Victor Hieu L. Nguyen

Chapel Hill, North Carolina

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Summary

Fourth-year undergraduate at UNC-Chapel Hill. Ongoing research work in observational physical oceanography and coastal ocean modeling. Applying to PhD programs in physical oceanography for Fall 2026 with emphasized interest in ocean turbulence, air-sea gas exchange, marine carbon dioxide removal (mCDR), and numerical modeling.

Education

University of North Carolina at Chapel Hill *Chapel Hill, NC*

Environmental Sciences, B.S., Mathematics B.S. *Anticipated Graduation: 2026*

- Honors Carolina
- Relevant Coursework: Physical Oceanography, Blue Carbon Ecosystems, Fluid Dynamics, Numerical Analysis, Numerical Methods, Linear Algebra, Data Structures and Analysis, Classical Mechanics, Differential Equations, Multivariable Calculus

Professional Experience

Observational Physical Oceanography Lab, UNC *Chapel Hill, NC*

Undergraduate Researcher *Mar. 2023 - Present*

- Data visualizations of Slocum gliders from Processes driving Exchange At Cape Hatteras (PEACH) project
- MATLAB programming for 2D/3D plots, interpolation, time series lagging, and cleaning raw ASCII datasets
- Analysis of primary productivity along Cape Hatteras coastal regions to verify seawater exchange and mixing between shelf and open ocean
- Advisor: Dr. Harvey Seim

Carolina Dynamical Oceanography Group, UNC *Chapel Hill, NC*

Undergraduate Researcher *Jun. 2025 - Present*

- Assessing impact of coastal bathymetry on frontal system dynamics on the Diamond Shoals of Cape Hatteras
- Model setup using Oceananigans Julia package with forcings generated from satellite observational data
- Implementation of bi-directional convergent flow to simulate Cape Hatteras coastal region and frontal formation
- Advisor: Dr. Ken Zhao

Carbon Cycle and Earth Environment Lab, Texas A&M University *College Station, TX*

Summer REU Fellow *May 2024 - Aug. 2024*

- Project on interactive Long-term Ocean-atmosphere-Sediment CArbon cycle Reservoir (iLOSCAR) model
- Modified iLOSCAR to test long-term impact of carbon dioxide removal methods on ocean system interactions
- Compared how direct-air capture, ocean alkalinity enhancement, and enhanced rock weathering can mitigate impacts of global warming and ocean acidification
- Advisor: Dr. Shuang Zhang

Skidaway Institute of Oceanography *Savannah, GA*

Underwater Glider Pilot *Jul. 2023 - Present*

- Remote piloting of ocean glider fleet managed by the Southeast Coastal Ocean Observing Regional Association
- Modify and create scripts that designates glider waypoints for dead reckoning navigation and behavior
- Oversee file transfer and glider progress in weekly 24 hour shifts with fellow pilots to ensure data visualizations and communications with the glider are up to date
- Advisors: Dr. Catherine Edwards and Karen Dreger

Southeast Coastal Ocean Observing Regional Association *Remote*

Data Engineering Intern *May. 2025 - Aug. 2025*

- Framework development for Slocum glider data processing and management for SECOORA glider fleet
- Establish glider data hierarchy based on NASA standard data product processing levels for 9 separate gliders
- Implement optimized thermal lag correction scheme to resolve irregularities in observed salinity measurements
- Advisors: Dr. Harvey Seim and Dr. Catherine Edwards

Ackerman Center for Excellence in Sustainability, UNC *Chapel Hill, NC*

Large Language Models Business Climate Strategy Intern *Jan. 2024 - May 2024*

- Tested large language models (LLM), including ChatGPT and ChatNetZero for business climate strategy
- Generated sustainability and energy related prompts to evaluate accuracy and performance of LLM response
- Researched ChatNetZero functionality and features and bug reporting for future LLM project development
- Advisor: Jeff Mittelstadt

