

## Jordan M. Wilson, PhD, PE

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CONTACT INFORMATION Department of Civil Engineering  
1 University Park Drive  
Nashville, Tennessee 37204 (615) 966-5179  
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APPOINTMENTS **Lipscomb University** Nashville, Tennessee  
Assistant Professor, Department of Civil Engineering 2021 – present

EDUCATION **Colorado State University** Fort Collins, Colorado  
Ph.D., Civil & Environmental Engineering 2014  
Dissertation: *An Evaluation and Parameterization of Stably Stratified Turbulence: Insights on the Atmospheric Boundary Layer and Implications for Wind Energy*  
Committee: Subhas Karan Venayagamoorthy, Thomas Birner, Paul Heyliger, Patrick Moriarty  
M.S., Civil & Environmental Engineering 2011  
Thesis: *Evaluation of Flow and Scalar Transport Characteristics of Small Public Drinking Water Disinfection Systems Using Computational Fluid Dynamics*  
Committee: Subhas Karan Venayagamoorthy, Timothy Gates, Ranil Wickramasinghe

**Lipscomb University** Nashville, Tennessee  
B.S., Mechanical Engineering, *Summa Cum Laude* 2009  
Minor in Applied Mathematics

TEACHING **Courses**  
Dynamics (Undergraduate)  
Fluid Mechanics (Undergraduate)  
Fluid Mechanics and Thermal Science (Lab, Undergraduate)  
Fundamentals of Civil Engineering Design (Undergraduate)  
Hydraulics (Lab, Undergraduate)  
Introduction to Engineering (Lab, Undergraduate)  
Introduction to Mechanical Engineering (Undergraduate)  
Mechanics of Materials (Lecture and Lab, Undergraduate)  
Statics (Undergraduate)  
Surveying and Geomatics (Undergraduate)  
Urban Hydrology and Hydraulic Systems (Undergraduate)

**Study Abroad**  
Wildlife Management and Human Ecology: The Zambia Project, Wildlands Studies  
*The Republic of Zambia, Africa*

PEER-REVIEWED PUBLICATIONS

1. **Wilson, J. M.** and Venayagamoorthy, S. K. (2015). A shear-based parameterization of turbulent mixing in the stable atmospheric boundary layer. *Journal of the Atmospheric Sciences*, 72, 1713–1726. doi:10.1175/JAS-D-14-0241.1.
2. **Wilson, J. M.**, Davis, C. J., Heyliger, P. R., and Venayagamoorthy, S. K. (2015). Comparisons of horizontal-axis wind turbine wake interaction models. *Journal of Solar Energy Engineering*, 137(3):031001-031001-8. doi:10.1115/1.4028914.
3. **Wilson, J. M.** and Venayagamoorthy, S. K. (2015). RANS modeling of stably stratified turbulent boundary layer flows in OpenFOAM<sup>®</sup>. *E3S Web of Conferences*, 5, 04003. doi:10.1051/e3sconf/20150504003.

4. **Wilson, J. M.**, and Venayagamoorthy, S. K. (2010). Evaluation of hydraulic efficiency of disinfection systems based on residence time distribution (RTD) curves. *Environmental Science and Technology*, 44(24), 9377–9382. doi:10.1021/es102861g.

## BOOK CHAPTERS

1. **Wilson, J. M.** and Venayagamoorthy, S. K. (2019). Optimization of Residence Time Distribution in Small Water Treatment Systems. In X. Liu & J. Zhang (Eds.), *Computational Fluid Dynamics: Applications in Water, Wastewater, and Stormwater Treatment* (pp. 123 – 130). ASCE, Virginia.

