

KAIHUI SONG

Phone: (+1)734-353-2248, Email: kaihuis@terpmail.umd.edu

EDUCATION

University of Maryland, Department of Geographical Science (GEOG) (College Park, MD) Aug. 2018 - present

- **Doctoral student**, Geographic Information Science and Cartography
- **Academic Honors & Grants:** *College of Behavioral and Social Sciences Dean's Fellowship*

University of Michigan School for Environment and Sustainability (SEAS) (Ann Arbor, MI) 2016 - 2018

- **Master of Science**, Sustainable Systems, April 2018; GPA: 3.73/4.00
- Academic Honors & Grants: *SEAS Wilson Global Grant, Energy Research Grant, SNRE Master's award, Master's Thesis Grant*
- Courses: Environmental Economics, Environmental footprint and Input-Output Analysis, Sustainable Energy Systems, Environmental Systems Analysis, Decision-Making for Sustainability, Systems Thinking for Sustainable Development, Industrial Ecology, Principles of GIS, Remote Sensing, etc.
- Observer delegate to attend Conference of the Parties (COP) 23 at the UN Climate Change Conference in Bonn, Germany.

Qingdao University of Science & Technology (QUST) (Qingdao, Shandong, China) 2012 - 2016

- **Bachelor of Science**, Environmental Science, June 2016; GPA: 90.4/100 (Rank 1/68)
- Dissertation: Environmental impacts of manure discharge from livestock and poultry sectors in China
- Academic Honors & Grants: *Excellent Graduate Award, National Scholarship (top 0.2%), Scientific Innovation Talent, First-class Scholarship, Academic Merit Scholarship, First Prize for Shandong Provincial Mathematical Contest for College Students, First Prize for National English Competition for College Students, Excellent Prize for Mathematical Contest in Modeling*
- Leadership: Communication Chair, College of Environment and Safety Engineering (Sept. 2012 - Jun. 2016); Environmental research mentor for undergraduates (Sept. 2015 - Aug. 2016)

EXPERIENCE

University of Maryland GEOG, Research Assistant (College Park, MD) Aug. 2018 - present

University of Michigan SEAS, Research Assistant (Ann Arbor, MI) Jan. 2017 - Apr. 2018

Thesis: Global GHG Emissions Driven by U.S. Household Consumption from 1995 to 2009, advised by Dr. Ming Xu

- Used input-output analysis method to analyze the carbon emissions around the world driven by U.S. household consumptions, with data derived from WIOD database and Consumer Expenditure Survey
- Used MATLAB to calculate and explored the carbon footprints with GIS

Project participation: UNS: *U.S.-China: Integrated Systems Modeling of Food-Energy-Water (FEW) Nexus for Urban Sustainability*

- Collected and analyzed data related to energy and water
- Used data visualization methods to show the results

Aspen Global Change Institute and SEAS, Energy Research Intern (Basalt, CO & Ann Arbor, MI) Jan. 2017 - Apr. 2018

- Collected and analyzed energy-related data for 10 types of renewable and non-renewable energy sources
- Summarized and updated descriptions about breakthroughs, obstacles, technologies, as well as political, social and environmental considerations; Energy Table on AGCI website: <http://www.agci.org/solutions/energy-table>

World Wildlife Fund (WWF), Research Intern (Washington, D.C.) Jul. 2017 - Sept. 2017

- Conducted research for two case studies on green finance and ecotourism between China and Latin America
- Analyzed the challenges and opportunities of promoting green finance and ecotourism, proposed suggestions for different stakeholders in support of China-CELAC summit in 2019
- Completed two reports (~10,000 words each) based on the study

Qingdao University of Science & Technology, Student Researcher (Qingdao, Shandong, China)

Empirical Study on the Environmental Impacts of the Livestock Industry in China, Oct. 2015 - Aug. 2016

- Researched livestock and poultry industry pollution in the field, coordinated work with team members and was responsible for data analysis and initial report draft
- Provided suggestions for Ministry of Agriculture of China on international farm production trading based on this research, funded by WWF program: *Assessing Supply and Demand for Responsible Soy from South America to China*

Environmental Impact of Agriculture Ammonia Emissions on Air Quality, Oct. 2015 - Aug. 2016

