

Exponent®
Engineering & Scientific Consulting

August Young, Ph.D.

Associate | Thermal Sciences
Natick
+1-508-652-8568 | ayoung@exponent.com

Professional Profile

Dr. Young specializes in fluid mechanics and thermodynamics, with a strong focus on environmental applications. Her expertise includes experimental design, numerical modeling, and system analysis, particularly in the context of water treatment and sustainable systems.

Dr. Young's doctoral research at Duke University focused on pore-scale flow mechanisms to better understand how advection affects the transport of particulates in fully saturated media. Her work combined hydrodynamic modeling and laboratory experiments to optimize filtration and treatment technologies for environmental systems. This research emphasized improving filtration efficiency, reducing fouling, and enhancing system scalability.

In addition to her research background, Dr. Young has industry experience in designing and implementing off-grid sanitation systems. She led projects funded by the Bill and Melinda Gates Foundation, where she developed and tested mobile systems for remote deployment, conducted computational fluid dynamics (CFD) simulations, performed thermal analyses, and ensured compliance with ISO and ANSI standards for sanitation systems. Dr. Young also has experience designing flow loops and constructing custom experimental setups to collect precise data for system performance evaluation. Her expertise extends to biosolids handling and the use of particle size distribution equipment to assess and optimize treatment processes.

Dr. Young is also experienced in project management, including coordinating cross-functional teams, managing complex timelines, and collaborating with stakeholders to deliver effective engineering solutions. Her multidisciplinary background and technical expertise make her a valuable resource for projects involving fluid dynamics, heat transfer, and environmentally focused engineering challenges.

Academic Credentials & Professional Honors

M.S., Environmental Engineering, Duke University, 2023

Ph.D., Mechanical Engineering, Duke University, 2023

B.S., Mechanical Engineering, Tufts University, 2018

B.S., Physics, Tufts University, 2018

Licenses and Certifications

40-Hour Hazardous Waste Operation and Emergency Response Certification (HAZWOPER)

Certification in Design of Onsite Wastewater Treatment Systems by NOWRA

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PADI Certified Open Water Scuba Diver

Prior Experience

Project Manager, Biomass Controls, 2024

STEM Teaching Associate, The Chernik Group, 2024

Graduate Research Assistant, Duke University, 2018-2023

Mechanical Engineer, Biomass Controls, 2016-2018

Publications

Young, A.H.; Kabala, Z.J. Hydrodynamic Porosity: A New Perspective on Flow through Porous Media, Part I. Water 2024, 16, 2158. https://doi.org/10.3390/w16152158

Young, A.H.; Kabala, Z.J. Hydrodynamic Porosity: A New Perspective on Flow through Porous Media, Part II. Water 2024, 16, 2166. https://doi.org/10.3390/w16152166

Young, A.H.; Hotz, N.; Hawkins, B.T.; Kabala, Z.J. Inducing Deep Sweeps and Vortex Ejections on Patterned Membrane Surfaces to Mitigate Surface Fouling. Membranes 2024, 14, 21. https://doi.org/10.3390/membranes14010021

Myers, T., Schoebitz, L., Woolley, S., Sanchez Ferragut, J., Thostenson, J., Jooss, K., Piascik, J., Frechette, A., Hotz, N., Stoner, B. R., & Hallowell, J. (2019). Towards an off-grid fecal sludge treatment unit: demonstrating energy positive thermal treatment. Gates open research, 3, 1176. https://doi.org/10.12688/gatesopenres.12929.1

Presentations

Young, A.H.; Kabala, Z.J. Exploring Hydrodynamic Porosity and Its Applications to Groundwater Remediation. AEHS East: 39th Annual International Conference on Soils, Sediments, Water, and Energy, Amherst, MA, 2023.

Young, A.H.; Kabala, Z.J. Spatial Mapping of Hydrodynamic Porosity as a Function of Reynolds Number and Pore Scale Geometry.NC Water Resources Research Institute Annual Conference, Raleigh, NC, 2023.

Young, A.H.; Kabala, Z.J. Simulating the Hydrodynamic Nature of Porosity. Wolfram Technology Conference, Champaign, IL, 2022.

Young, A.H.; Ganti, Anil; Kabala, Z.J. Digital Fluid Mechanics Laboratory: Sudden Expansion Pressure Loss. Wolfram Technology Conference, Champaign, IL, 2022.

Young, A.H.; Kabala, Z.J. Reynolds Number Dependence of Pore-Scale Mixing Mechanisms in Rapidly Pulsed Pump and Treat Remediation. Poster presentation, AEHS East: 38th Annual International Conference on Soils, Sediments, Water, and Energy, Amherst, MA, 2022.

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