YICEN LIU

(217) 200-2924 | yicenl2@illinois.edu | yicenl2.github.io | yicenl2 | yicen-liu-303a9b222

EDUCATION

University of Illinois Urbana-Champaign | Ph.D. | Environmental Engineering | GPA: 3.94/4 09/2021-12/2025

- Concentration in Computer Science and Engineering
- Core courses: Water Quality Engineering & Control, Env Eng Principles-Chemical/Physical/Biological, Air Pollution Control, Aerosol Sampling and Analysis, Public Health Engineering, etc.

University of Illinois Urbana-Champaign | M.S. | Environmental Engineering 09/2020-05/2021

Tongji University (China) | B.S. | Environmental Science 09/2016-05/2020

SKILLS

[1] **Programming**: Python (Numpy, Scipy, Pandas, Matplotlib, Plotly, Seaborn, etc.), Fortran, R, C/C++, C#, MATLAB, Julia

[2] **Modeling**: AERMOD, E-AIM, BioWin, Vminteq, WRF, PartMC, MOSAIC, CAMP

[3] **Tools**: Git/GitHub, Linux, Bash/Shell, HTML/CSS, LaTex

PUBLICATIONS

https://yicenl2.github.io/publications/

WORKING EXPERIENCE

Urban Planning and Design, Kunshan, Jiangsu 2019

- Conducted a field survey to point out issues in urban water supply and sewage treatment.
- Tested water quality of effluents from industries, communities, and retail stores.
- Collaborated in a technical assistance project to provided suggestions on pipeline network design to ensure water supply safety.

RESEARCH EXPERIENCE

Research Assistant 2020-Present

Quantifying the impact of aerosol mixing state on heterogeneous N_2O_5 hydrolysis

- Developed and optimized algorithms to compute the reaction probability of N_2O_5 (γ_{N2O5}) within the particle-resolved modeling framework (PartMC-MOSAIC); improved the model to allow users to select parameterization method for γ_{N2O5}.
- Designed scenario libraries for systematic assessment of errors introduced by using simplified aerosol representations in climate/air quality models; leveraged parallel simulations with MPI to run over 10,000 scenarios and analyzed the results using Python and scientific computing tools.
- Proposed a new parameter to assist the analysis on the impact of aerosol mixing state on heterogeneous N_2O_5 hydrolysis; performed sensitivity analysis to investigate its impact on the prediction of ambient gas/aerosol species.

CEE REU Program

Analyzing atmospheric particle composition with instruments 2019-2020

- Tested the chemical composition of of aerosol samples; measured the concentrations of inorganic ions (e.g., ammonium) using spectrophotometer and OC/BC content using a thermal/optical transmittance (TOT) analyzer.
- Investigated the spatial-temporal distribution of atmospheric particles in the Midwest US.

PROJECTS

Evaluation and assessment of SO_2 emissions from the Gibson Power Plant | Course Project 2022

- Evaluated the current operational practices of the Gibson Power Plant to identify areas for improvement.
- Modeled SO_2 emissions using AERMOD to predict air quality impacts and assess regulatory compliance.
- Developed code to calculate evaluation statistics and generate visualizations for data analysis.