Yi Yu

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🎓 Education

The Australian National University, Canberra, Australia — 07/2021 – Present
Doctor of Philosophy - Hydrology and Remote Sensing

The Australian National University, Canberra, Australia — 07/2018 – 08/2020
Master of Environment (Advanced)

Southwest University, Chongqing, China — 09/2014 – 06/2018
Bachelor of Land Resource Management

💼 Experiences

CSIRO Agriculture and Food, Canberra, Australia — 08/2021 – Present
PhD Postgraduate Student Supervisor: Dr. Brendan P. Malone

Academic collaboration with The Australian National University. The key responsibilities include:

- Committing to industry-aligned projects that address interdisciplinary challenges in agricultural innovation and soil science using statistical approaches and high-performance computing (HPC) resources.
- Establishing the geo-database using data from in-situ measurement, drone, satellite, and proximal observations, as well as the Soil and Landscape Grids of Australia, to enable spatiotemporal modelling of soil water dynamics for key growing regions in Australia.
- Performing assigned research tasks and producing scientific publications that demonstrated practical implications for the agri-food sector.

ANU Fenner School of Environment & Society, Canberra, Australia — 07/2022 – 11/2022
Academic Tutor Supervisor: Assoc. Prof. Franklin P. Mills

Course: ENVS3020 Climate Change: Science, Society, and Policy

- Developed and implemented course plans and study materials that effectively communicated complex scientific concepts. Responded to students' questions and marked assignments and exams.
- Helped students understand the basic scientific concepts behind climate change using a variety of visual aids and real-world examples. Guided students to explore the impact of climate change on different regions and populations, as well as to examine the various policy options available for addressing the issue.

ANU Institute for Water Futures, Canberra, Australia — 01/2021 – 01/2022
Research Officer Supervisor: Dr. Luigi J. Renzullo

- Processed continental-scale remote sensing data and earth observations acquired from various satellite platforms. Demonstrated expert-level spatial analysis skills using R and Python.
- Proficient with essential Linux commands and utilised programming modules from the ANU HPC platform (i.e., the Gadi supercomputer) to complete research tasks.
- Undertook testing and statistical analysis as required. Prepared and disseminated relevant analysis reports to internal and external stakeholders, including external funding agencies.
- Participated in workshops and professional networks across campus to develop a broad base of industry knowledge, and provided input to improve the area's research practices and processes.

UniLodge Australia, Canberra, Australia — 02/2020 – Present
Senior Resident

Key skills acquired: Emotional Intelligence, Collaboration, Leadership, Self Care, Time Management.

- Acted as a residential leader who is front-liner in delivering pastoral care to university students on campus.

- Responded timely to first-aid emergencies, fire drills and evacuations; Responsible for immediate referral to the relevant emergency body.
- Organised lodge events and actively committed to an inclusive community; Provided mental health advice and personal assistance to residents on the assigned floor through regular catch-ups.

Journal Articles

[1] **Yu, Y.**, Renzullo, L.J., Tian, S. and Malone, B.P., 2024. An operational framework for soil moisture downscaling using Long Short-Term Memory (LSTM), *Remote Sensing of Environment, In Preparation.*

[2] **Yu, Y.**, Malone, B.P., Renzullo, L.J. and Tian, S., 2024. Spatial averaging of soil moisture models using triple collocation and machine learning-based upscaling, *Journal of Hydrology, In Preparation.*

[3] **Yu, Y.**, Renzullo, L.J., McVicar, T.R., Van Niel, T.G., Cai, D., and Tian, S., 2024. Zenith Angle-based Calibration (ZAC) of Himawari-8 land surface temperature based on MODIS spatiotemporal characteristics, *Remote Sensing of Environment, Under Review.*

[4] **Yu, Y.**, Renzullo, L.J., McVicar, T.R., Malone, B.P. and Tian, S., 2023. Generating daily 100 m resolution land surface temperature estimates continentally using an unbiased spatiotemporal fusion approach, *Remote Sensing of Environment, Accepted.*

[5] **Yu, Y.**, Xu, T. and Wang, T., 2020. Outmigration Drives Cropland Decline and Woodland Increase in Rural Regions of Southwest China, *Land, 9*(11), p.443. **DOI**: `https://doi.org/10.3390/land9110443`.

[6] Wang, T., Yan, J., Cheng, X. and **Yu, Y.**, 2020. Irrigation Influencing Farmers' Perceptions of Temperature and Precipitation: A Comparative Study of Two Regions of the Tibetan Plateau, *Sustainability, 12*(19), p.8164. **DOI**: `https://doi.org/10.3390/su12198164`.

Conference Proceedings, Posters & Oral Presentations

[1] **Yu, Y.**, Renzullo, L.J., McVicar, T.R., Van Niel, T.G., Cai, D., and Tian, S., 2023. Himawari-ANU: A recalibrated geostationary land surface temperature dataset based on MODIS spatiotemporal characteristics, *AGU Fall Meeting 2023, San Francisco, United States, 11-15 December. Submitted.*

[2] **Yu, Y.**, Renzullo, L.J., Tian, S. and Malone, B.P., 2023. An unbiased spatiotemporal fusion approach to generate daily 100 m spatial resolution land surface temperature over a continental scale, *EGU General Assembly 2023, Vienna, Austria, 24-28 April*, EGU23-1501. **DOI**: `https://doi.org/10.5194/egusphere-egu23-1501`.

[3] **Yu, Y.**, Renzullo, L.J. and Tian, S., 2021. Continental scale downscaling of AWRA-L analysed soil moisture using random forest regression, *MODSIM2021, 24th International Congress on Modelling and Simulation, Sydney, Australia, 5-10 December.* **DOI**: `https://doi.org/10.36334/modsim.2021.J10.yu`.

Theses

[1] **Yu, Y.**, 2024. From point-to-pixel: understanding spatiotemporal scaling to improve soil moisture modelling capability through the utilisation of satellite observations, PhD Thesis, The Australian National University, Canberra. *In Preparation.*

[2] **Yu, Y.**, 2020. An Assessment of Outmigration-related Land Use Transition in Rural Area and Corresponding Social and Ecological Dynamics - A Case Study in Southwest China, Masters Thesis, The Australian National University, Canberra. **DOI**: `https://doi.org/10.25911/5fabaffa0e0e9`.

★ Honours & Awards

- ANU University Research Scholarship (2021 - 2024)
- ANU-CSIRO Digital Agriculture PhD Supplementary Scholarship (2021 - 2025)
- ANU UniLodge Residential Scholarship (2020, 2023)

Skills & Certificates

- **Programming Languages**: R Programming (Expert); Python (Advanced); Shell Scripting

- **Platform & Software Packages**: High Performance Computing (NCI & CSIRO); Google Earth Engine; GitHub; ArcGIS; EndNote; LaTeX
- **Certificates**: First Aid Certificate; Youth Mental Health First Aider

⚇ REFERENCES

- References available on request.