CONFERENCE  
PROCEEDINGS

1. **Wilson, J. M.**, Knatz, C. L., and McCorquodale, J. A. (2020). A Multi-Faceted CFD Evaluation of the Capacity Potential for an Existing Secondary Clarifier. In Proceedings of the *World Environmental and Water Resources Congress 2020*, ASCE, 154–167. doi:10.1061/9780784482988.016.
2. Taylor, Z., Xu, Q., **Wilson, J. M.**, and Venayagamoorthy, S. K. (2012). Computational modeling of baffled disinfection tanks. In Proceedings of the *World Environmental and Water Resources Congress 2012*, ASCE, 1280–1289. doi:10.1061/9780784412312.129.
3. **Wilson, J. M.**, and Venayagamoorthy, S. K. (2011). Hydraulics and mixing efficiency of small public water disinfection systems. In Proceedings of the *World Environmental and Water Resources Congress 2011*, ASCE, 243–253. doi:10.1061/41173(414)26.

## PRESENTATIONS

1. Allen, M., Knatz, C., Crawford, S., **Wilson, J. M.**, and Singh, R. (2022). Using CFD Modeling as a Tool for Enhancing Conventional Water Treatment Plant Design. 2022 AWWA ACE Conference, 12 – 15 June 2022, San Antonio, Texas, USA (oral presentation).
2. **Wilson, J. M.**, Knatz, C. L., and McCorquodale, J. A. (2021). A Multi-Faceted CFD Evaluation of the Capacity Potential for an Existing Secondary Clarifier. World Environmental and Water Resources Congress 2021, ASCE, 19–23 May 2021, Virtual (oral presentation).
3. Burdett, S. and **Wilson, J. M.** (2019). Advanced Trickling Filter Forced Air Ventilation System and Odor Control Design. 2019 Kentucky-Tennessee Water Professionals Conference, 18–23 August 2019, Louisville, Kentucky, USA (oral presentation).
4. Burdett, S. and **Wilson, J. M.** (2019). Advanced Trickling Filter Forced Air Ventilation System and Odor Control Design. 2019 Kentucky-Tennessee Water Professionals Conference, 18–23 August, Louisville, Kentucky, USA (oral presentation).
5. **Wilson, J. M.**, Knatz, C. L., and Allen, M. (2019). Optimizing Mixing Performance and Contact Time in Contact Basin Dechlorination Design. World Environmental and Water Resources Congress 2019, ASCE, 18–22 May 2019, Pittsburgh, Pennsylvania, USA (oral presentation).
6. Thornburrow, H. K., **Wilson, J. M.**, and Knatz, C. L. (2018). Hydraulic Efficiency Analysis of Contact Basins Using Computational Fluid Dynamics. 2018 American Waterworks Association (AWWA) Water Quality Treatment Conference, 11–15 November 2018, Toronto, Ontario, Canada (poster presentation, 3<sup>rd</sup> place award).
7. **Wilson, J. M.** (2018). Computational Fluid Dynamics Analysis of Water Treatment Structures. 2018 Kentucky-Tennessee Water Professionals Conference, 8–11 July 2018, Nashville, Tennessee, USA (oral presentation).
8. **Wilson, J. M.** and Lind, J. (2017). Surge Modeling in Nashville: Improving System Reliability by Understanding Surge. 2017 Kentucky-Tennessee Water Professionals Conference, 9–12 July 2017, Lexington, Kentucky, USA (oral presentation).

