

Sarah Quynh-Giang Ho

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Education

- 2022 – 2026 ♦ **Dr.-Ing Civil Engineering** – magna cum laude – Karlsruhe Institute of Technology
Supervised by Uwe Ehret, PD Dr.-Ing
Fielding Floods for Farms and (Low) Flows: The Potential Benefit of Repurposing Small Flood Reservoirs for Drought Protection
- 2019 – 2022 ♦ **M.Sc. Environmental Engineering** – Technical University of Munich
- 2013 – 2017 ♦ **B.Sc. Civil & Environmental Engineering** – University of California, Los Angeles

Professional Experience

- 02/2026-Present ♦ **Postdoctoral Researcher** – Karlsruhe Institute for Technology, Institute for Photogrammetry and Remote Sensing (IPF)
- Coordinating an interdisciplinary colloquium of over 15 members across over five different institutes in preparation for a Research Training Group (RTG) proposal
 - Developing a water temperature module for the European Joint Research Centre's water balance model LISFLOOD
 - Supervising master students' research
- 07/2022-01/2026 ♦ **Research Associate** – Karlsruhe Institute for Technology, Institute of Water and Environment (IWU)
- Researched the expansion of flood protection basins usage for drought protection
 - Managed cooperation between the university, local government, and industry
 - Supervised master and bachelor students' research
- 10/2020-02/2022 ♦ **Student Assistant** – Technical University of Munich
- Assisted instruction of three courses via demonstrations of and assistance with practical exercises
- 04/2018 – 09/2019 ♦ **Civil Engineering Associate I** – City of Los Angeles Bureau of Public Works
- Managed construction for projects with contract value in excess of \$7,000,000
- 07/2017 – 06/2019 ♦ **President** – Union of the Vietnamese Student Associations of Southern California
- Managed day-to-day operations of a collegiate 501(c)3 nonprofit organization
 - Hired and trained staff to plan events (e.g. festivals, workshops, leadership camps)
 - Oversaw the largest Vietnamese lunar new year festival outside of Vietnam, attracting over 45,000 people and drawing over \$500,000 in revenue
- 06/2017 – 08/2017 ♦ **Water Resources Intern** – CDM Smith
- Analyzed flooding within watershed models using ArcGIS
- 05/2016 – 09/2016 ♦ **Student Engineer** – Los Angeles Department of Water and Power *Water Quality Division – Regulatory Affairs*
- Analyzed, compiled, and researched data on water quality contaminants for use in drinking water reports, watershed reports, and annual compliance reports

Teaching Experience

Student Theses (Co-Supervisor)

- 05/2026 ♦ **M.Sc. Study Project** – Simulation of River Water Temperature using LSTM
- 03/2026 ♦ **M.Sc. Study Project** – Simulation of Hydrological Dynamics using LISFLOOD
- 4/2025 ♦ **B.Sc. Thesis** – Modellierung von Wasserverlusten durch Evaporation und Infiltration aus eingestauten Speicherbecken (*Modelling Water Losses in Water Reservoirs from Evaporation and Infiltration*)
- 5/2024 ♦ **M.Sc. Thesis** – Untersuchungen zur Nutzungserweiterung von Stauanlagen in Baden-Württemberg für das Management von Wassermangel, mit Fokus auf bauliche und betriebliche Aspekte (*Investigation into the Potential Use Expansion of Reservoirs in Baden-Württemberg for the management of Drought, with Focus on Constructional and Operational Aspects*)
- 11/2022 ♦ **M.Sc. Thesis** – Nutzungserweiterung von Hochwasser-Stauanlagen für den Schutz vor Wassermangel: Untersuchung zur Wirksamkeit und notwendiger baulicher Anpassungen am Beispiel des Lein-Einzugsgebiets (*The Expanded Use of Flood Reservoirs for Protection against Drought: Investigation into the Potential Benefits of and Constructional Requirements for the Lein Catchment*)

Courses (Teaching Assistant)

