Exponent®
Engineering & Scientific Consulting

Pradeep Ramasubramanian, Ph.D.

Senior Associate | Mechanical Engineering
Seattle
+1-206-676-6916 | pramasubramanian@exponent.com

Professional Profile

Dr. Pradeep Ramasubramanian specializes in providing engineering solutions for indoor and outdoor air pollution problems. He has extensive experience in studying indoor air, specifically indoor heterogeneous and homogeneous chemistry and indoor particle and aerosol dynamics as well as experience in understanding urban pollutant fate and transport.

He has worked with mass spectrometers (PTR-TOF-MS, GC-MS), high-frequency anemometers, high-frequency open-path scalar analyzers, UV absorption-based ozone monitors, optical particle sizers (OPS) as well as condensation particle counters (CPC). Dr. Ramasubramanian is keenly interested in quantifying exposure to gas-phase pollutants, coarse and fine particulate matter, as well as virus/bacteria-laden aerosols. Aside from his indoor and outdoor air quality related work, he is also experienced with product design and development, including sheet metal fabrication, injection molding, and PCB/PCA enclosures.

Prior to joining Exponent, Dr. Ramasubramanian earned his doctorate in mechanical engineering at Portland State University, where he studied the effectiveness of air pollution mitigation systems on indoor occupants. His research focused on analyzing ozone mitigation mechanisms in the built environment, from in-situ measurements of ozone deposition to urban greenery and green roofs to modelled effectiveness of ozone mitigation methods applied at the breathing zone scale. In addition to his research on air pollution mitigation methods at PSU, Dr. Ramasubramanian contributed his expertise to projects involving multifractal analysis of variable density jets, liquid bridge break-up during zero-g pipetting, and human VOC characterization for improving human trafficking detection.

Dr. Ramasubramanian has worked as a design engineer with expertise in new product design and development. He has designed for and tested with firearms and has experience with the various failure modes of firearms. He also has experience in designing and testing wood and natural gas fired ovens and rotisseries for industrial kitchen applications as well as designing for plastic flow, injection molding, and PCB/PCA enclosures.

Academic Credentials & Professional Honors

Ph.D., Mechanical Engineering, Portland State University, 2022

M.S., Mechanical Engineering, Portland State University, 2018

B.S., Mechanical Engineering, California State University, Long Beach, 2013

Scholarships and Awards:

NSF-S-STEM Scholarship – Portland State University 2021

ASHRAE Grant-In-Aid Recipient - ASHRAE 2019

Green-Building Scholarship – Portland State University 2017, 2019

Prior Experience

Graduate Research Assistant – 2016-2022

Product Design Engineer, Crimson Trace Corporation, 2014–2016

Design Engineer, Jade – Beech Ovens Division, 2013–2014

Intern, Boeing BR&T, 2012–2013

Professional Affiliations

ASHRAE (member)

Patents

Issued:

US Patent 29, 573,019: Laser Device, 2016 (Ramasubramanian P, Johnston W).

Applied:

Application Number: 17/459,923 System and Method for a Wearable Air Filtration Device (Ramasubramanian P)

Publications

Ramasubramanian P., Luhung I., Lim SBY., Schuster SC., Starry O., Gall, ET. Impact of green and white roofs on air handler filters and indoor ventilation air. Building and Environment 2021; 197:107860.

Viggiano B., Sakradse G., Smith S., Mungin R., Ramasubramanian P., Ringle D., Travis K., Ali N., Solovitz S., Cal RB. Intermittent event evaluation through a multifractal approach for variable density jets. Chaos, Solitons & Fractals 2021; 146:110799.

Chin K., Laguerre A., Ramasubramanian P., Pleshakov D., Stephens B., Gall ET. Emerging investigator series: primary emissions, ozone reactivity, and byproduct emissions from building insulation materials. Environmental Science: Processes & Impacts 2019; 21:1255-1267.

Ramasubramanian P., Starry O., Rosenstiel T., Gall ET. Pilot study on the impact of green roofs on ozone levels near building ventilation air supply. Building and Environment 2019; 151:43–53.

Presentations

Ramasubramanian P., Luhung I., Lim SBY., Schuster SC., Starry O., Gall, ET. Impacts of rooftop vegetation on HVAC filter loadings and indoor air quality, AAAR Conference, Portland, OR, 2019

Sakradse G., Smith S., Viggiano B., Ramasubramanian P., Ringle D., Ali N., Solovitz S., Cal RB Multi-fractal properties in volcano-inspired variable density round jets, 71st Annual Meeting of the APS Division of Fluid Dynamics, Atlanta, GA, 208

Ramasubramanian P., Starry O., Rosenstiel T., Gall, ET Impact of green roof surfaces on O3 levels near building ventilation supply, Indoor Air Conference, Philadelphia, PA, 2018

Starry O., Aionne A., Ramasubramanian P., Gall, ET. Shopping Center Eco-roof as a Living Laboratory in Portland, OR. Cities Alive Conference, Seattle, WA, 2017.