- Conducted theoretical research on the mechanism of “agricultural HN_3 emissions resulted in excessive $\text{PM}_{2.5}$ emissions”; this program drew the government’s attention on effective control of air pollution from the perspective of agriculture; utilized data analysis and data mining skills to conduct research

Operation Mode and Strategy Innovation of New Energy Development Promotion, Oct. 2014 - June 2015

- Led a solar energy group and was responsible for data and policy analysis, as well as coordinating the team

Qingdao Institute of Bioenergy & Bioprocess Technology, Research Assistant Intern (Qingdao, Shandong, China) Jul. 2015 - Aug. 2015

- Conducted life cycle assessment (LCA) with interdisciplinary team to assess carbon emissions from the bioenergy consumption, with use of SimaPro for analysis
- Discovered CO_2 emissions features, proposed strategies for sustainable development of algae with control of red tide

PUBLICATIONS

- Gao, C., Na, H., **Song, K.**, Dyer, N., Tian, F., Xu, Q., Xing, Y. (2019). Environmental impact analysis of power generation from biomass and wind farms in different locations. *Renewable and Sustainable Energy Reviews*, 103(307-317).
- Qian, Y., **Song, K.**, Hu, T., Ying, T. (2018). Environmental status of livestock and poultry sectors in China under current transformation stage. *Science of the Total Environment*, 626-623, 702-709.
- Gao, C., Zhang, S., **Song, K.**, Na, H., Tian, F., Zhang, M., & Gao, W. (2018). Conjoint analysis of nitrogen, phosphorus and sulfur metabolism: A case study of Liaoning Province, China. *Ecological Modelling*, 390, 70-78.
- Su, Y., **Song, K.**, Zhang, P., Su, Y., Cheng, J., & Chen, X. (2017). Progress of microalgae biofuel’s commercialization. *Renewable and Sustainable Energy Reviews*, 74, 402-411.
- Yang, J., **Song, K.**, Hou, J., Zhang, P., & Wu, J. (2017). Temporal and spatial dynamics of bioenergy-related CO_2 emissions and underlying forces analysis in China. *Renewable and Sustainable Energy Reviews*, 70, 1323-1330
- Qian, Y., **Song, K.**, Zhao, R. (2017) Advances in relationship between ammonia pollution and $\text{PM}_{2.5}$. *Environmental Engineering*, (5): 84-88. (In Chinese with English abstract). DOI: 10.13205/j.hjgc.201805018
- Song, K.**, Zhou, J., Zhang, P., & Kan, S. (2016). Assessment of Biomass Power Potential on Provincial Scale and Analysis on Plan Target Quota. *Forum on Science & Technology in China*, (1):124-129. (In Chinese with English abstract). DOI: 10.13580/j.cnki.fstc.2016.01.021
- Qian, Y., **Song, K.**, Zhang, P., Wang, H., & Xu, Y. (2016). On the policy development of new energy vehicle industry. *Journal of Qingdao University of Science & Technology (Social Science)*, (1):64-70. (In Chinese with English abstract). DOI: 10.16800/j.cnki.jqstss.2016.01.012
- Sun, Q., Zhou, J., Yan, Y., Zhang, P., Guo, H., & **Song, K.** (2015). Analysis of temporal and spatial characteristics of carbon dioxide emissions from China’s energy consumption industries. *Journal of Qingdao University of Science & Technology (Social Science)*, 31(3):39-43. (In Chinese with English Abstract)

SKILLS, ACTIVITIES AND INTERESTS

- **Computer Skills:** SimaPro, ENVI, Origin, ArcGIS, MATLAB, SPSS, Stella
- **Certifications:** Environmental Science (2016)
- **Professional Memberships:** Translator and Editor (China Scitechnology Business), Journal Reviewer (Environmental Progress)
- **Languages:** Chinese and English (speaking and writing: fluent)
- **Volunteer Work:** Sustainable Brands’17 Conference (Detroit, 2017), Donation to North Xinjiang (leader, Qingdao, 2016), China International Rubber Expo (Qingdao, 2014)
- **International Experience:** International Conference (The 4th Low Carbon Earth Summit-2014, BIT’s New Energy Forum-2014, WWF Responsible Soy-Meat Chain Forum)