

Chen Chen

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EDUCATION

Ph.D. in Environmental Engineering
Rice University

Expect May 2025
Houston, Texas

Master of Environmental Sciences
Emory University

Dec 2018
Atlanta, Georgia

Bachelor of Science in Marine Science/Chemistry
University of Miami

May 2016
Coral Gables, Florida

PROFESSIONAL EXPERIENCE

Summer Associate – Energy Assessment

June 2022 – August 2022

EDP Renewables

Houston, TX

- Developed models and algorithm to uncover data insights from operational wind turbine data and meteorology data.
- Explored the statistical relationship between the turbine power and environment variables.
- Optimized wind farm operation to minimize wake effects via historical SCADA data.

Data Analyst

May 2019 – June 2021

Center on Rural Innovation (CORI)

Hartland, VT

- Maintained and kept updating over 300 datasets for the organization in SQL database.
- Applied data analyzing and machine learning to tackle the economic struggles in the rural America.
- Led and created the Digital Economy Ecosystem web tool using R Shiny App.
- Organized, extrapolated, and disseminated data to build Rural Opportunity Maps to highlight the opportunities for rural America.
- Combined broadband data with socioeconomic data to identify broadband underserved school districts when students were tackling remote learning under COVID-19.
- Created statistical models and data visualizations to address the critical health issues in rural America including opioid overdose, death of despair, and COVID-19.
- Worked with Mastercard, LinkedIn, Brookings Institution, Wall Street Journal, Boston Globe, etc. on data collaboration.

Marine Research Fellow

May 2018 – May 2019

International Council on Clean Transportation (ICCT)

Washington, DC

- Developed intricate python algorithms to clean and analyze the hourly ship activity data for all ocean-going vessels in 2015 and 2017.
- Improved the model to estimate the ship emissions from the cleaned ship activity data.
- Managed and maintained the in-house SQL database system and cloud (AWS) database.
- Ran the Fortran-based air quality model (WRF-Chem) to predict the air quality in China.

- Visualized the environmental impacts from the marine and aviation sectors.
- Evaluated short-term measures by ship operators for the purpose of greenhouse gas (GHG) emission reduction.
- Estimated the health benefits from the ship Emission Control Area (ECA) in the Pearl River Delta (PRD), China.
- Evaluated the wind-assist and air lubrication technologies in achieving the GHG emission reduction from ocean-going vessels.
- Designed a web tool to visualize the environmental impacts from recreational ships in Arctic.
- On behalf of environmental NGOs, attended Marine Environment Protection Committee (MEPC), 74th session hosted by the International Maritime Organization in London, UK.
- Coordinated 5th workshop on marine black carbon emissions hosted by the ICCT.

Geographic Analyst

Dec 2017 – May 2018

Emory Center for Digital Scholarship

Atlanta, GA

- Designed, maintained and updated GIS geodatabases and produced highly accurate maps.
- Used Python and GIS-related packages to speed up geospatial analysis with batch processing.
- Analyzed geospatial data including NASA Landsat satellite imagery, MODIS, LiDAR, NAIP aerial imagery and drone imagery.
- Created a highly accurate Land Cover geospatial layer for the entire Georgia coast.
- Developed and improved the geographic websites including *The Georgia Coast Atlas* and *Urban Atlanta Development*.
- Collected multimedia data by using high-standard drones on the Georgia coastal islands.

Summer Intern

May 2015 – Aug 2015

Second Institute of Oceanography

Hangzhou, Zhejiang, China

- Collected research quality seawater and mud samples in the estuary of the East China Sea.
- Performed carbon system analysis on seawater samples from the Antarctic Ocean, South China Sea and East China Sea. Analysis focused on pH, TA, DIC, DOC and POC.

RESEARCH EXPERIENCE

PhD Graduate Assistant

Aug 2021 – Current

Rice University Civil and Environmental Engineering Department

Houston, TX

- Applied air quality and health models to estimated social impacts caused by gas flaring from oil and gas fields across the United States.
- Explored the potential geothermal capacity in the path of energy transition in the United States.

Master Thesis Research

Jun 2017 – Dec 2018

Emory University Environmental Sciences Department

Atlanta, GA

- Conducted air quality modeling (WRF-Chem) to foresee the impacts of ship emissions in China.

