Curriculum Vitae: Yucong Hu

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Education

M.S. in Ecology

- University of Chinese Academy of Sciences, 2020 - Ongoing
- Thesis topic: Coupling study of deep learning in the simulation of surface water environment
- Supervisor: Yan Jiang
- GPA: 3.71/4
- Courses: Advanced Ecology (94/100), Watershed Analysis and Modeling (87/100), Machine Learning (88/100) ,

BSc in Computer Science and Technology (Minor)

- China Agricultural University (CAU) , 2018 - 2020
- Course: Database Principles and Experiments (Minor Course) (A), Artificial Intelligence and Experiment (B+), Computer Organization and Experiment (A)

BSc in Agricultural biological environment and energy engineering (Major)

- China Agricultural University, 2016 - 2020
- Graduation project: simulating wind velocity in a plant factory with a CFD (computational fluid dynamics) software
- GPA: 3.35/4
- Courses: College physics C-1/C-2 (A/A+), Hydrodynamics (A-)

Publications

Published paper

- **Hu YC**, Li N, Jiang Y, Bao X, Li XY, 2022. Research progress on coupling artificial intelligence and eco-environmental models, Chinese Journal of Applied Ecology, v. 34 Doi:10.13287/j.1001-9332.202301.019, (in Chinese), with the **abstract** recorded in the 20th Chinese Ecological Congress.
- Jiang, Y., Bao, X., Huang, Z., Chen, Y., Wu, X., Li, X., ... & **Hu, Y**. (2023). Identification of pollutant delivery processes during different storm events and hydrological years in a semi-arid mountainous reservoir basin. Science of The Total Environment, 883, 163606.
- Bao, X., Jiang, Y., & **Hu,Y.C**. (2021). Characteristics of Pollutant Dynamics Under Rainfall-Runoff Events in the Chaohe River Watershed. Huan Jing ke Xue= Huanjing Kexue, 42(7), 3316-3327, (in Chinese).

Working papers (Title or one-sentence description)

- 'Effects of stacking LSTM networks with different patterns and input schemes on stream flow and water quality simulation' *(Journal of Hydrology, in review, see full text)*
- Combining LSTM and a process-based model, called Hydrologic model for plain area of arid inland river basin (HIMS) ,to further accurately make predictions of water quality with position-accurate flow.
- 'Physics-reconstructed neural networks: a case study on evaportranspration' *(see draft)*

Academic Experiences & Awards

Outstanding winner in International Mathematics Molding Contests for higher education, Aug 2023

- Modelling and paper writing, to be published in MATHEMATICAL MODELING RESEARCH AND APPLICATION.

Internship for 'PEcAn model coupling and development', Online, 2023 May - Ongoing
Generated by Google Community, PEcAn, for Google summer of code program

- Adding a process-based model, Functionally Assembled Terrestrial Ecosystem Simulator (FATES) , into PEcAn repository in a dockerized version in Github, for an easier model approach to researchers.

- Supervisor: Hui Tang, Istem Fer

Team member, Sub-project of a National key research and development project, 2021-2023

- Taking charge of technical improvement with AI in water resources management for the 'Intelligent analysis of typical ecological environmental phenomena' sub-project, with two papers in revision.

First class of Academic Scholarships, RCEES, Chinese Academy of Sciences, Feb 2023.

Innovation and entrepreneurship program for college students in Beijing, 'Dynamic response of cold-formed thin-walled steel-reinforced concrete cylinders under lateral impact', 2018-2019

- Reviewing Literature, simulating the dynamic response with ABAQUS and writing papers in teams.

First Prize in The 8th College Student Contest of Architecture and Structure Design in Beijing Division, Beijing Municipal Commission of Education, China, May 2019.

- Calculating forces with Maydas, for an efficient structure of self-built transmission tower made of bamboo, to resist deformation from increasingly downward and transverse forces of wires, ranking the 1st in the competition.

Second Prize of Group A in Beijing Division of China Undergraduate Mathematical Contest in Modeling, Beijing Municipal Commission of Education & Chinese Society of Industrial and Applied Mathematics, China, Sep 2018.

- Working as the leader to build and solve a complex partial differential equation to optimize thicknesses of four layers of different thermal insulation fabrics.

Undergraduate Research Program in CAU, focusing on the influence of different combinations of red and blue LED lights on plant growth under high voltage electrostatic field, 2016-2017

- Conducting experiments in teams and working for data analyses

Leadership Experiences & Awards

Merit Student and Excellent Student Cadre, in both College of Resources and Environment, University of Chinese Academy of Sciences, and RCEES, 2021&2023.

- Head of the Propagation unit in the Student Union, RCEES, 2023.
- Director of the Office of the Student Union, College of Resources and Environment, University of Chinese Academy of Science, 2021.

Vice director & member in Communication unit, Student Union, China Agricultural University, 2017-2018 & 2016-2017

- Negotiating for exterior sponsorship, inviting for guests from other universities.

Volunteers for social activities, 2016-2019

- Assisting for professional competitions, guiding for blood donation, etc. 119 hours in total.

Skills

Python (numpy / pandas)	●●●●●
Machine learning	●●●●○
Deep learning	●●●●○
Tensorflow & Keras	●●●●○
Data Analyses	●●●●○
R	●●●○○
Docker	●●●○○

Languages

Chinese	●●●●●
English	●●●●○
German	●●○○○

Academic Interests & Personal Hobbies

Machine learning, AI for science, causality & interpretability, mathematical modeling.
&
Swimming, Jogging, Personal website constructing.