

Faraz E. Ahangar

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<https://ahangar.github.io>

EDUCATION

Ph.D. Mechanical Engineering

University of California Riverside

M.S. Mechanical Engineering

University of California Riverside

B.S. Mechanical Engineering

Sharif University of Technology (Iran)

SKILLS

Programming Languages: Python, R, MATLAB, C#, SQL, VBA, JavaScript

Modeling and Design: Tableau, ArcGIS Pro, QGIS, JMP, SolidWorks, AutoCAD, ANSYS, HTML, CSS

SELECTED CERTIFICATES

Applied Data Science with Python Specialization University of Michigan

Tableau for Data Scientists, LinkedIn Learning

Engineer in Training (PE Exam Passed), Board for Professional Engineers, Land Surveyors, and Geologists

WORK EXPERIENCE

South Coast Air Quality Management District

Air Quality Specialist

Diamond Bar

2019- present

Managed air quality monitoring and analysis for the Assembly Bill 617 Community Air Protection Program.

Conducted data mining and preparation on large, high-dimensional datasets from various sources. Developed machine learning, statistical, and physical models for pattern recognition, anomaly detection, and feature importance analysis. Designed interactive data dashboards, story maps, and other visualization solutions to effectively communicate findings to both technical and non-technical audiences. Authored regulatory reports and peer-reviewed articles. Supervised interns and explored new tools for data analysis and visualization.

University of California, Riverside

Research/Teaching Assistant

Riverside, CA

2014 - 2018

Conducted Design of Experiments to quantify the impact of highway geometries on air pollution dispersion through probabilistic and regression models. Developed tools for air quality measurements, data acquisition, and management. Served as a class instructor and assistant, leading discussion sections, lectures, labs, and exams for courses including Mechanical Engineering Modeling and Analysis, Transport Phenomena, Mechanics of Materials, Dynamics, and Introduction to Engineering Computation.

Los Angeles Department of Water and Power (Energy Reconciliation Group)

Student Engineer

Los Angeles, CA

2017- 2018

Designed and managed structural databases; performed trend analysis and predictive modeling to optimize the procedures and revenue; developed internal apps and websites in collaboration with the IT department; wrote regulatory reports.

SELECTED PROJECTS

MATES V Multiple Air Toxics Exposure Study. South Coast Air Quality Management District (2019-2021)

Characterizing long-term regional air toxics levels in residential and commercial areas. ([final report](#))

Climate Impact of Manure Management from California Dairies. Funded by UCR (2018-2019) ([published paper](#))

Satellite-Derived PM2.5 Grids with Dispersion Model Downscaling: A Method to Generate Continuous Long-Term Fine Particulate Data for Community-Scale Air Quality Health Research. Funded by NASA Earth Sciences Division Applied Sciences Program (2017-2018) ([published paper](#))

Time-of-Use Study. Los Angeles Department of Water and Power (2017-2018)

Historical data analysis to suggest a new time-of-use period for electricity rates of LADWP.

Effectiveness of Sound Wall-Vegetation Combination Barriers as Near-Roadway Pollutant Mitigation Strategies. Funded by California Air Resource Board (2014-2017) ([final report](#))

DATA ANALYSIS & VISUALIZATION PORTFOLIO

2022 Independence Day Fireworks Air Quality Assessment, analysis of air quality levels during fireworks and comparison to historical trends in South Coast AQMD jurisdiction using Tableau ([link](#))

Mobile Monitoring Dashboard, visualizing air quality mobile monitoring results in environmental justice communities; data cleaning, manipulation, aggregation, and visualization were conducted using R packages ([link](#))

AB 617 Air Monitoring Trend Analysis Dashboard, data analysis dashboard for environmental justice communities; data analysis and visualization were conducted using Tableau, Python, and JMP ([link1](#), [link2](#))

Air Monitoring Progress Update – San Bernardino, Muscoy Community, an interactive summary of AB 617 monitoring activities in the San Bernardino, Muscoy community ([link](#))

SELECTED HONORS AND AWARDS

Dissertation Year Program Fellowship, University of California, Riverside (2018)

Graduate Dean's Dissertation Research Grant, University of California, Riverside (2018)

Outstanding Teaching Assistant Award, University of California, Riverside (2016 and 2018)

Green Grant (G3), UCR Graduate Student Association (2017)

NCST Graduate Fellowship, National Center for Sustainable Transportation (2016)

Chancellor's Distinguished Fellowship, University of California, Riverside (2013)

National Elite Foundation Fellowship, Sharif University of Technology (2008)

Gold Medal, 12th International Astronomy Olympiad, Simeiz, Crimea (2007)

SELECTED PUBLICATIONS

Ahangar et al. 2022 *Combining Regulatory Instruments and Low-Cost Sensors to Quantify the Effects of 2020 California Wildfires on PM_{2.5} in San Joaquin Valley*. Fire 5.3: 64.

Ahangar et al. 2021. *Long-term trends of PM_{2.5} and its carbon content in the South Coast Air Basin: A focus on the impact of wildfires*. Atmospheric Environment, 255, p.118431.

Ahangar et al. 2019. *Using low-cost air quality sensor networks to improve the spatial and temporal resolution of concentration maps*. International journal of environmental research and public health, 16(7), p.1252.

Ahangar et al. 2017. *Reduction of Air Pollution Levels Downwind of a Road With an Upwind Noise Barrier*. Atmos. Environ. 155, 1-10.

SELECTED CONFERENCES & PROCEEDINGS

Ahangar et al. *Elemental Versus Black Carbon: Are They Interchangeable? Insights from Extensive Measurement Campaigns in Southern California*. In AAAR 38th Annual Conference, October 18-22, 2021

Ahangar et al. *Using Vegetation to Enhance the Impact of Solid Barriers on Near-road Air Pollution*, in A&WMA's 110th Annual Conference & Exhibition, June 5-8, 2017.

PROFESSIONAL ASSOCIATIONS

The American Association for Aerosol Research

Air & Waste Management Association

LEADERSHIP & SERVICE EXPERIENCE

Manuscript Reviewer, Atmosphere (MDPI), Atmospheric Chemistry and Physics (2021 - present)

Mechanical Engineering Graduate Student Association Webmaster /Sustainability and Communication Officer, University of California, Riverside, CA (2016 – 2018)

Head of Observational Astronomy Committee, National Astronomy Olympiad Summer School, Young Scholars Club, Tehran, Iran (2012 – 2013)