

Hao-Xuan Sun

Peking University, Beijing, China, 100871 | hxsun@pku.edu.cn

EDUCATION

Academy for Advanced Interdisciplinary Studies
PhD Candidate

PEKING UNIVERSITY
Sep. 2022 - Present

Academy for Advanced Interdisciplinary Studies
Postgraduate

PEKING UNIVERSITY
Sep. 2019 - Sep. 2022

School of Mathematical Sciences
B.S. in Statistics

PEKING UNIVERSITY
Sep. 2015 - Jun. 2019

School of Arts
B.S. in Arts (Double Degree)

PEKING UNIVERSITY
Sep. 2016 - Jun. 2019

RESEARCH EXPERIENCE

Ensemble Kalman Filtering
Postgraduate research, Supervised by Prof. Song Xi Chen

Oct. 2022 - Present

COVID-19 Epidemics Modeling
Postgraduate research, Supervised by Prof. Song Xi Chen

Jan. 2020 - 2023

Air Quality Assessment
Postgraduate research, Supervised by Prof. Song Xi Chen

Nov. 2018 - Present

Research on Applying Machine Learning Methods to Weather Report
Undergraduate research, Supervised by Prof. Pingwen Zhang

May. 2017 - May. 2019

PUBLICATIONS

- Xu, N., Hu, M., Li, X., Song K., Qiu Y., **Sun, H-X.**, Wang, Y., Zeng, L., Li, M., Wang, H., Hu, S., Zong, T., Bai, Y., Zhang, Z., Li, S., Shuai, S., Chen, Y. and Guo, S. (2024) Resolving ultraviolet-visible spectra for complex dissolved mixtures of multitudinous organic matters in aerosols. *Analytical Chemistry* 96 (5), 1834-1842
- Huang, Y., Guo, B., **Sun, H-X.**, Liu, H. and Chen, S.X. (2021) Relative importance of meteorological variables on air quality and role of boundary layer height. *Atmospheric Environment*, 2021, 267: 118737.
- Yan, H.* , Zhu, Y.* , Gu, J.* , Huang, Y.* , **Sun, H-X.*** , Zhang, X., Wang, Y., Qiu, Y., Chen, S.X. (2021) Better Strategies for Containing COVID-19 Pandemic—A Study of 25 Countries via a vSIADR Model. *Proceeding of the Royal Society A*, 477(2248): 20200440.
- Gu, J.* , Yan, H.* , Huang, Y.* , Zhu, Y.* , **Sun, H-X.*** , Qiu, Y. and Chen, S.X. (2020). Comparing containment measures among nations by Epidemiological Effects of COVID-19. *National Science Review*, 7: 1847–1851. doi: 10.1093/nsr/nwaa243.
- Sun, H-X.**, Qiu, Y., Yan, H., Huang, Y., Zhu, Y., Gu, J. and Chen, S.X. (2020). Tracking reproductivity of COVID-19 epidemic in China with varying coefficient SIR model (with discussion). *Journal of Data Science*, 2020, 18(3): 455-472.

UNDER REVIEW

- Sun, H-X.**, Wang, S., Zheng, X. and Chen, S.X. (2024) High-dimensional Ensemble Kalman Filter with Localization, Inflation and Iterative Updates. Minor Revision in *Quarterly Journal of the Royal Meteorological Society*.
- Wang, S., Chen, S.X. and **Sun, H-X.** (2024) High Dimensional Ensemble Kalman Filter. Under peer review.

TECHNICAL REPORTS

- Li, H., Liu, J., Wang, J., Zhan, H., Chen, H., Bian, M., Feng, Y., Yang, Q., Yan, X., Peng, A., **Sun, H-X.**, and Chen, S.X. (2024). Air Quality Assessment Report XI: Regional Air Quality Assessment of the 3+130 Cities. Center for Statistics at Peking University.
- Luo, S., Chen, H., Wang, J., Zhan, H., Lin, H., Liu, J., Ding, J., Wang, B., Yan, X., Dai, H., **Sun, H-X.**, Guo, B. and Chen, S.X. (2023). Air Quality Assessment Report X: Regional Air Quality Assessment of the 3+110 Cities. Center for Statistics at Peking University.
- Sun, H-X.**, Luo, S., Zhang, X., Zhan, H., Lin, H., Chen, H., Lai, H., Tong, P., Guo, B. and Chen, S.X. (2022). Air Quality Assessment Report IX: Regional Air Quality Assessment of the 3+99 Cities. Center for Statistics at Peking University.
- Sun, H-X.**, Luo, S., You, W., Wang, Y., Zhan, H., Wang, X., Huang, Y., He, J., Guo, B. and Chen, S.X. (2021). Air Quality Assessment Report VIII: Regional Air Quality Assessment of the 3+95 Cities. Center for Statistics at Peking University.

- **Sun, H-X.**, You, W., Guo, B., Luo, S., Zheng, X., Han, T., Wang, X., Liu, R., Huang, Y., He, J., Chen, L., Wang, H. and Chen, S.X. (2020). Air Quality Assessment Report VII: Regional Air Quality Assessment of the 2+66 Cities. Center for Statistics at Peking University.
- **Sun, H-X.**, Guo, B., Wang, X., Huang Y. and Chen, S.X. (2019). Assessment of Air Quality in Shandong Province from 2014 to 2018. Center for Statistics at Peking University.
- Liu, H., Ye, F., **Sun, H-X.**, Guo, B., Liu R., Xiao, J., He, J., Zheng, X., Wang, H. and Chen, S.X. (2019). Air Quality Assessment Report VI: Regional Air Quality Assessment of the 2+43 Cities. Center for Statistics at Peking University.

AWARDS AND HONORS

- | | |
|---|----------|
| • Merit Student of School of Peking University | Oct 2020 |
| • Academic Scholarship | Oct 2020 |
| • Merit Graduate of School of Mathematical Sciences | Jul 2019 |
| • Yizheng Alumni Scholarship | Sep 2017 |
| • Meritorious Prize in Jiang-Zehan Mathematical Modeling Contest of PKU | May 2017 |

TEACHING ASSISTANT

Core R <i>Postgraduate course by A.P. Minya Xu</i>	Mar. 2021 - May. 2021
--	------------------------------

Data Analysis and Statistical Software <i>Undergraduate course by A.P. Minya Xu</i>	Sep. 2020 - Jan. 2021
---	------------------------------

ADDITIONAL SKILLS

- Language Skills: Mandarin (native), English (fluent).
- Programming Skills: R (current), Python, Matlab.