- W20/21, W21/22 ♦ **Hydrological and Environmental River Basin Modelling** – 3 hrs / week
- W21/22 ♦ **Seminar in Rainfall-Runoff Modelling** – 0.5 hrs / week
- S21 ♦ **Remote Sensing in Hydrology** – 3 hrs / week

Lectures

- 6/25 ♦ **Fundamentals of Drought** for Engineering Hydrology - 1.5 hrs
- 5/24 ♦ **Fundamentals of Drought** for Engineering Hydrology - 1.5 hrs
- 5/23 ♦ **Fundamentals of Drought** for Engineering Hydrology - 1.5 hrs

Certifications, Awards, Grants, and Distinctions

- 2026 ♦ **Mall Foundation Award - Dissertation**, 4,000€, Mall Familienstiftung
- ♦ **Josef-Wund Stiftung**, 16,722€, Networking Workshops for Early Career Researchers
- 2025 ♦ **Highlight Paper**, Hydrology and Earth Systems Sciences
- 2023 ♦ **Networking Grant**, 1,500€, Karlsruhe House of Young Scientists
- ♦ **Outstanding Student and PhD Candidate Presentation (OSPP)**, EGU General Assembly 2023
- 2016 ♦ **Engineer-in-Training**, California Board for Professional Engineers, Land Surveyors, and Geologists

Research Contributions

Journal Articles

- 1 **Ho, S. Q.-G., Bernhardt, J., Stahl, K., & Ehret, U. (2026).** Fielding floods for flourishing farms: A framework for assessing the reuse of small flood reservoirs as irrigation reservoirs. *Earth's Future*, 14(5), <https://agupubs.onlinelibrary.wiley.com/doi/pdf/10.1029/2025EF006841>, e2025EF006841.
🔗 <https://doi.org/https://doi.org/10.1029/2025EF006841>

- 2 **Ho, S. Q.-G.**, Lang, R., & Ehret, U. (2026b). Forecast-based operation of repurposed small reservoirs for floods, farms, and (low) flows. *Hydrology and Earth System Sciences*, 30(15), 4847–4865.
<https://doi.org/10.5194/hess-30-4847-2026>
- 3 **Ho, S. Q.-G.**, & Ehret, U. (2025c). Is drought protection possible without compromising flood protection? estimating the potential dual-use benefit of small flood reservoirs in southern germany. *Hydrology and Earth System Sciences*, 29(13), 2785–2810. <https://doi.org/10.5194/hess-29-2785-2025>
- 4 **Ho, S. Q.-G.**, Buras, A., & Tuo, Y. (2023b). Comparing agriculture-related characteristics of flash and normal drought reveals heterogeneous crop response. *Water Resources Research*, 59(11).
<https://doi.org/10.1029/2023wr034994>
- 5 **Ho, S. Q.-G.**, Tian, L., Disse, M., & Tuo, Y. (2021). A new approach to quantify propagation time from meteorological to hydrological drought. *Journal of Hydrology*.
<https://doi.org/10.1016/j.jhydrol.2021.127056>

