

Jinyang Li

Center for Hydrometeorology and Remote Sensing, Department of Civil and Environmental Engineering,
Samueli School of Engineering, University of California, Irvine
+1 (949)394-8524, jinyal4@uci.edu, website: <https://jinyal.github.io/>

AREAS OF RESEARCH

- Large-scale Rainfall-runoff/Flooding Modeling (Extreme Events Prediction)
- Reservoir Inflow Simulation & Operation Optimization (Control and Reinforcement learning)
- Machine Learning Applications in Hydrology (Transformer, Generative AI, RL)
- Remote Sensing for Environmental & Public Health Applications (Malaria risk mapping)

EDUCATION

- 2021-present **Ph.D. Candidate** – Computational Hydrology. University of California, Irvine, CA.
Advisor: [Prof. Soroosh Sorooshian](#), [Prof. Kuo-lin Hsu](#)
- 2019-2021 **M.S.** – Civil and Environmental Engineering, University of California, Irvine, CA
Thesis: Exploration of Deep Learning Models on Streamflow Simulations
Advisor: [Prof. Kuo-lin Hsu](#)
- 2015-2019 **B.S.** – Environmental Science. Sichuan University, Chengdu, China
Thesis: Estimation of PM₁₀ in China using Random Forest Model in 2013 – 2016
Advisor: [Prof. Yu Zhan](#)

WORKING EXPERIENCE

- 2025/06- **Research Intern, Oak Ridge National Laboratory**, Oak Ridge, TN
- 2025/12 - Developed fully distributed deep learning rainfall-runoff model in North America
- 2024/10- **AI Research Intern, Fujitsu Research of America**, Santa Clara, CA
- 2025/06 - Developed an AI-foundation model for global flooding prediction, benchmarked against Google's LSTM model across over 6,000 catchments while reducing 87% computing length. (Led development of StreamFormer, an efficient Transformer-based global streamflow model now under AAAI review.)
- Tackled landslide data scarcity by leveraging a multi-task learning framework jointly trained with streamflow signals, achieving a 12% performance improvement compared to NASA's operational xgboost model (Another paper under preparation).
- 2021/09- **Graduate Research Assistant, Center for Hydrometeorology and Remote Sensing**,
now Department of Civil and Environmental Engineering, University of California, Irvine, CA
- Develop advanced deep learning model to improve hydrologic predictions
- Support NSF/NIH grant and proposal writings

HONORS & AWARDS

- 2025 Graduate Scholar Success Fund Fellowship, UCI
- 2024 Outstanding Student Presentation Award (OSPA), American Geophysical Union (AGU)
- 2022 UCI Associated Graduate Students (AGS) Travel Grant, UCI
- 2022 HydroML Symposium Travel Grant, Penn. State University
- 2020 Excellence in Engineering Communication, UCI

PUBLICATIONS

Published

- 2025 **Li, J.**, Hsu, K. L., Jiang, A. L., & Yan G. (accepted). Predicting An. stephensi Environmental Suitability in the Greater Horn of Africa using Remote Sensing and Ensemble modeling. ***International Journal of Applied Earth Observation and Geoinformation***. [DOI: 10.2139/ssrn.5218877]
- 2024 **Li, J.**, Dao, V., Hsu, K., Analui, B., Knofczynski, J. D., & Sorooshian, S. (2024). Improving Cascade Reservoir Inflow Forecasting and Extracting Insights by Decomposing the Physical Process Using a Hybrid Model. ***Journal of Hydrology***, 630, 130623. [DOI: 10.1016/j.jhydrol.2024.130623]
- 2025 Zhang, Y., Ye, A., **Li, J.**, Analui, B., Nguyen, P., Hsu, K., & Sorooshian, S. (2025). Improve streamflow simulations by combining machine learning pre-processing and post-processing. ***Journal of Hydrology***, 655, 132904. [DOI: 10.1016/j.jhydrol.2025.132904]
- 2025 Chen, X., Zhang, Y., **Li, J.**, Hsu, K., & Sorooshian, S. (2025). Fine-tuning long short-term memory models for seamless transition from historical to near-real-time streamflow predictions. ***Environmental Modeling & Software***, 106350. [DOI: 10.1016/j.envsoft.2025.106350]
- 2025 Jiao, Y., Hsu, K., **Li, J.**, & Duan, X. (2025). A multi-task deep learning model for bias correction and merging of precipitation data in the Lancang-Mekong River Basin. ***Journal of Hydrology***, 134026. [DOI: 10.1016/j.jhydrol.2025.134026]

Under Review

- 2025 **Li, J.**, Hsu, K. L., Jiang, A. L., & Sorooshian S. (in review). Improving Regional Rainfall-runoff Modeling Using Attention-based Model. ***Water Resources Research***. [DOI: 10.22541/essoar.174690684.43716119/v1]
- 2025 **Li, J.**, Ushijima, H., Hsu, K. L. (in review) StreamFormer: Scalable and Accurate Global River Streamflow Forecasting with Transformers. ***Proceedings of the AAAI Conference on Artificial Intelligence***.

