

Donglai Yang

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Earth & Atmospheric Sciences \diamond Georgia Institute of Technology

BIOGRAPHY

Donglai Yang is a second-year Ph.D. student in [Polar Geophysical Simulation Lab](#) at Georgia Institute of Technology. He is broadly interested in numerical modeling and inverse problem in glaciology, ice-penetrating radar physics, and applications of Scientific Machine Learning to bridge radar observations and ice sheet modeling.

EDUCATION

Georgia Institute of Technology, Georgia <i>Ph.D. student, Earth and Atmospheric Sciences (Advisor: Winnie Chu)</i>	08/2023 - Present
University at Buffalo, New York <i>M.S. Computational Geosciences (Advisor: Kristin Poinar, Sophie Nowicki)</i>	08/2021 - 05/2023
Wesleyan University, Connecticut <i>B.A. Physics; Earth Sciences (Advisor: Phillip Resor)</i>	08/2017 - 06/2021

JOURNAL PUBLICATIONS

1. **Yang D.**, Chu W., Dawson E., 2024 (In preparation) *Generative AI for Ice Sheet Basal Temperature Inference by Bridging Airborne Radar and Thermal Modeling*. Planned submission: Journal of Geophysical Research - Machine Learning and Computation.
2. **Yang D.**, Poinar K., Nowicki S., Csatho B., 2024. *Characteristics of dynamic thickness change across diverse outlet glacier geometries and basal conditions*. Journal of Glaciology. Published online 2024:1-15. doi:10.1017/jog.2024.50

CONFERENCE ABSTRACTS

† represents oral presentations; * represents poster presentations; no symbol represents presentations by collaborators

1. † **Yang D.**, Chu W., Dawson E., 2024. *Probabilistic Ice Basal Temperature Inversion with Ice-Sheet Model and Generative AI*. AGU 2024 Fall Meeting conference.
2. Mejia J., Poinar K., Meyer C., Chu W., **Yang D.**, 2023. *Investigating Observations and Modeling to investigate Firn Aquifer Hydrology and its Role in Crevasse Propagation on Helheim Glacier*. AGU 2023 Fall Meeting conference.

3. † **Yang D.**, Poinar K., Nowicki S., 2022. *Synthetic glacier experiments reveal controls on ice dynamic thinning variability*. AGU 2022 Fall Meeting conference.
4. † **Yang D.**, Poinar K., Nowicki S., 2022. *Modeling characteristic surface elevation changes reveal dominant process control*. NASA ICESat-2 Science Meeting.
5. * **Yang D.**, Resor P., 2022. *Numerical Modeling of Frictional Melting Dynamics Constrained by Surface Micro-Roughness*. EGU General Assembly 2021.

HONORS & FELLOWSHIPS

iHARP Polar Informatics Graduate Fellow ($\sim 70,000$) – 2024
Best Student Poster – Georgia Tech EAS Graduate Student Symposium ($\$150$) – 2024
Pegrum Professional Development Award ($\$900$) – 2023
Phi Beta Kappa National Honor Society – 2021
High Honor in Earth & Environmental Sciences – 2021
College of Integrative Science Summer Research Fellowship ($\$5,000$) – 2020
College of Environment Research Fellowship ($\$4,800$) – 2019
Dean's List, Undergraduate Studies – 7 Semester

WORKSHOP AND FIELD EXPERIENCE

GlaMacLeS: The Glaciology in Machine Learning Summer School (2024)

Participated in the one-week workshop on deep-learning application to glaciological problems. Completed a small project with Dr. Mauro Perego on using operator learning (DeepONet) to emulate ice sheet models.

SELECTED SERVICES

Reviewer, Papers: Journal of Glaciology

University committees, Student Grievance and Appeal committee (Fall 2024 – present) \diamond College of Lifetime Learning Dean Search committee (Fall 2024 – present)

TEACHING EXPERIENCE

Georgia Institute of Technology

Graduate Teaching Assistant, Earth Processes Lab *EAS2600*
Undergraduate-level introduction to physical processes on Earth

University at Buffalo

Graduate Teaching Assistant, Natural Hazards and Climate Change *GLY105*
Undergraduate-level introduction to climate change, geology, and hazards

Wesleyan University

Course Assistant, Modeling the Earth and Environment *EES375*
Senior undergraduate-level numerical modeling of geophysical processes with MATLAB

LEADERSHIP EXPERIENCE

Executive Vice President

Graduate Student Government Association (GSGA, 2024-2025) at Georgia Tech
Assisting and promoting student campus-wide initiatives and facilitates two-way conversations between graduate student body and the university administration.

Research Seminar Lead

Geophysics Seminar at Georgia Tech (2023); Climate Seminar at University at Buffalo (2023)
Coordinated and managed logistics for research seminars, including arranging talks by both internal and external speakers

WORK EXPERIENCE

Sust Global

Climate Data Science Intern, 06/2022 - 08/2022
Engineered model-based future physical climate risk index for heatwave, extreme precipitation, and sea level rise.

RELEVANT COURSES

Undergraduate level

◇ Electrodynamics ◇ Earth System Modeling

Graduate level

◇ Machine Learning Methods for PDE ◇ Numerical Analysis and Methods for PDE ◇ Thermodynamics ◇ Finite Element Methods ◇ Continuum Mechanics ◇ Machine Learning ◇ Glaciology ◇ Geophysical Electromagnetic Methods