Hao-Xuan Sun

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EDUCATION

Academy for Advanced Interdisciplinary Studies **PEKING UNIVERSITY**
PhD Candidate Sep. 2022 - Present

Academy for Advanced Interdisciplinary Studies **PEKING UNIVERSITY**
Postgraduate Sep. 2019 - Sep. 2022

School of Mathematical Sciences **PEKING UNIVERSITY**
B.S. in Statistics Sep. 2015 - Jun. 2019

School of Arts **PEKING UNIVERSITY**
B.S. in Arts (Double Degree) Sep. 2016 - Jun. 2019

RESEARCH EXPERIENCE

Ensemble Kalman Filtering **Oct. 2022 - Present**
Postgraduate research, Supervised by **Prof. Song Xi Chen**

COVID-19 Epidemics Modeling **Jan. 2020 - 2023**
Postgraduate research, Supervised by **Prof. Song Xi Chen**

Air Quality Assessment **Nov. 2018 - Present**
Postgraduate research, Supervised by **Prof. Song Xi Chen**

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   **Mar. 2021 - May. 2021**
Postgraduate course by A. P. Minya Xu

Data Analysis and Statistical Software   **Sep. 2020 - Jan. 2021**
Undergraduate course by A. P. Minya Xu

ADDITIONAL SKILLS

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