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RISHABH U. SHAH, Ph.D.

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CURRENT EMPLOYMENT

Air Quality Scientist — Aclima, San Francisco — **since Feb 2022**

- Development of new air quality data products as part of the data analysis and storytelling team
- Contributing to external facing reports, while grounding them in rigorous data science
- Contribute to regular operations (data review, calibration and performance evaluation of sensors)

PAST WORK EXPERIENCE

Senior Consultant 2 — Environment & Health Division, Ramboll — **2021 - 2022**
Air pollutant emission inventories, dispersion, health risk assessment, compliance and permitting

Postdoctoral Fellow, Atmospheric Science — Environmental Defense Fund, San Francisco — **2020 - 2021**
GIS modeling and mapping of large mobile air monitoring datasets in London, UK and Cangzhou, China

Research scientist — National Oceanic and Atmospheric Administration via University of Colorado Boulder — **2019 - 2020**
Instrument development, laboratory experiments to study atmospheric science

Postdoctoral researcher — Center for Atmospheric Particle Studies, Carnegie Mellon University — **2019**
Training graduate students on calibration, troubleshooting, maintenance of analytical instrumentation

Teaching assistant — Mechanical Engineering, Carnegie Mellon University — **2016 - 2017**
Engineering thermodynamics

Teaching assistant — Environmental Science, University of Illinois at Urbana-Champaign — **2014**
Environmental social science

SELECT PAST PROJECTS

Identifying hyperlocal sources of air pollution in urban areas — **2020 - 2021**

- Mapping of lung-deposited surface area and particulate matter in London, UK and Cangzhou, China
- Atmospheric science advisor on a new network of air pollution sensors in Mexico City

Quantifying environmental injustice in exposure to urban particulate matter — **2018 - 2020**

- Geospatial land-use covariate analyses of high-resolution air pollution measurements
- Spatial meshing of pollution data with publicly available census data to identify socioeconomic disparities

Mapping of particulate matter pollution in Oakland, CA — **2017 - 2019**

- Mobile air pollution sampling using high resolution mass spectrometry
- Source apportionment using positive matrix factorization
- Land-use regression modeling of pollutants to identify major sources and predict patterns

Identifying sources of reactive organic emissions in urban and industrial areas — **2018 - 2019**

- Mobile sampling of organic gas- and particle-phase air pollutants before and after simulated atmospheric chemical evolution
- Kinetic modeling of observations to quantify contributions from sources

Design of oxidation flow reactor to simulate atmospheric oxidation mechanisms — **2015 - 2017**

- Numerical modeling of flow and heat distribution in reactor geometries
- Laboratory experiments to characterize suitability of constructed reactor to simulate real-time atmospheric oxidation of air pollutants

Laboratory characterization of chemical evolution of biomass-burning emissions — **2014 - 2015**

- Design of custom instrumentation and experimentation for probing physical and chemical properties of pollutants emitted from biomass burning

PROFESSIONAL SKILLS

Technical	Air pollution and atmospheric science, geospatial and time series analyses, applied statistics, mass spectrometry, instrument development
Communication	Scientific writing, data visualization, distilling technical results for non-technical audience, college-level teaching
Software	*Data wrangling and coding:* R, SQL, Python (basic), Matlab *Geospatial analyses:* R, QGIS *Scientific writing:* LaTeX *Data visualization:* R, Veusz, Igor Pro

SELECT PUBLICATIONS *(for complete list, please visit my Google Scholar page)*

Identifying Patterns and Sources of Fine and Ultrafine Particulate Matter in London Using Mobile Measurements of Lung-Deposited Surface Area
Environmental Science and Technology 2022 [Link]

Socio-economic disparities in exposure to urban restaurant emissions are larger than for traffic
Environmental Research Letters 2020 [Link]

High-spatial-resolution mapping and source apportionment of aerosol composition in Oakland, California using mobile aerosol mass spectrometry
Atmospheric Chemistry and Physics 2018 [Link]

EDUCATION

Doctor of Philosophy, Mechanical Engineering **2015 - 2019**
Carnegie Mellon University, Pittsburgh, PA

Master of Science, Environmental Engineering **2013 - 2015**
University of Illinois at Urbana-Champaign, Urbana, IL

Bachelor of Engineering, Environmental Engineering **2009 - 2013**
L. D. College of Engineering, Gujarat Technological University, India

Select coursework: Air Quality Engineering, Air Quality Modeling, Air Pollutant Sensor Design, Air Quality Control, Physical Meteorology of the Atmosphere, Physical and Chemical Principles of Environmental Engineering, Numerical Methods in Engineering, Advanced Fluid Dynamics