

# VICTOR HIEU NGUYEN

BS CANDIDATE, DEPARTMENT OF EARTH, MARINE, AND ENVIRONMENTAL SCIENCES

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## Summary

Incoming fourth-year undergraduate at UNC-Chapel Hill. Mixed research experience in observational physical oceanography and biogeochemical modeling. Research interest in the development of computational methods to quantify and study marine carbon dioxide removal (mCDR) techniques. Planning to apply to graduate programs in 2026 to study physical oceanography.

## 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: Oceanography, Blue Carbon Ecosystems, Fluid Dynamics, Numerical Analysis, Numerical Methods, Linear Algebra, Data Structures and Analysis, Classical Mechanics, Differential Equations, Multivariable Calculus

## Research and 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

### Southeast Coastal Ocean Observing Regional Association

Remote

DATA ENGINEERING INTERN

May. 2025 - Present

- 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

## Skidaway Institute of Oceanography

UNDERWATER GLIDER PILOT

Savannah, GA

Jul. 2023 - Present

- Remote monitoring of ocean glider fleet managed by the Southeast Coastal Ocean Observing 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

## Ackerman Center for Excellence in Sustainability, UNC

LARGE LANGUAGE MODELS BUSINESS CLIMATE STRATEGY INTERN

Chapel Hill, NC

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

## Leadership

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### Carolina Science Olympiad

PRESIDENT

Chapel Hill, NC

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

ACADEMIC CHAIR

Chapel Hill, NC

May 2025 - Present

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

### Office of Undergraduate Research, UNC

OUR STUDENT AMBASSADOR

Chapel Hill, NC

May 2024 - Present

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

### MathWorks

MATLAB STUDENT AMBASSADOR

Chapel Hill, NC

Aug. 2024 - Present

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

## Honors & Awards

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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

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

## Presentations

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- 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.