Peer Tutor Program
one-on-one appointments several times a week

2007 – 2010 Math and Science Resource Center
walk-in/group sessions, 2-hour shifts, 2 – 4 times a week

Spring 2009 **Teaching Assistant**, Department of Physics
“Waves and Optics”
grading, homework assistance

Fall 2008 “Particles and Waves, Enriched”
grading, homework assistance

Fall 2007 **Teaching Assistant**, Department of Art
Drawing
studio manager, curated student work, occasional modeling

SERVICE

Graduate Research Mentorship

2020–date	Atanas Apostolov (MSCE ¹ , UMass Amherst)
2020–date	Zhuo Han (MSCE ¹ /PhD, UMass Amherst)
2018–19	Yifei Xie (MST ² , MIT)
2018–19	Siyu Chen (MST ² , MIT)
2017–18	Eytan Gross (MST ² , MIT 2018)
2017–19	Youssef Medhat (MST ² , MIT)
2017–18	Iveel Tsogsuren (MEng, MIT)
Summer 2017	Jin (Jasmine) Zhou (MA, Columbia University) ³
Spring 2017	Scott Foster (Leaders for Global Operations Fellow, MIT)
Fall 2016	Akshay Padmanabha (MEng, MIT)
2016–17	Sean Hua (MEng, MIT)
2016–17	Michael Choi (MEng, MIT)

Undergraduate Research Mentorship

Fall 2020	Hichul Chung (Independent Study, UMass Amherst)
Summer 2020	Adegbola Fayemi (College of Wooster)
2017–18	Sharlene Chiu (Super UROP ⁴ , MIT)
Spring 2017	Joseph Noszek (UROP ⁴ , MIT)
Spring 2017	Abenezer Samuel (UROP ⁴ , MIT)
Winter 2017	Gabriel Madonna (Mini UROP ⁴ , MIT)
2013–16	Max Marshall (JHU)
2014–15	Ricky Poulton (JHU)
2013–14	Molly Van Doren (JHU)

Internal Service, Department and School

2016–17	Civil & Environmental Engineering Postdoc Committee, Massachusetts Institute of Technology Member
2015–16	Homewood Graduate Board, Johns Hopkins University Graduate Representative, Whiting School of Engineering
2015–16	Civil Engineering Graduate Association, Johns Hopkins University President
2014–15	Social Coordinator (Founder)
2014–15	Graduate Seminars, Department of Civil Engineering, Johns Hopkins University Cochair (Systems track)
2013–14	Committee member

¹Masters of Science in Civil Engineering

²Masters of Science in Transportation

³Now PhD student at University of Southern California

⁴Undergraduate Research Opportunities Program

External Service

Manuscript Review

2020	Transportation Research Record
2019	Transportation Research Board
2018	Transportation Research Part A
2018	International Journal of Geographical Information Science
2018	Journal of Transport & Health
2017	International Journal of Sustainable Transportation
2017	Computational Optimization and Applications
2016	Optimization and Engineering
2015	IEEE Transactions on Power Systems
2014	INFORMS Data Mining & Analytics Workshop

Conference Organization

2017	Session Chair, INFORMS Annual Meeting
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Outreach

STEM Achievement in Baltimore Elementary Schools (SABES)

2014 – 16	Graduate Student Mentor
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Bicycling in Baltimore

2015	Contributor, Baltimore City Bicycle Master Plan 2015
2013	Project co-coordinator, “Making Baltimore More Bicycle Friendly”

Academic Affiliations

American Society of Civil Engineers (ASCE)

Association for Computing Machinery

Institute for Operations Research and Management Sciences (INFORMS)

Network Science Society