

# Xin Li, Ph.D



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## Biography

Xin Li is now an Associate Professor in College of Hydrology and Water Resources at Hohai University in China. He obtained his Ph.D. degree in department of Civil and Environmental Engineering at National University of Singapore in 2018. Before joining Hohai, he held a position as computing engineer at Hydroinformatics Institute Ltd in Singapore. He has been actively involved in interdisciplinary research in the fields of climate, meteorology, and hydrology. Leveraging the most advanced physically-based modelling and data analysis techniques, he aims to answer a series of scientific questions with regard to climate- and human-impacted hydrology. In more recent years, he has been actively involved in fields of climate downscaling, statistical modelling and analysis, extreme precipitation, and machine learning techniques.

## Education

- National University of Singapore **Ph.D.** in Civil Engineering 2018
- Tianjin University **M.Eng.** in Hydraulic Engineering 2014
- Zhengzhou University **B.Eng.** in Hydrology and Water Resources Engineering 2011

## Position held

- Associate Professor, College of Hydrology and Water Resources, Hohai University 2023.06-present
- Lecturer, College of Hydrology and Water Resources, Hohai University 2018.11-2023.06
- Computing Engineer, Hydroinformatics Institute Ltd, Singapore 2018.06-2018.11

## Honors & Awards

- Excellent FYP supervisor, Hohai University 2022
- 2<sup>nd</sup> Prize in Teaching Contest (Weike) of Jiangsu Province 2021
- 3<sup>rd</sup> Prize in Teaching Contest, Hohai University 2021

### Research Projects and Major funding sources

- **PI**, Assessment of climate change impact on regional water resources based on nonstationary multi-dimensional downscaling methods, National Natural Science Foundation of China, CNY 270k, 2020-2022
- **PI**, Rainfall-Runoff Modelling based on Genetic Programming, Innovative and Entrepreneurial Program of Jiangsu Province, CNY 150k, 2020-2021
- **PI**, High-resolution stochastic rainfall simulation across spatiotemporal scales, Fundamental Research Funds for the Central Universities, CNY 80k, 2021-2022
- **PI**, New-generation hydrological modelling based on machine learning techniques, Nanjing Science and Technology Innovation Project for the Returned Overseas Chinese Scholars, CNY 50k, 2020-2021
- **PI**, Multi-site statistical downscaling method and its application in runoff response under climate change, Fundamental Research Funds for the Central Universities, CNY 50k, 2019-2020

### Teaching areas

- UG course, Engineering Hydrology
- UG course, Engineering Hydrology and Hydraulics

### Research Interests

- Statistical and stochastic modelling and analysis in hydrometeorology
- Climate- and human-impacted hydrology
- Data-driven modelling and machine learning
- Hydroclimatic and hydrological extremes (e.g. precipitation extremes, floods, and droughts)

### Professional Activities

- Member of American Geophysical Union
- Member of European Geophysical Union
- Member of International Association for Hydro-Environment Engineering and Research
- Reviewer for 10+ international journals including Water Resources Research, Journal of Hydrology, Journal of Geophysical Research, Science Bulletin, Journal of Flood Risk Management, Weather and Forecasting, and many others.

### Selected Publications

#### SCI-indexed journal papers

1. **Xin Li**, Ke Zhang\*, Pengrui Gu, Haotian Feng, Yifan Yin, Wang Chen, and Bochang Cheng. Changes in precipitation extremes in the Yangtze River Basin during 1960–2019 and the association with global warming, ENSO, and local effects. **Science of the Total Environment**,760(3):144244, 2021. ESI highly cited paper (**ESI highly cited paper, Top 1% in the field of Environment/Ecology**)

2. **Xin Li**, Ke Zhang\*, Hongjun Bao, and Hengde Zhang. Climatology and changes in hourly precipitation extremes over China during 1970–2018. **Science of The Total Environment**,839(9): 156297, 2022.
3. **Xin Li** and Vladan Babovic\*. A new scheme for multivariate, multisite weather generator with inter-variable, inter-site dependence and inter-annual variability based on empirical copula approach. **Climate Dynamics**,52(3-4):2247-2267, 2019.
4. **Xin Li** and Vladan Babovic\*. Multi-site multivariate downscaling of global climate model outputs: an integrated framework combining quantile mapping, stochastic weather generator and empirical copula approaches, **Climate Dynamics**, 52(9-10):5775-5799, 2019.
5. **Xin Li**, Xuan Wang\*, and Vladan Babovic\*. Analysis of variability and trends of precipitation extremes in Singapore during 1980–2013. **International Journal of Climatology**, 38(1):125–141, 2018
6. **Xin Li**, Ali Meshgi, Xuan Wang, Jingjie Zhang, SHX Tay, Gerard Pijcke, Nishtha Manocha, Matthias Ong, MT Nguyen, and Vladan Babovic\*. Three resampling approaches based on method of fragments for daily-to-subdaily precipitation disaggregation. **International Journal of Climatology**, 38(S1):e1119–e1138, 2018.
7. **Xin Li**\*, Ali Meshgi, and Vladan Babovic. Spatio-temporal variation of wet and dry spell characteristics of tropical precipitation in Singapore and its association with ENSO. **International Journal of Climatology**, 36(15):4831–4846, 2016.
8. Zhang, Ke\*, Gebdang B. Ruben, **Xin Li**, Zhijia Li, Zhongbo Yu, Jun Xia, and Zengchuan Dong. A comprehensive assessment framework for quantifying climatic and anthropogenic contributions to streamflow changes: A case study in a typical semi-arid North China basin. **Environmental Modelling & Software**,128(6):104704, 2020 (**ESI highly cited paper, Top 1% in the field of Computer Science**)
9. Ezaz, Gazi Tawfiq, Ke Zhang\*, **Xin Li**\*, Md Halim Shalehy, Mohammad Akram Hossain, and Linxin Liu. Spatiotemporal changes of precipitation extremes in Bangladesh during 1987–2017 and their connections with climate changes, climate oscillations, and monsoon dynamics. **Global and Planetary Change**, 208 (1):103712, 2022.
10. Xuan Wang, Vladan Babovic, and **Xin Li**\*. Application of spatial-temporal error correction in updating hydrodynamic model. **Journal of Hydro-environment Research**, 16:45–57, 2017.

(\* denotes corresponding author)

#### **Book and Book Chapter**

1. **Xin Li**, Statistical Modelling and Analysis for Regional Climate Change, Hohai University Press, 2022
2. **Xin Li**, Ran Tao, and Ke Zhang. Drought Monitoring Based on Remote Sensing. *Remote Sensing of Water-Related Hazards (2022)*: 149-168.

3. Vladan Babovic, **Xin Li**, and Jayashree Chaladawada. Rainfall–Runoff Modeling Based on Genetic Programming. *Encyclopedia of Water: Science, Technology, and Society*, 5(2020): 1081-1096.