- Analyzed and visualized 4-D meteorological data pollutant concentration data from WRF-Chem.
- Collected and analyzed the satellite-based remote sensing data to facilitate the aerosol research.
- Estimated health impacts from degraded air quality by a mature mortality analysis.

SKILLS

- Data analysis: R, Python, GAMS, Julia, PostgreSQL, Matlab, Machine Learning
- GIS analysis: ArcGIS, PostGIS, CartoDB, QGIS, Leaflet, Mapbox
- Programming skills: JavaScript, Fortran, HTML/CSS, IDL, NCL
- Other software: Microsoft Suite, WordPress, Tableau, LaTeX, WRF, WRF-Chem

PUBLICATIONS

- **Chen, C.**, McCabe, D.C., Fleischman, L.E., Cohan, D.S. Black Carbon Emissions and Associated Health Impacts of Gas Flaring in the United States. *Atmosphere* 2022, 13, 385. <https://doi.org/10.3390/atmos13030385>
- **Chen, C.**, Saikawa, E., Comer, B., Mao, X., & Rutherford, D. (2019). Ship emission impacts on air quality and human health in the Pearl River Delta (PRD) region, China, in 2015, with projections to 2030. *GeoHealth*, 3, 284– 306. <https://doi.org/10.1029/2019GH000183>
- Zhong, M., Saikawa, E., Avramov, A., **Chen, C.**, Sun, B., Ye, W., Keene, W. C., Yokelson, R. J., Jayarathne, T., Stone, E. A., Rupakheti, M., and Panday, A. K. (2019). Nepal Ambient Monitoring and Source Testing Experiment (NAMaSTE): Emissions of particulate matter and sulfur dioxide from vehicles and brick kilns and their impacts on air quality in the Kathmandu Valley, Nepal. *Atmospheric Chemistry and Physics*, 19(12), 8209-8228. <https://doi.org/10.5194/acp-19-8209-2019>
- Xiaoli, M., **Chen, C.**, Comer, B., & Rutherford, D. (2019). Costs and benefits of a Pearl River Delta Emission Control Area. *The International Council on Clean Transportation.*, <https://theicct.org/publications/pearl-river-delta-eca-201907>
- Comer, B., **Chen, C.**, Stolz, D., & Rutherford, D. (2019). Rotors and bubbles: Route-based assessment of innovative technologies to reduce ship fuel consumption and emissions. *The International Council on Clean Transportation.*, <https://theicct.org/publications/working-paper-imo-rotorships>
- Comer, B., **Chen, C.**, & Rutherford, D. (2018) Relating short-term measures to IMO's minimum 2050 emissions reduction target. *The International Council on Clean Transportation.*, <https://www.theicct.org/publications/short-term-measures-IMO-emissions>.
- Rutherford, D., Graver, B., **Chen, C.** (2019) Noise and climate impacts of an unconstrained commercial supersonic network. *The International Council on Clean Transportation.*, <https://www.theicct.org/publications/noise-climate-impacts-unconstrained-supersonics>.

MAP PRODUCTS

- The Georgia Coast Atlas., <http://georgiacoastatlas.org/>
- Heavy Fuel Oil use in the Arctic region., <https://www.cleanupcarnival.com/map-launch/>
- Digital Economy Ecosystem Explorer., <https://ruralinnovation.shinyapps.io/top-shiny/>

- The Rural Opportunity Map., <https://ruralopportunitymap.us/maps/>
- Covid-19 Preparedness Scores., <https://www.statnews.com/feature/coronavirus/county-preparedness-scores/>
- COVID-19 Maps and Visualization Tools., <https://ruralopportunitymap.us/covid-maps/>

HONORS

- 2022 H.W. Reeves Endowed Scholarship
- University of Miami Provost's Honor Roll
- University of Miami Honor Roll
- University of Miami Dean's List
- Departmental Honors in Marine and Atmospheric Science Program
- ICCT Research Fellowship
- 2022 H. W. Reeves Endowed Scholarship
- Ken Kennedy Institute 2022/23 Scott Morton Memorial Graduate Fellowship