In Preparation

- Li, J.**, Ushijima, H., Hsu, K. L., & Sorooshian S. Overcoming the data scarcity in landslide susceptibility and forecasting modeling. Will be submitted to *Nature Water*.
- Li, J.**, Hsu, K., Analui, B., Knofczynski, J. D., & Sorooshian, S. Improving reservoir operation using deep reinforcement learning. Will submitted to *Geophysical Research Letters*.

TECHINICAL REPORTS

- 2024 Analui, B., Sorooshian, S., **Li, J.**, Rouzegari, N., Bolboli Zadeh, M., USDOE Office of Energy Efficiency and Renewable Energy (EERE), Renewable Power Office. Water Power Technologies Office HydroWIREs initiative DOE-UCI-08943: Identifying Hydropower Operational Flexibilities in Presence of Streamflow and Net-Load Uncertainty. Final Project Report 2023. [https://doi.org/10.2172/2340918]

CONFERENCE PRESENTATION (3 Oral presentations + 2 eLightning presentations + 2 Poster)

- 2024 **Li, J.,** Hsu, K., & Sorooshian, S. (2024). Foundation model for global natural hazards prediction. AGU Fall Meeting 2024. **eLightning presentation**
- 2024 **Li, J.,** Hsu, K., Jiang, A. L., & Sorooshian, S. (2022). Improving Rainfall-Runoff Modeling Using Attention-based Model: A Perspective on Explainability. 1st *Science Understanding through Data Science Conference (SUDS)*. **Oral presentation**
- 2023 **Li, J.,** Analui, B., Hsu, K., & Sorooshian, S. (2023). Deep reinforcement learning for sustainable reservoir operation. *AGU Fall Meeting 2023*. **eLightning presentation**
- 2022 **Li, J.,** Hsu, K., Jiang, A. L., & Sorooshian, S. (2022). Attention-based model for rainfall-runoff modeling using large-domain datasets. *AGU Fall Meeting 2022*. **Oral presentation**
- 2022 **Li, J.,** Hsu, K., Jiang, A. L., & Sorooshian, S. (2022). Exploration of Attention-based model for rainfall-runoff modeling. *HydroML symposium 2022*. **Oral presentation**
- 2022 Dao, V., **Li, J.,** Analui, B., & Hsu, K. (2022). Missouri River Basin streamflow simulation using meteorological data. *AGU Fall Meeting 2022*. **Poster presentation**
- 2020 **Li, J.,** Hsu, K., & Jiang, A. L. (2020). Applying deep learning models for catchment scale streamflow prediction. *AGU Fall Meeting 2020*. **Poster presentation**

APPOINTMENTS & SERVICES

- 2024 Teaching assistant. Modeling, Economics, and Management (Undergraduate). UCI
- 2024 Teaching assistant. Civil Engineering Practicum II (Undergraduate). UCI
- 2023 Teaching assistant. Mathematical Methods in Engineering Analysis (Graduate). UCI
- 2023 Teaching assistant. Hydro Remote Sensing (Graduate). UCI
- 2022 Teaching assistant. Mathematical Methods in Engineering Analysis (Graduate). UCI
- 2022 Teaching assistant. Hydro Remote Sensing (Graduate). UCI
- 2022 Grader. Civil Engineering Practicum II (Undergraduate). UCI
- 2021 Mentor. UCI-Connected Education Club. UCI

SOCIETY MEMBERSHIP

- American Geophysical Union (AGU)
- American Meteorological Society (AMS)

TECHNICAL SKILLS

Programming Languages: Python, SQL, MATLAB, R

Libraries: PyTorch, TensorFlow, Numba, GDAL, Xarray, Geopandas, Rasterio, OpenAI Gym

Tools: Linux, ArcGIS, ENVI, AutoCAD, AWS, Google Earth, Google Colab