

AI & DATA ANALYTICS FOR UNDERWATER DOMAIN AWARENESS (UDA)

6-Month Advanced Training
Program

Blended Learning | Project-Based | Research-Oriented



“Where Artificial Intelligence meets Ocean
Governance, Maritime Systems, and Real-World Data.”

ABOUT THE PROGRAM



PARTICIPANTS LEARN TO

- Handle noisy, sparse, real-world datasets
- Apply machine learning to time-series and geospatial data
- Interpret underwater acoustic and environmental signals
- Design data-driven decision support workflows
- Connect analytics with governance and policy use cases

The focus is not theoretical exposure.

It is applied problem-solving aligned with real datasets and operational challenges.

The **AI & Data Analytics for Underwater Domain Awareness (UDA)** program is a structured, research-driven training initiative designed to build strong foundations in machine learning, data analytics, and AI applications within underwater, coastal, and freshwater systems.

The underwater domain is a high-volume, high-uncertainty data environment. Sensors, acoustic systems, satellites, robotics, and monitoring platforms generate continuous data streams. Without analytics and AI, this data remains unused potential.

This program bridges that gap.

→ WHY THIS PROGRAM MATTERS

Oceans and inland waters are central to:

- Climate resilience
- Maritime security
- Blue economy development
- Fisheries and aquaculture
- Offshore infrastructure
- Environmental governance

AI-enabled Underwater Domain Awareness is no longer optional. It is a strategic necessity.

PROGRAM STRUCTURE & LEARNING MODEL



Program Structure (6 Months)

01 E-Learning Modules

- Recorded lectures
- Curated reading material
- Module-wise assessments
- Certification on successful completion
- Self-paced within program timeline

02 Individual Project-Based Learning

Every participant undertakes an independent project aligned with real-world datasets or research questions.

Focus areas may include:

- Underwater radiated noise analysis
- Sediment transport modelling
- Marine spatial planning analytics
- Environmental impact assessment
- Climate risk modelling
- Blue economy data frameworks

03 Weekly Mentorship & Technical Reviews

- 2 hours per week mentor-led sessions
- Project design and scoping
- ML modelling guidance
- Validation and interpretation
- Scientific communication skills

04 Weekly Project Showcase (1 Hour)

Participants present:

- Progress updates
- Data challenges
- Model outputs
- Research reasoning

This builds structured thinking and professional communication.

05 On-Site Training (2 Weeks)

Hands-on exposure to:

- Real datasets
- Analytical workflows
- Lab-based data analysis
- Domain-specific tools
- Guest sessions with experts



Projects are reviewed continuously and may be extended into:

- Publishable research
- MSc / PhD preparation
- Industry-aligned analytical portfolios

COURSE CONTENT



01 Machine Learning for UDA

- Supervised, Unsupervised, Reinforcement & Deep Learning
- Time-series & Geospatial modelling
- Robustness & interpretability
- Governance-focused ML



02 Basics of the Underwater Domain

- Systems-level understanding
- Governance & geopolitical drivers
- Tropical water dynamics
- Sensing & deployment constraints



03 Underwater Radiated Noise (URN) Management

- Acoustic monitoring frameworks
- Source–path–receiver models
- Anthropogenic vs natural noise
- Sustainable noise governance



04 Sediment Management

- Sediment transport processes
- Data-driven classification
- Infrastructure & ecological impacts



05 Digital Transformation for Coastal & Riverine Communities

- Fisheries & aquaculture analytics
- Environmental modelling
- Marine Spatial Planning integration



06 Elective Modules (Choose One)

- Python for Data Science & Basics of ML
- Blue Economy
- Climate Change Risk & UDA

ELIGIBILITY & OUTCOMES



Who Should Apply?

- Final-year students in Undergraduate
- Postgraduates & PhD scholars
- Early professionals
- Individuals seeking AI + environmental domain specialization

Relevant backgrounds include:

Engineering | Computer Science | Environmental Science | Physics
| Marine Studies | Policy | Economics | Multidisciplinary

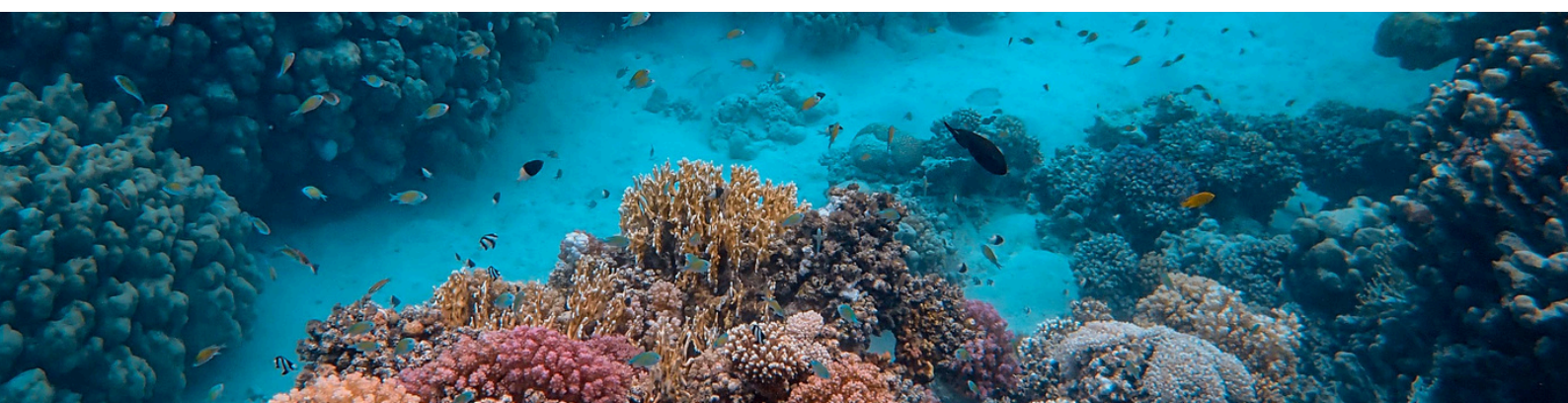
Learning Outcomes

By the end of the program, participants will:

- Apply machine learning to underwater and environmental datasets
- Design complete analytics workflows
- Interpret domain-specific signals and patterns
- Build an industry or research-ready portfolio
- Understand how AI integrates with maritime governance

Program Snapshot

- Duration: 6 Months
- Mode: Blended (Online + On-Site)
- Learning Model: Self-paced + Mentored
- Outcome: Project + Certification



APPLY NOW

Applications are reviewed on a rolling basis.
Limited seats available.



OR

Register via the official
link below :

<https://www.maritimeresearchcenter.com>

Scan QR Code to
register



FOR QUERIES

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