9. **Wilson, J. M.** and Venayagamoorthy, S. K. (2014). Towards improved turbulence model parameterizations of the stably stratified atmospheric boundary layer. 47th Annual Fall Meeting, American Geophysical Union, 15–19 December 2014, San Francisco, California, USA (poster presentation).
10. **Wilson, J. M.** and Venayagamoorthy, S. K. (2014). On parameterizing turbulence in the stably stratified atmospheric boundary layer. 67th Annual Meeting of the Division of Fluid Mechanics, American Physical Society, 22–25 November 2014, San Francisco, California, USA (oral presentation).
11. **Wilson, J. M.** (2014). RANS modeling of stably-stratified turbulent boundary layer flows in OpenFOAM. 2nd Symposium on OpenFOAM in Wind Energy. 19–20 May 2014, University of Colorado, Boulder, Colorado, USA (oral presentation).
12. **Wilson, J. M.**, and Venayagamoorthy, S. K. (2012). Evaluation of wind turbine wake interaction models in a RANS framework. 65th Annual Meeting of the Division of Fluid Mechanics, American Physical Society, 18–20 November 2012, San Diego, California, USA (oral presentation).
13. Taylor, Z., Xu, Q., **Wilson, J. M.**, and Venayagamoorthy, S. K. (2012). Computational modeling of baffled disinfection tanks. World Environmental and Water Resources Congress 2012, ASCE, 1280–1289. 20–24 May 2012, Albuquerque, New Mexico, USA (oral presentation).
14. **Wilson, J. M.**, and Venayagamoorthy, S. K. (2011). Hydraulics and mixing efficiency of small public water disinfection systems. World Environmental and Water Resources Congress 2011, ASCE, 22–26 May 2011, Palm Springs, California, USA (oral presentation).

PROFESSIONAL  
EXPERIENCE

**Water Resources Engineer** 2016 – 2023  
 CDM Smith Inc., Nashville, Tennessee  
 Primary focus areas included one-, two-, and three-dimensional hydraulic modeling of water, stormwater, and wastewater applications; hydrologic and hydraulic modeling of riverine systems; erosion and sedimentation; stream rehabilitation; water distribution system modeling; and municipal separate storm sewer system (MS4) permit program support.

RESEARCH  
EXPERIENCE

**Water Resources Engineer** 2016 – 2017  
 CDM Smith Inc.  
 Research & Development  
 Conducted extensive CFD simulations of contact basin tracer studies using high-performance computing (HPC) environment with the open-source CFD software OpenFOAM. The simulation results were compared with results from the commercial CFD software Ansys Fluent and was highlighted in internal webinars and presented at professional conferences.

**Graduate Research Assistant** 2009 – 2014  
 Environmental Fluid Mechanics Laboratory  
 Department of Civil & Environmental Engineering  
 Colorado State University  
 Supervisor: Subhas Karan Venayagamoorthy, PhD  
 Performed fundamental and applied research on turbulence model parameterizations for application to stably stratified flow (*Journal of the Atmospheric Sciences*, *E3S Web of Conferences*), numerical model representations and wake interactions of 5-MW wind turbines (*Journal of Solar Energy Engineering*), and disinfection efficiency of small water treatment systems (*Environmental Science and Technology*).

CERTIFICATIONS

**Licensed Professional Engineer**  
 Tennessee (License No. 124047)

AWARDS	Honorable Mention - Best Non-Peer Reviewed Technical Paper, CDM Smith Inc.	2020
SERVICE	<b>Discipline</b>	
	American Council of Engineering Companies (ACEC) <i>Water Resources Subcommittee</i>	2020 – 2021
	American Society of Civil Engineers (ASCE) <i>EWRI Task Committee on CFD Applications in Water, Wastewater, and Stormwater Treatment</i>	2015 – present
	Secretary (2020 – present)	
	ASCE/TSPE Civil PE Review Course Instructor, <i>Hydraulics</i>	2018 – present
	ASCE/TSPE Civil FE Review Course Instructor, <i>Hydrology and Hydraulics</i>	2021 – present
	American Society for Engineering Education	2021 – present
	Reviewer for <i>Journal of Environmental Engineering</i>	
	<b>University</b>	
	<i>Lipscomb University</i>	
	Student Scholar Symposium Faculty Advisor and Judge	2021 – present
	Faculty Senate Representative <i>Student Life Committee</i> <i>Academic Advisory Committee</i>	2022 – present
	<b>Departmental</b>	
	ASCE/UESI Student Symposium Surveying Competition Faculty Advisor	2022 – present
	ASCE Concrete Canoe Competition Team Technical Advisor	2021 – present