Ruozhang (Tammy) Xu

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EDUCATION

University of North Carolina, Gillings School of Global Public Health – Chapel Hill, NC 2020
Master of Science in Public Health in Environmental Sciences and Engineering
Advisor: Dr. Jason West and Dr. Marc Serre
Focus: human health risk assessment, environmental exposure assessment, space/time geostatistical modeling, statistical methods, geospatial analysis, epidemiology
***Honors*:** Master's thesis funded by National Aeronautics and Space Administration (NASA)
***GPA*:** 3.88/4.0 (with H=4.0, P=3.0, and L=2.0)

Bachelor of Science in Environmental Sciences; Minor: Geography 2018
Studied abroad Spring 2016: **King Mongkut's University of Technology North Bangkok (KMUTT)** - Bangkok, Thailand

EXPERIENCE

Research Specialist, Institute for Immunology
PENN MEDICINE, UPENN HEALTH SYSTEM - Philadelphia, PA Aug 2020-present

- Using mass cytometry (CyTOF) and computational biology to define how microbes drive abnormal T Cell responses in rheumatoid arthritis at the Perelman School of Medicine and Hospital of the University of Pennsylvania

Graduate Research Assistant, the Climate Health and Air Quality (CHAQ) Lab
UNC GILLINGS SCHOOL OF GLOBAL PUBLIC HEALTH - Chapel Hill, NC Aug 2019-May 2020

- Led a project titled "Effects of grid resolution on the global mortality burden of fine particulate matter and ozone" as a research assistant on the NASA Health and Air Quality Applied Sciences Team (HAQAST)
- Extracted, transformed and analyzed global air pollution, population and health data from the NASA Goddard Earth Observing System Model, Oak Ridge National Laboratory and Global Burden of Disease 2017
- Applied computational tools and algorithms to preprocess, analyze and visualize the data using Matlab, R, Python, ArcGIS, Excel and Linux computing systems
- Performed human health risk assessments for fine particulate matter and ozone using various model grid resolutions
- Presented posters at various conferences, journal publication in progress

Graduate Research Assistant, the Bayesian Maximum Entropy (BME) Lab and Department of Surgery
UNC GILLINGS SCHOOL & SCHOOL OF MEDICINE - Chapel Hill, NC May 2019-May 2020

- Co-researcher in a study titled "Pre-surgical exposure to higher levels of ozone may decrease patency rates after lower extremity revascularization: a pilot study"
- Designed two versions of Bayesian Maximum Entropy (BME) geostatistical interpolation models to estimate daily ozone exposure for different exposure windows in participating New England states for 2003-2009, and performed model evaluation through cross-validation to assess exposure misclassification using Matlab
- Conducted survival analysis to investigate the association ((Hazard Ratio in this study) between revascularization outcomes following lower extremity bypass and daily ozone exposure in Stata and SAS
- Evaluated the impact of exposure misclassification on size and associated 95 % CI of measurement of association

Graduate Teaching Assistant for SPHG 711: Data Analysis for Public Health
UNC GILLINGS SCHOOL OF GLOBAL PUBLIC HEALTH - Chapel Hill, NC Aug 2019 – Dec 2019

- Conducted recitations and office hours to teach biostatistics principles and data analysis techniques
- Administered written and performance tests and evaluated students' work (in charge of 35 students out of 210)

Capstone Project: **Assessment of Health and Economic Benefit of Air Control Policies on Vehicular Pollution, a case study of Franklin Street**
UNC INSTITUTE FOR THE ENVIRONMENT – Chapel Hill, NC Aug 2016 – Dec 2016

- Studied existing urban planning policies and evaluated the current traffic and urban planning condition at downtown Chapel Hill in order to propose air quality control policies to the Town of Chapel Hill

