PhD Position: Machine Learning, Ocean-Atmosphere Dynamics, Sea Level Rise, (Florida Atlantic University)

For inquiries or to apply, please contact Drs. Laurent Cherubin and Xingquan (Hill) Zhu through email (slrp.fau@gmail.com) with the following materials:
1) Simple Resume/CV, and
2) One sample publication or manuscript.
Application Deadline April 15th 2026.

We are seeking a highly motivated PhD student to join an interdisciplinary research project focused on **climate dynamics, machine learning, and sea level rise (SLR) prediction in the Gulf of Mexico (aka Gulf of America)**. This project is conducted in close partnership with Florida International University, Florida Sea Grant, University of Florida, National Academy of Sciences – Gulf Program, and local coastal decision-makers, and emphasizes the translation of cutting-edge science into actionable tools for communities.

The PhD student will contribute to a multi-year effort that integrates:

- Products from high-resolution sea level and coastal flooding data and models
- **Advanced data analysis and AI-based approaches**
- Community-engaged research and extension activities
- Incorporation of ecological change with SLR and flooding predictions **using AI.**

The overarching goal is to improve public understanding of SLR and to co-develop decision-support tools that help coastal communities plan for increasing flood risk **using AI**.

The student's research will include:

- Diagnosing how large-scale atmospheric and oceanic variability drives sea-level changes in the Gulf of America using Community Earth System Model (CESM) high resolution (HR) simulations.
- Quantifying the influence of modes such as ENSO, NAO, AMO, PDO, Loop Current variability, and North Atlantic Warm Pool heat content on sub-seasonal-to-decadal sea-level fluctuations.
- Develop AI and machine learning algorithms and system framework that integrate physical insights, as well as data collected from sensors, to find scientifically meaningful features for sea level modeling and prediction.

The student will coordinate with other research partners in the program:

- Engage with iPOGS colleagues at Texas A&M and at Rice University who will contribute data to the project
- Engage with local planners, emergency managers, and community members through our partner at Sea Grant to ensure research products and **AI prediction tools** meet local needs

We welcome applicants with backgrounds in:

- Numerical modeling, computer science, physical oceanography, atmospheric science, or related fields
- Strong interest in AI, data mining, and large data analysis and programming

- Interested in a Ph.D. in Computer Science
- Solid mathematical reasoning and critical thinking skills, especially in foundation of machine learning, physics informed learning, optimization, and graph theories.

The position is fully funded with tuition, a competitive stipend, and research support. The student will be based at Florida Atlantic University Boca Raton campus, with travels to work with our partners at FIU and UF and out of state. The home department of the candidate will be Department of Electrical Engineering and Computer Science under the supervision of Drs. Xingquan (Hill) Zhu and Laurent Chérubin.

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Only shortlisted candidates will be contacted.
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