Conference Proceedings

- 1 **Ho, S. Q.-G.**, & Ehret, U. (2026, May 24). Fielding floods for farms and (low) flows: A toolbox for assessing the reuse of small flood reservoirs as irrigation reservoirs, In *JpGU-AGU Joint Meeting 2026*.
<https://pub.conf.it.atlas.jp/en/event/jpgu2026/presentation/AHW33-03>
- 2 **Ho, S. Q.-G.**, Lang, R., & Ehret, U. (2026a, May 8). Forecast-based operation of re-purposed small reservoirs for floods, farms, and (low) flows, In *EGU General Assembly Conference Abstracts*.
<https://doi.org/https://doi.org/10.5194/egusphere-egu26-7812>
- 3 **Ho, S. Q.-G.**, & Ehret, U. (2025a, April 30). Assessing the potential ability of repurposed small flood reservoirs to supply local agricultural irrigation demand in southern germany, In *EGU General Assembly Conference Abstracts*. <https://doi.org/https://doi.org/10.5194/egusphere-egu25-4401>
- 4 **Ho, S. Q.-G.**, & Ehret, U. (2025b, April 30). Ist Dürreschutz ohne Beeinträchtigung des Hochwasserschutzes möglich? Abschätzung der potenziellen Nutzungserweiterung von Hochwasserrückhaltebecken in Baden-Württemberg, In *Tag der Hydrologie 2025*.
<https://doi.org/https://doi.org/10.5194/egusphere-egu25-4401>
- 5 **Ho, S. Q.-G.**, Kipp, C., Goepfert, H., Hofer, J., Seidel, F., & Ehret, U. (2024, April 15). Is drought protection possible without compromising flood protection? estimating the maximum dual-use benefit of flood reservoirs in southwest germany, In *EGU General Assembly Conference Abstracts*.
<https://doi.org/https://doi.org/10.5194/egusphere-egu24-5542>
- 6 **Ho, S. Q.-G.**, Buras, A., & Tuo, Y. (2023a, April 24). A comparison of agriculture-related characteristics of flash and traditional drought, In *EGU General Assembly Conference Abstracts*.
<https://doi.org/https://doi.org/10.5194/egusphere-egu23-1474>
- 7 **Ho, S. Q.-G.**, & Tuo, Y. (2022, March 22). Ein Vergleich der auf Evapotranspiration- und Bodenfeuchte-basierenden Definitionen von traditioneller und Flash-Dürre in der Region des kalifornischen Längstal. Tag der Hydrologie, Munich, Germany.
- 8 Tian, L., **Ho, S. Q.-G.**, Disse, M., & Tuo, Y. (2021, April 19). The temporal propagation processes of multiple types of drought in Central Asia, In *EGU General Assembly Conference Abstracts*.
- 9 Oey, T., Huang, C., Worley, R., **Ho, S. Q.-G.**, Timmons, J., Cheung, K. L., Kumar, A., Bauchy, M., & Sant, G. (2015, May 5). Linking fly ash composition to performance in cementitious systems, In *World of Coal Ash*, Nashville, Tennessee, USA.
<https://uknowledge.uky.edu/cgi/viewcontent.cgi?article=1621&context=woca>

Skills

Languages

- English ◇ Native Speaker
- German ◇ B2
- Vietnamese ◇ B1 (Heritage Speaker)
- Spanish ◇ B1

Programming

- MATLAB ◇ Main programming language used for research; high proficiency
- Visual Basic ◇ Basic knowledge of programming macros
- C++ ◇ Completed introductory programming course
- Python ◇ Basic knowledge

Modelling and GIS Knowledge

- QGIS ◇ Main GIS processor used for research
- LARSIM ◇ *Large Area Runoff Simulation Model* – Completed coursework and used for research
- SWAT ◇ *Soil and Water Assessment Tool* – Completed coursework in and assisted teaching in a course
- LISFLOOD ◇ Used for research, assisted in developing a water temperature model *LISWTEMP Water Flow and Balance Simulation Model* – Completed coursework
- SWMM ◇ *Storm Water Management Model* – Completed coursework

Social Engagement

- 2024 – present ◇ **Member**, TC Karlsruhe-West e.V.
- 2024 – 2025 ◇ **Member**, KIT Kammerorchester
- 2020 – 2021 ◇ **Team Lead**, Plant a Seed
- 2017 – 2019 ◇ **President**, Union of the Vietnamese Student Associations of Southern California (UVSA)
- 2017 – 2018 ◇ **Opening Ceremony Director**, UVSA Tet Festival
- 2016 – 2017 ◇ **Decorations Director**, UVSA Tet Festival
- 2013 – 2017 ◇ **Operations Staff**, UVSA Leadership Camp
- 2016 – 2017 ◇ **Finance Director**, UCLA Vietnamese Culture Night
- 2015 – 2016 ◇ **Executive Director and Writer**, UCLA Vietnamese Culture Night
- 2014 – 2015 ◇ **Stage Director**, UCLA Vietnamese Culture Night
- 2013 – 2014 ◇ **Member**, UCLA Symphonic Orchestra
- 2013 ◇ **Gold Award**, Girl Scouts of the U.S.A.