

# Yulun Wu

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Personal website: [yulunwu8.github.io](http://yulunwu8.github.io)

## Education and Training

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- 2025.04–**                    **Postdoctoral Researcher**  
University of Toronto, Toronto, ON, Canada  
*Project: Tracing air parcel trajectories for validating remotely sensed aerosol products*
- 2020.01–2025.01**        **PhD in Geography** (Fast-tracked from MSc Geography in September 2021)  
University of Ottawa, Ottawa, ON, Canada  
*Thesis: Adjacency effect in nearshore aquatic remote sensing: modelling, correction, and application.* [\[Link\]](#)  
Supervisor: Dr. Anders Jensen Knudby
- 2014.09–2019.12**        **Honours BSc in Environmental Science (Co-op)**  
University of Ottawa, Ottawa, ON, Canada  
*Honours Thesis: The spatial distribution of arsenic and other trace metal contaminants and their acute toxicity to *Daphnia pulex* in lakes near the Giant Mine in Yellowknife, Canada*  
Supervisor: Dr. Jules M. Blais

## Research Interests

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Coastal remote sensing; atmospheric correction; ocean optics; aerosols; planetary science; radiative transfer; geospatial analysis

## Professional Experience

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- 2023.07–2025.01: Remote Sensing and Field Technician (through the Mitacs Accelerate program), WSP Canada Inc., Montreal
- 2022.04–2023.06: Assistant Ecologist, Office of the Chief Ecosystem Scientist, Parks Canada
- 2022.01–2023.12: Remote Sensing Technician, Liquid Geomatics, Ottawa
- 2021.10–2021.11: Field Technician, Fluvial Systems Research Inc., Vancouver
- 2021.09–2025.01: Lab Coordinator, Shallow Water Earth Observation Lab, University of Ottawa
- 2020.02–2024.09: Remote Sensing Researcher, Agriculture and Agri-Food Canada, Ottawa
- 2020.01–2022.12: Research Assistant, Network on Coastal, Oceans and Lake Optics Remote Sensing (NetCOLOR)
- 2018.05–2020.08: Spatial Analyst (Co-op), Ottawa Neighbourhood Study, University of Ottawa
- 2018.01–2018.04: Assistant Librarian (Co-op), Ottawa Hospital Research Institute, Ottawa
- 2017.05–2017.08: Research Assistant (Co-op), Macroecology Lab, Department of Biology, University of Ottawa

## Teaching Experience

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Winter 2025 – Course Instructor: GEG3105 *Earth Observation*, University of Ottawa

**2023–2024 – Guest Lecturer:** GEG4104 *Methodological and Theoretical Approaches in Geography and Environmental Studies* and GEG3105 *Earth Observation*, University of Ottawa

**2021–2023 – Teaching Assistant:** MAT1371 *Descriptive Statistics*, GEG3305 *Geographies of Globalization*, GEG4702 *Le développement des villes*, ENV1101 *Global Environmental Challenges*, GEG3114 *Biogeography*, and BIO2129 *Ecology* (chronological order), University of Ottawa

## Publications

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### *Peer reviewed*

**Wu, Y.**, Knudby, A., Lapen, D., Craiovan, E., & Bi, S. (2026). Assessment of adjacency-effect correction for satellite-derived reflectance and water quality in agriculturally impacted rivers: A case study in Eastern Canada. *GIScience & Remote Sensing*, 63(1), 2653089.

<https://doi.org/10.1080/15481603.2026.2653089>

Ansari, M., **Wu, Y.**, & Knudby, A. (2025). Assessing the Impact of T-Mart Adjacency Effect Correction on Turbidity Retrieval from Landsat 8/9 and Sentinel-2 Imagery (Case Study: St. Lawrence River, Canada). *Remote Sensing*, 18(1), 127. <https://doi.org/10.3390/rs18010127>

Giardino, C., Pahlevan, N., Fabbretto, A., Panizza, L., Pellegrino, A., Vandermeulen, R., Gianinetto, M., Adriaensen, S., Agten, J., Bernert, H., De Keukelaere, L., Harmel, T., Heege, T., Knudby, A., Schenk, K., Steinmetz, F., Sterckx, S., Vanhellemont, Q., **Wu, Y.**, . . . Gascon, F. (2025). ACIX-III Aqua: Evaluation of atmospheric correction for hyperspectral PRISMA imagery over inland and coastal waters. *International Journal of Remote Sensing*, 1–25.

<https://doi.org/10.1080/01431161.2025.2574517>

Richardson, G., Knudby, A., **Wu, Y.**, & Ansari, M. (2025). A case study comparing approaches to mask satellite-derived bathymetry. *Discover Geoscience*, 3(1), 103.

