

Nima Khorshidian

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Education

University of Houston

Ph.D., Atmospheric Sciences and Meteorology,

Advisor: Dr. Yunsoo Choi

Houston, U.S.

Aug. 2022 – Present

Sharif University of Technology

M.Sc., Aerospace Engineering,

Thesis: Investigation of Reduced Frequency Effects on the Aerodynamic Efficiency of a New Wind Turbine Blade Section in Pitching Motion

Tehran, Iran

Sep. 2014 – Jan. 2017

Shiraz University

B.Sc., Mechanical Engineering,

Thesis: CFD Analysis of Micron Particles Deposition in a Human Tracheobronchial Model

Shiraz, Iran

Sep. 2008 – Sep. 2013

Professional Experience

University of Houston

Graduate Research Assistant

Houston, USA

Aug. 2022 – Present

- Leading a Department of Energy (DOE)-funded project utilizing a novel data assimilation approach to investigate aerosol-cloud interactions with the ARM's TRACER campaign datasets and a fine-resolution WRF-Chem model with the Spectral Bin Microphysics (SBM) scheme. Key objectives involve investigating aerosol particle roles in the formation of cloud condensation nuclei (CCN) and impacts on cloud microphysics and precipitation; comparing aerosol effects as CCN on convective strength intensification in the boundary layer and lower free troposphere; evaluating cloud influences on aerosol particles and formation of secondary aerosols, and assessing aerosol particle effects on cloud radiative forcing.
- Contributed to a project funded by the Coordinating Research Council (CRC) investigating the benefits of electric vehicles and emission controls in US cities, using advanced simulations to assess impacts on PM_{2.5} and ozone levels.
- Participated in a NASA-supported study analyzing the effects of the Williams Flats wildfire on downwind ozone concentrations, utilizing WRF-Chem/DART assimilation of satellite data.
- Collaborated on a NASA-funded project analyzing surface ozone trends and health impacts across the US from 1991-2020, focusing on regional ozone changes and their implications for public health policies.

Shining Copper Processing Co.

Mechanical Engineer

Tehran, Iran

Jul. 2019 – Jul. 2022

- Collaborated on the engineering design and construction of a 700 tph copper flotation plant and a 1000 tph High Pressure Grinding Roll factory.

Publications

1. Payami, M., Mousavinezhad, S., Choi, Y., & **Khorshidian, N.** (2025). Potential Impact of Vehicle Electrification on Greenhouse Gases and Criteria Pollutants in 2035: A Scenario-Based Well-to-Wheel Analysis for New York City, Los Angeles, Chicago, and Houston Using GREET-MOVES Integration.

Environmental Pollution, 126061. DOI: 10.1016/j.envpol.2025.126061

2. **Khorshidian, N.**, Choi, Y., Mousavinezhad, S., Pouyaei, A., Park, J., & Fan, J. (2024). Comparing the interactions between particulate matter and cloud properties over two populated cities in Texas using WRF-Chem fine-resolution modeling. *Atmospheric Environment*, 338, 120795. DOI: 10.1016/j.atmosenv.2024.120795
3. Mousavinezhad, S., Choi, Y., **Khorshidian, N.**, Ghahremanloo, M., & Momeni, M. (2024). Air quality and health co-benefits of vehicle electrification and emission controls in the most populated United States urban hubs: Insights from New York, Los Angeles, Chicago, and Houston. *Science of The Total Environment*, 912, 169577. DOI: 10.1016/j.scitotenv.2023.169577
4. Pouyaei, A., Mizzi, A. P., Choi, Y., Mousavinezhad, S., & **Khorshidian, N.** (2023). Downwind ozone changes of the 2019 Williams flats wildfire: Insights from WRF-chem/DART assimilation of OMI NO₂, HCHO, and MODIS AOD retrievals. *Journal of Geophysical Research: Atmospheres*, 128(11), e2022JD038019. DOI: 10.1029/2022JD038019
5. Mousavinezhad, S., Ghahremanloo, M., Choi, Y., Pouyaei, A., **Khorshidian, N.**, & Sadeghi, B. (2023). Surface ozone trends and related mortality across the climate regions of the contiguous United States during the most recent climate period, 1991–2020. *Atmospheric Environment*, 300, 119693. DOI: 10.1016/j.atmosenv.2023.119693

Honors & Awards

- **First Place Award** for poster presentation in Advanced Ph.D. in Atmospheric Sciences Category, *26th Annual Robert E. Sheriff Lecture* (Nov. 2024)
- **Travel and Participation Award** for presenting a talk at *TACCSTER 2024, University of Texas at Austin* (Sep. 2024)
- **Scholarship Award** for outstanding graduate work in atmospheric sciences, *University of Houston* (2024)
- **First Place Award** in M.S. and first-year Ph.D. student talks, *36th Annual EAS Student Research Conference, University of Houston* (Apr. 2023)
- **Scholarship Award** for early Ph.D. work in atmospheric sciences, *University of Houston* (2023)
- **Full Scholarship** for Graduate Program, *Sharif University of Technology* (2014)
- **Full Scholarship** for Undergraduate Program, *Shiraz University* (2008)

Technical Skills

Programming Languages: Python, FORTRAN, MATLAB, C++

Atmospheric Modeling: WRF, WRF-Chem, CMAQ

CFD Modeling: ANSYS Fluent, OpenFOAM

CAD Software: SolidWorks, AutoCAD

Data Formats: NetCDF, GRIB, HDF

Data assimilation: 3DVAR

Scripting languages: csh, Bash