- Selected the most cost-effective urban planning solutions including construction of four mini roundabouts at designated locations which would decrease $PM_{2.5}$ by 25% in winter and 14% in summer, implementation of two-phase smart traffic lights which would decrease overall emission by 21% and expansion of street greening which would remove 14 more pounds of air pollution, using quantitative models such as benMAP (The Environmental Benefits Mapping and Analysis Program), C-line (Community LINE-Source Model), and iTree
- Collaborated with and presented findings and policy proposals at the local government - Town of Chapel Hill

Undergrad Researcher, the Joint Graduate School of Energy and Environment
KMUTT JOINT GRADUATE SCHOOL OF ENERGY & ENVIRONMENT – Bangkok, Thailand Jan 2016 – Jul 2016

- "Analysis of Temporal and Spatial Distribution of Criteria Pollutants in Bangkok's Metropolitan Regions (BMR) during 2000-2015"
    - Collected and analyzed hourly data to study their spatial and temporal distribution for five criteria pollutants (PM_{10}, O_3, NO_X, SO_2, CO) over the 16-year study period for BMR, Thailand using pivot tables in Excel
    - Conducted literature review to study emission scenarios and emission control policies during the last two decades in BMR, Thailand
    - Collaborated with and presented findings to officials at the Thailand Pollution Control Department
    - Co-published and presented a conference paper at the 1st International Electronic Conference on Atmospheric Sciences (*Jul, 2016*)
- "Impacts of air quality on health: Preliminary results from Bangkok's case study"
    - Estimated that 312 cardiovascular mortalities and 680 respiratory mortalities would be avoided by reducing PM_{10} in BMR, Thailand to Thailand standard and WHO standard, respectively for 2010 using benMAP
    - Findings presented at 4th International Conference on Air Benefit and Cost and Attainment Assessment (ABaCAS 2016) in China

Research Assistant, Jiangsu Provincial Key Laboratory of Solar Science and Technology
SOUTHEAST UNIVERSITY - China Summer 2015

- Facilitated the preparation for the second Jiangsu-Europe International Conference on New Energy (JSSUN2015)
- Went on field trips to examine and maintain photovoltaic power generation systems

Research Assistant
JIANGSU PHOTOVOLTAIC (PV) INDUSTRTY ASSOCIATION - China Summer 2015

- Conducted literature review on the development of PV industry in Jiangsu Province
- Co-edited Jiangsu PV Industry Association's quarterly journal
- Acted as a liaison between customers and PV companies to improve customer service quality

PUBLICATIONS & PRESENTATIONS

R. Xu, J. Wu, J. Liu, C.A. Keller, J. J. West. "Effects of grid resolution on the global mortality burden of fine particulate matter and ozone" Accepted for oral presentation at the 19th Annual Community Modeling and Analysis System (CMAS) Conference, Oct 2020.

R. Xu, J. Wu, J. Liu, C.A. Keller, J. J. West. "Effects of grid resolution on the global mortality burden of fine particulate matter and ozone" Poster Presentation at the NASA Health and Air Quality Applied Sciences Team Final Showcase, Jul 2020.

P. T. Thao, **R. Xu,** C. Fan, M. K. Shah, T. A. Aziz, T. Boonman, S. Bonnet, S. Garivait. "Impacts of air quality on health: Preliminary results from Bangkok's case study" Oral presentation at the 4th International Conference on Air Benefit and Cost and Attainment Assessment (ABaCAS 2016), Jun 2016, Shanghai, China.

T. A. Aziz, **R. Xu,** C. Fan, M. K. Shah, T. Boonman, P. T. Thao, S. Bonnet, S. Garivait "Analysis of Spatial and Temporal Variation of Criteria Air Pollutants in Bangkok Metropolitan Region (BMR) during 2000–2015" Oral presentation at the1st International Electronic Conference on Atmospheric Sciences (ECAS 2016), Jun 2016.

SKILLS & LANGUAGE

Programming: Matlab, R, Python, Linux computing system
Software: ArcGIS, Rstudio, SAS (basic), Stata, Jupyter, BenMAP, Analytica, Flowjo, Microsoft Office Suite
Language: Chinese (native speaker), English (fluent), Spanish (beginner), Thai (beginner)