<https://doi.org/10.1007/s44288-025-00219-1>

**Wu, Y.**, Knudby, A., Pahlevan, N., Lapen, D., & Zeng, C. (2024). Sensor-generic adjacency-effect correction for remote sensing of coastal and inland waters. *Remote Sensing of Environment*, 315, 114433. <https://doi.org/10.1016/j.rse.2024.114433>

Richardson, G., Foreman, N., Knudby, A., **Wu, Y.**, & Lin, Y. (2024). Global deep learning model for delineation of optically shallow and optically deep water in Sentinel-2 imagery. *Remote Sensing of Environment*, 311, 114302. <https://doi.org/10.1016/j.rse.2024.114302>

Richardson, G., Foreman, N., **Wu, Y.**, & Knudby, A. (2024). Global Delineation of Optically Shallow and Optically Deep Water Using Machine Learning. *IGARSS 2024 - 2024 IEEE International Geoscience and Remote Sensing Symposium*, 6010–6013. <https://doi.org/10.1109/IGARSS53475.2024.10641668>

**Wu, Y.**, & Knudby, A. (2023). A Tool That Calculates the Sea-Surface Reflectance Factor in Customized Environments and Geometry. *IGARSS 2023 - 2023 IEEE International Geoscience and Remote Sensing Symposium*, 464–467. <https://doi.org/10.1109/IGARSS52108.2023.10282740>

**Wu, Y.**, Knudby, A., & Lapen, D. (2023). Topography-adjusted Monte Carlo simulation of the adjacency effect in remote sensing of coastal and inland waters. *Journal of Quantitative Spectroscopy and Radiative Transfer*, 108589. <https://doi.org/10.1016/j.jqsrt.2023.108589>

### *Non-peer reviewed*

**Wu, Y.** (2025). yulunwu8/Self-Shading-Correction: Initial release of self-shading correction code and dataset [Computer software]. Zenodo. <https://doi.org/10.5281/zenodo.17620988>

**Wu, Y.** (2025). Video tutorials: Improving retrieved surface reflectance - adjacency-effect correction using T-Mart. <http://dx.doi.org/10.13140/RG.2.2.36495.91045>

- Wu, Y.** (2022). T-Mart Radiative Transfer Code and Documentation. <https://tmart-rtm.github.io>
- Wu, Y.** (2021). Topography-adjusted Monte Carlo simulation of the adjacency effect in remote sensing of coastal and inland waters [Report in fulfillment of the requirement for fast-tracking into a PhD program]. University of Ottawa.
- Wu, Y.** (2020, September). Social Distancing: Easy in a Kayak Surrounded by Instruments – Collection of Remote Sensing Reflectance in Rivers. *Geography, Environment and Geomatics Newsletter*. <https://arts.uottawa.ca/geography/geg-env-newsletter>
- Wu, Y.,** Cheney, C., & Blais, J. M. (2019). The spatial distribution of arsenic and other trace metal contaminants and their acute toxicity to *Daphnia pulex* in lakes near the Giant Mine in Yellowknife NWT [Honours Thesis]. University of Ottawa.

## Awards and Scholarships

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- 2025: The Faculty of Arts Student Awards of Excellence in Studies, University of Ottawa [Link]
- 2024: Association of Professors of the University of Ottawa Award (\$1,500)
- 2022–2023: Ontario Graduate Scholarship for International Students (\$15,000)
- 2021–2025: PhD Admission Scholarship, University of Ottawa (\$78,500)
- 2021–2022: Student Experience Fund, University of Ottawa (\$1,000)
- 2021: BMO Financial Group Graduate Bursaries (\$4,000)
- 2020–2021: uOttawa International Graduate Bursary, University of Ottawa (\$4,000)
- 2020–2021: Suzanne Gratton-Sarrazin Scholarship, University of Ottawa (\$2,050)
- 2019: Roger Guindon Scholarship Fund (\$1,000)
- 2019: Gilles G. Patry Community Engagement Scholarship (\$1,000)
- 2017–2019: Faculty of Science Dean’s Honour List & Merit Scholarship, University of Ottawa (\$3,000)
- 2017: Brian Rust Memorial Scholarship (\$1,600)

## Research Grant

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- 2023–2024 **Separation of optically deep and shallow water.** *Big Idea Grant, University of Ottawa* (\$20,000)

## Field Experience

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- St. Lawrence River, Montreal** – Field technician, smartHarbour project, WSP Canada Inc. Validation of satellite-derived reflectance and water properties (S2, L8, L9, Wyvern Dragonette, Pleiades). July–October 2024 (13 days).
- South Nation River and Ottawa River, Ottawa** – PhD thesis fieldwork. Validation of satellite-derived reflectance and water properties (S2, L8, L9). July–October 2023 (6 days).
- Sidney Island, British Columbia** – Field technician, Parks Canada. Validation of aerial and satellite-derived distribution of coastal saltmarshes and eelgrass beds (Worldview and PlanetScope). June 2022 (7 days).
- Waskaganish, Quebec** – Field technician, Fluvial Systems Research Inc. Mapping water depth and fluvial sediment-size distribution to support ecosystem modelling of walleye-fish habitats. November 2021 (4 days).

**South Nation River and Ottawa River, Ottawa** – PhD thesis fieldwork. Validation of satellite-derived reflectance and water properties (S2, L8). August–October 2020 (4 days).

