Sahil Bhandari

Linkedin: in/sahilbh
737.444.0542|sahilb@utexas.edu

EDUCATION

PhD, Chemical Engineering **July 2020**
The University of Texas at Austin
Overall GPA: 3.95/4.00

Master of Technology (M.Tech.), Chemical Engineering **July 2015**
Indian Institute of Technology Kanpur, India
Overall GPA: 9.7/10.0

Bachelor of Technology (B.Tech.), Chemical Engineering **July 2015**
Indian Institute of Technology Kanpur, India
Overall GPA: 9.3/10.0

Dissertation
Quantifying the contributions of local and regional sources to air pollution exposure in large cities
Using pollutant data from high temporal resolution stationary mass spectrometers to investigate the spatiotemporal scales of sources of air pollution and their relevance to large and growing cities

WORK EXPERIENCE

Intern, Science and Technology Advancement, Air Quality Sensor Performance Evaluation Center, South Coast Air Quality Management District (South Coast AQMD), California June–Aug 2019

- Conducted experiments for **developing ASTM standards** for evaluation of low cost sensors for air quality applications
- Developed ambient aerosol hygroscopicity based theoretical corrections for low cost sensor data
- Evaluated differences between low cost sensor and reference instrument based **source apportionment of stationary and mobile measurements**
- Will present results at the 2019 AAAR and AGU conferences

Fellow/Graduate Student Grantee, UT Green Fund April 2017–present
Using our eyes in space to quantify emissions on University Lands

- **Secured grant** to develop **methane emission inventories** using satellite data
- Also investigating the **fat-tail phenomena** at different spatiotemporal resolutions

Exposure to air pollutants in UT shuttles and other microenvironments

- **Secured grant** to undertake an evaluation of pollutant levels in different microenvironments, including a **public transit service** in Central Texas
- Involves **gas and particle pollutant exposure** monitoring and geospatial mapping (ArcGIS)

RELEVANT PUBLICATIONS

- S. Bhandari et al. Sources and atmospheric dynamics of organic aerosol in New Delhi, India: Insights from receptor modeling, Atmospheric Chemistry and Physics Discussions (ACPD/ accepted with minor comments), Sept 2019.
- D. H. Hagan, J. H. Kroll, J. S. Apte, L. Hildebrandt Ruiz, S. Gani, S. Bhandari et al. Inferring aerosol sources from low-cost air quality sensor measurements: a case study in Delhi, India, ES&T Letters, July 2019.
- S. Gani, S. Bhandari et al. Submicron aerosol composition in the world's most polluted megacity: The Delhi Aerosol Supersite campaign, Atmospheric Chemistry and Physics (ACP), May 2019.
- S. Dhulipala, S. Bhandari, L. Hildebrandt Ruiz. Formation of oxidized organic compounds from Cl-initiated oxidation of toluene, Atmospheric Environment, February 2019.
- JK Bean, S. Bhandari, A. Bilotto, L. Hildebrandt Ruiz. Formation of particulate matter from the oxidation of evaporated hydraulic fracturing wastewater, Environmental Science & Technology (ES&T), March 2018.

- [Manuscript submitted]Z. Arub, S. Bhandari et al. Impact of air mass physicochemical characteristics on aerosol hygroscopicity and CCN formation over New Delhi, ACP.
- [Manuscript in preparation]S. Gani, S. Bhandari et al. Particle size distribution in a polluted megacity: The Delhi Aerosol Supersite campaign, ACP.

ACADEMIC EXPERIENCE

Graduate Research Assistant Dec 2013–July 2015, Aug 2015–Dec 2016, June 2017–present

The University of Texas at Austin

- Conducting a high time resolution mass spectrometer-based particle detection study for Delhi, India
- Performed **positive matrix factorization (PMF)** to identify pollution sources
- Visited Delhi five times for 3-6 weeks for field maintenance in the ongoing study
- **Maintaining reference grade** NOx and O3 monitors and a particle mass spectrometer at UT
- Ran SAPRC **box-model simulations** supporting experimental work of the Hildebrandt Ruiz group
- Expect at least **three first-author publications** and five second-author publications

Indian Institute of Technology Kanpur (IIT Kanpur)

- Developed **MATLAB** simulations to model electrorheological behavior at steady state
- Implemented techniques for capturing patterns in PDMS films without the use of image capture

Teaching Assistant Jan 2017–May 2017

The University of Texas at Austin

- Completed UT Intl. Teaching Assistant-Undergrad Teaching Ambassador Connect program
- Obtained **certification** for course **Numerical Methods and Problem Solving (in MATLAB)**
- Conducted **15 one hour tutorial sessions** for 120 undergraduate students for one semester

SKILLS IN PRACTICE

- **Atmospheric models**-PMF, ME-2, SAPRC (CB6), E-AIM, ISORROPIA, VBS, HYSPLIT, ZeFir
- **Software**-Proficient in IGOR, MATLAB, possess working knowledge of ArcGIS, ERDAS Imagine, and familiarized with FORTRAN and LaTeX
- **Instrumentation**-Particle phase: ACSM, SMPS, Thermodenuder, Gas phase: CIMS, NOx, O3
- **Grant Writing**-Awarded the 2017 and 2018 UT Green Fund awards (awarded to 10 students a year)

RELEVANT GRADUATE COURSEWORK

- Energy Technology & Policy Spring 2018
- Introduction to Remote Sensing of Environment Fall 2016
- Introduction to GIS for Public Affairs Spring 2016
- Atmospheric Physicochemical Processes Fall 2015

AWARDS

- Recipient, Green Fund fellowship, UT Austin, for consecutive years 2017–18 and 2018–19
- Recipient, Professional Development Award, Cockrell School of Engineering, UT Austin, Fall 2018
- Recipient, International Education Fee Scholarship, UT Austin, Fall 2018
- First Prize, UT Energy Week Poster Competition, Environmental & Sustainability. Spring 2018
- Recipient, Dr. Thomas F. Edgar Endowed Graduate Fellowship in Chemical Engineering 2015–16
- PG scholarship for M.Tech. from AICTE, Ministry of Human Resource Development, Govt. of India 2014–2015

ACTIVITIES

- Session Chair, Urban Aerosols: Chemical characterization of urban aerosols around the globe, annual meeting of American Association for Aerosol Research, Portland, Oregon Oct 2019
- University-Wide Grant Reviewer, Green Fund Committee, UT Austin 2018–present
- Active member, American Association for Aerosol Research (AAAR) 2016–present
- Mentor, Women in Engineering Program 2016–present