

# BIANCA CHAMPENOIS

MIT Graduate Student

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## EDUCATION

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<b>PhD, Mechanical Engineering and Computation</b> , MIT	2022 - 2025
Major: Computational Science and Engineering, Minor: Geophysical Fluid Dynamics	
<b>Master of Science, Mechanical Engineering</b> , MIT 4.9/5.0	2020 - 2022
Thesis: Reconstructing 3D ocean temperature fields from real-time satellite and buoy surface measurements	
<b>Bachelor of Science, Mechanical Engineering</b> , UC Berkeley 3.9/4.0	2016 - 2020

## PUBLICATIONS

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(Submitted) **B. Champenois** and T. P. Sapsis. Likelihood-Weighted Active Selection of Training Data for Improved Extreme Weather Event Prediction.

(Submitted) **B. Champenois**, C. Bastidas, B. LaBash, and T. P. Sapsis. Data-Driven Modeling of 4D Ocean and Coastal Acidification from Surface Measurements.

**B. Champenois** and T. P. Sapsis. Machine Learning Framework for the Real-Time Reconstruction of Regional 4D Ocean Temperature Fields from Historical Reanalysis Data and Real-Time Satellite and Buoy Surface Measurements. [Physica D: Nonlinear Phenomena](#), December 2023.

S. Guth, **B. Champenois**, T. P. Sapsis, Application of Gaussian Process Multi-Fidelity Optimal Sampling to Ship Structural Modeling. [34th Symposium on Naval Hydrodynamics](#), June 2022.

## AWARDS

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MIT Path of Professorship Participant	2024
Computational Science and Engineering Community Retreat Best Poster Prize	2024
NextProf Nexus Workshop Participant	2024
2 <sup>nd</sup> Place in the MechE De Florez Competition in the Category of Graduate Science	2024
2 <sup>nd</sup> Place in the SIAM UQ Power of Diversity Poster Competition	2024
SIAM UQ Travel Award	2024
MIT MechE Graduate Travel Grant	2023
MIT Graduate Student Council Conference Grant	2023
Clement F. Burnap Award for Outstanding Master of Science in a Marine Field	2023
Meredith Kamm Award for Excellence in a Woman Graduate Student	2023
3 <sup>rd</sup> Place in the MechE De Florez Competition in the Category of Graduate Science	2023
MIT EnergyHack 2nd Place (1st place in the McKinsey & Co challenge)	2022
Mechanical Engineering Research Exhibition Poster Competition: Runner Up	2021
MIT MechE Harrington Fellowship	2020
National Science Foundation Graduate Research Fellowship (NSF-GRFP)	2020

## SKILLS

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<b>Programming</b>	Python, MATLAB, Java, High Performance Computing
<b>Software Libraries</b>	NumPy, Pandas, TensorFlow, PyTorch, ROS
<b>Design Software</b>	Adobe (Illustrator, Photoshop), AutoCAD, SolidWorks, Fusion, KiCad
<b>Design Tools</b>	3D Printing, Laser Cutter, Machine Shop Trained
<b>Language</b>	French (fluent), Spanish (proficient)

## CONFERENCES

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**B. Champenois**, T. P. Sapsis, Data-Driven Modeling of Indicators for Ocean Acidification in the US Northeast Coast with Physics-Enhanced Machine Learning. ENOC, 2024.

**B. Champenois**, T. P. Sapsis, Finding the Most Valuable Data Points for Predicting Extreme Event Statistics with Likelihood-Weighted Active Learning. ENOC, 2024.

**B. Champenois**, T. P. Sapsis, Overcoming Fear of Missing Out (FOMO): Active Selection of Training Data to Predict Extreme Event Statistics in Climate Datasets. SIAM UQ, 2024.

**B. Champenois**, A. Charalampopoulos, T. P. Sapsis, Quantifying the Value of Data in Scientific Machine Learning Models with Output-Weighted Active Learning. AGU, Fall 2023.

**B. Champenois**, T. P. Sapsis, A Multi-Fidelity Framework for Ocean Temperature Reconstruction Based on Model-Inferred Dynamics and Real Time Satellite and Buoy Measurements. AGU, Fall 2021.

K.T. Huynh, E. Variano, **B. Champenois**, M. Grehm, Correlating Gas Exchange Across the Air-Water Interface to Water-Side Velocity Statistics. AGU, Fall 2020.

## MEDIA AND REPORTS

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Radio Canada [Moteur de Recherche](#) *Les modèles météorologiques sont-ils désuets?* July 2024.

[MIT News](#) *The MIT Bike Lab: A place for community, hands-on learning.* May 2024.

[SIAM News](#) *MIT SIAM Student Chapter Hackathon Utilizes Open-access Energy Data* April 2024.

[Spectrum Magazine](#) *Bianca Champenois Helps Model the Future for Coastal Industries.* Spring 2023.

Global Energy Monitor [Scraping By 2023: Global Coal Miners and the Urgency of Just Transition.](#) Contributions: Development of machine learning model to estimate coal mine workforce size.

## WORK, SERVICE, LEADERSHIP

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**MIT School of Engineering [Communication Lab](#) - Fellow** June 2023 - Present  
Communication coach for graduate and undergraduate students. Responsibilities include one-on-one sessions, content creation for the online CommKit resource, and technical communication workshops.

**MIT MechE - 2.122 Stochastic Systems Teaching Assistant** January 2022 - May 2022  
In charge of writing and grading problem sets and exams, and holding weekly office hours and review sessions for a class of 38 undergraduate, graduate, and Navy/Coast Guard master's students. Overall rating: 6.6/7.

**MIT Division of Student Life - Graduate Resident Advisor** September 2021 - Present  
Live-in resident advisor at Next House supporting 45 undergraduate students. Responsible for setting community expectations, organizing social activities, managing crises, and providing mental health support.

**MIT MechE [ENGAGE](#) - Peer Mentor** September 2022 - Present  
Mentor for incoming women and underrepresented minority first year graduate students. Responsible for attending and organizing semesterly workshops, weekly group discussions, and regular one-on-one meetings.

**[The Bike Lab](#) - President and Founder** June 2022 - Present  
Founded a new student-run bike repair cooperative at MIT. In charge of fundraising, purchasing tools and parts, recruiting volunteers, coordinating hours, and leading repairs.