## Service and Outreach

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2025–2026: Led hands-on science outreach activities for high school students at the University of Toronto, including demonstrations of spectroscope construction, buoyancy experiments, and aerosol/cloud formation in a jar.

2024–Present: Manuscript reviewer: *Journal of Hydrometeorology*, *Remote Sensing of Environment*, *IEEE Trans. on Geoscience and Remote Sensing*, *Wetlands*

2024–2025: Treasurer, Ottawa Chapter, Canadian Remote Sensing Society

2024: Hosted workshop: *Building your first radiative transfer model through Monte Carlo*. Shallow Water Earth Observation Lab, University of Ottawa (January 26).

2023: Provided mentorship to an early career researcher in developing and delivering a virtual presentation for the Geo AquaWatch Water Talks series (October–November).

2020–2024: Treasurer, Geography Graduate Student Association, University of Ottawa

## Additional Training

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HAWC Mission HQP Training Workshop (March 18–19, 2025). University of Saskatchewan, Saskatoon, Canada.

NASA PACE Hackweek 2024 (August 4–8, 2024). University of Maryland, Baltimore County, USA.

2022 International Ocean Colour Coordinating Group Summer Lecture Series (July 18–29, 2022). Institut de la Mer de Villefranche, Villefranche-sur-Mer, France.

International Fall School in Hydrographic Surveying (October 25–29, 2021). Laval University, Quebec City, Canada.

PHY2505 *Atmospheric Radiative Transfer and Remote Sounding* (Winter 2021, exchange student). Department of Physics, University of Toronto, Toronto, Canada.

Google Earth Engine Mini-Course (May 25–29, 2020). Carleton University, Ottawa, Canada.

## Qualifications

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Advanced operations certificate – small remotely piloted aircraft systems (RPAS)

Wilderness First Aid with CPR training

Canada pleasure craft operator card

WHMIS, radiation safety certifications

## Presentations

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**Wu, Y.**, Walker, K., & Bloxam, K. (2025, October 16). *Trajectory hunting for HAWC measurement comparison: A case study with OSIRIS aerosol extinction*. Joint FORUM-HAWC Workshop, Montreal, Canada.

**Wu, Y.**, Knudby, A., Pahlevan, N., & Lapen, D. (2024, October 9). *Improving atmospheric correction over inland and coastal waters: Sensor-generic adjacency effect correction*. Ocean Optics XXVI, Las Palmas de Gran Canaria, Spain.

**Wu, Y.**, & Knudby, A. (2024, June 13). *Adjacency Effect Modelling and Correction for Optical Remote*

- Sensing of Inland and Coastal Waters*. 45th Canadian Symposium on Remote Sensing, Halifax, Nova Scotia, Canada.
- Wu, Y.,** Knudby, A., Pahlevan, N., Lapen, D., Zeng, C., & Begeman, C. (2023, November 15). *Adjacency-effect correction in remote sensing of coastal and inland waters for Sentinel-2 MSI and Landsat-8 OLI imagery*. International Ocean Colour Science Meeting 2023, St. Petersburg, Florida, USA.
- Wu, Y.,** & Knudby, A. (2023, July 17). *A Tool That Calculates the Sea-Surface Reflectance Factor in Customized Environments and Geometry*. IGARSS 2023, Pasadena, California, USA.
- Wu, Y.,** Knudby, A., & Lapen, D. (2023, May 29). *Adjacency Effect Modelling and Correction for Remote Sensing of Inland and Coastal Waters*. The Canadian Meteorological and Oceanographic Society 57th Congress, St. John's, NL, Canada.
- Wu, Y.,** & Knudby, A. (2022, February 28). *Topography-Adjusted Monte Carlo Simulation of the Adjacency Effect in Remote Sensing of Coastal and Inland Waters*. Ocean Sciences Meeting 2022, Online. <https://osm2022.secure-platform.com/a/gallery/rounds/3/details/5093>
- Wu, Y.** (2021, May 7). *Topography-Adjusted Monte Carlo Simulation of the Adjacency Effect in Remote Sensing of Coastal and Inland Waters*. Geography, Environment and Geomatics Graduate Student Conference, University of Ottawa.
- Wu, Y.** (2021, March 17). *Topography-Adjusted Monte Carlo Simulation of the Adjacency Effect in Remote Sensing of Coastal and Inland Waters*. The 3rd National NetCOLOR Meeting, Université Laval.
- Wu, Y.** (2020, September 2). *Retrieval of remote sensing reflectance in the South Nation River, Ottawa*. NetCOLOR Communities-of-Practice Workshop, University of Ottawa.
- Wu, Y.** (2020, February 24). *Satellite derived water quality observations in inland waters*. Canadian Hydrographic Conference, Quebec City, Canada.
- Wu, Y.** (2020, February 11). *Remote sensing-based detection of point source pollution in Canadian waterways*. NetCOLOR Communities-of-Practice Workshop, University of Ottawa.
- Wu, Y.** (2019, April 8). *Lakes close to an abandoned gold mine continue to show hazardous metal(loid) concentrations for Daphnia pulex (water fleas) despite a decade of recovery* [Honours Thesis]. Poster Presentation, University of Ottawa.