Service and Outreach

Carolina Science Olympiad *Chapel Hill, NC*

President *May 2024 - Present*

- Served on the 12 member executive board as Media Chair and Service Chair from 2022 - 2024
- Plan and prepare for invitational tournament hosting 15 high school teams and over 500 competitors
- Coordinate with other NC Science Olympiad alumni networks to volunteer for regional and state tournaments

Epsilon Eta Honors Environmental Fraternity, UNC *Chapel Hill, NC*

Academic Chair *May 2025 - Dec. 2025*

- Hosted study hours and planning academic-related events as part of fraternity general body meetings
- Created resources for members to apply for REU programs relating to biology and environmental sciences
- Served alongside fellow Internal Development chairs to coordinate networking and speaker event series

Office of Undergraduate Research, UNC *Chapel Hill, NC*

OUR Student Ambassador *May 2024 - May 2025*

- Served as a mentor for UNC Accelerated Research Program and help mentees with on-campus summer research
- Held office hours for students to receive advice on how to get involved with research on campus
- Served on Earth/Physical Sciences Committee, and hold information sessions and workshops for earth and physical science research twice a year

MathWorks *Chapel Hill, NC*

MATLAB Student Ambassador *Aug. 2024 - May 2025*

- Served as an ambassador to promote MathWorks products such as MATLAB and Simulink on campus at UNC
- Hosted events and giveaways to teach and inspire students on campus how to use MATLAB software
- Maintained a social media presence and collaborate with organizations on campus to promote MathWorks software

Honors and Awards

2024	**Inductee,** Epsilon Eta Honors Environmental Fraternity Alpha Chapter	*Chapel Hill, NC*
2024	**Dean's List,** University of North Carolina at Chapel Hill	*Chapel Hill, NC*
2023	**Recipient,** Honors Carolina Membership	*Chapel Hill, NC*
2022	**Recipient,** SECU People Helping People Scholarship Program	*Charlotte, NC*

Skills

Programming	MATLAB, Python, JAVA, Julia, R
Front-end	LaTeX, HTML, CSS, Markdown
Languages	English, Vietnamese

Presentations

Nguyen, V.H. and Seim, H. (2025). *poster presentation*. Shelf Water Mixing from Cape Hatteras Coastal Region: Tropical Cyclone and Winter Storm Effect on Destratification. AGU25 Annual Meeting, American Geophysical Union.

Nguyen, V.H. and Seim, H. (2025). *poster presentation*. Continental shelf hydrographic variability during the Processes driving Exchange at Cape Hatteras (PEACH) program. Celebration of Undergraduate Research, UNC.

Zhang, S., **Nguyen, V.H.**, et al. (2024). *poster presentation.* Long-term carbon storage capacity and ocean co-benefits of carbon dioxide removal methods. AGU24 Annual Meeting, American Geophysical Union.

Seim, H., Edwards, C., and **Nguyen, V.H.** (2024). *poster presentation*. Southern Mid-Atlantic Bight conditions observed with shelf gliders during the PEACH project during 2017-2018. NSF OOI Community Workshop: Pioneer Array, Old Dominion University.

Nguyen, V.H., Zhang, S., and Li, S. (2024). *oral presentation*. Carbon capture potential and ocean system interactions. Department of Oceanography REU Symposium, TAMU.

Nguyen, V.H., Zhang, S., and Li, S. (2024). *oral presentation*. Carbon capture potential and ocean system interactions. Department of Oceanography REU Symposium, TAMU.

Nguyen, V.H., Zhang, S., and Li, S. (2024). *poster presentation*. Carbon capture potential and ocean system interactions. LAUNCH REU Poster Symposium, TAMU.

Nguyen, V.H. and Seim, H. (2024). *poster presentation*. Characterization of Hatteras Front using glider deployments from PEACH project. Celebration of Undergraduate Research, UNC.

Nguyen, V.H. and Seim, H. (2024). *poster presentation*. Characterization of Hatteras Front using glider deployments from PEACH project. Earth, Marine, and Environmental Sciences Research Symposium, UNC.