Nathan R. Pavlovic

Lead Geospatial Data Scientist
Group Manager, Geospatial Data Science
R Resource Coordinator

Sonoma Technology

Mr. Pavlovic joined Sonoma Technology in 2015 and currently serves as Lead Geospatial Data Scientist and Group Manager of the Geospatial Data Science Group. He leads a team of data scientists in cutting-edge research projects and product development, focusing on geospatial data analysis, air pollution exposure assessment, and wildland fire. His leadership fosters a collaborative and innovative work environment, contributing to high-quality scientific output. Mr. Pavlovic is based in Sonoma Technology's Washington, D.C., office.

Education

- MS, Geography and Geographic Information Science, University of Illinois, Urbana-Champaign
- BA, Biology, Grinnell College

Memberships

- American Geophysical Union (AGU)
- International Society of Environmental Epidemiology (ISEE)

For a list of publications, see https://www.sonomatech.com/sites/default/files/ResPub/NRPpub_2.pdf.

Mr. Pavlovic has published over 25 peer-reviewed papers on air pollution and wildfires, geospatial analysis, and pollution impacts on human health and the environment. He has served as Principal Investigator (PI) or Co-Investigator (Co-I) for projects funded by the National Institutes of Health (NIH), the National Aeronautics and Space Administration (NASA), the Electric Power Research Institute (EPRI), and other clients. Across his work, Mr. Pavlovic collaborates with clients and stakeholders to deliver exceptional service and innovative solutions.

Central themes of Mr. Pavlovic's work include the use of data fusion, machine learning, and satellite data to better characterize air pollution and wildfire smoke. He leads the data science team that developed Sonoma Technology's ExactAQ air quality data fusion product, which uses geostatistical and machine learning methods to produce hyperlocal estimates of current and forecasted air pollution. In addition, he has used deep learning ensemble models and geostatistical models to estimate historical $PM_{2.5}$ concentrations for health exposure research, including wildfire smoke. To assess wildfire activity and air pollution impacts, he uses satellite detections of wildfires, retrievals of atmospheric pollutants, air quality modeling, and data fusion. Mr. Pavlovic also analyzes traffic data and develops transportation-related air pollution (TRAP) metrics, among a broad range of environmental exposures.

In collaboration with epidemiologists, Mr. Pavlovic supports studies on the health effects of air pollution exposure. This research has investigated the impacts of ambient air pollution broadly and from wildfires and TRAP specifically on a range of health outcomes, including birth and maternal outcomes, cardiometabolic health, autism, and COVID-19 infection. He has also studied the effects of atmospheric pollution on vegetation health across the United States under current and future conditions.

In addition to his work at Sonoma Technology, Mr. Pavlovic serves on the board of directors of OpenAQ and co-chairs the Group on Earth Observations (GEO) Health Community of Practice's Air Quality, Wildfires, and Respiratory Health Work Group. A life-long nature lover, he enjoys spending time outdoors with his spouse and children. Prior to joining Sonoma Technology, Mr. Pavlovic received a BA in Biology from Grinnell College and an MS in Geography and Geographic Information Science from the University of Illinois at Urbana-Champaign.