

## PRESS RELEASE

### **Robosys and the University of Strathclyde collaborate in novel subsea neuromorphic object detection project**



*Robosys Automation and the **University of Strathclyde** have signed a Knowledge Exchange Agreement for a new project exploring underwater object detection using neuromorphic sensing*

**Robosys Automation** and the UK's **University of Strathclyde** have signed a Knowledge Exchange Agreement to support a new project which will explore underwater object detection using neuromorphic sensing.

Robosys is collaborating with the University and will also fund the testing of the sensing technology for underwater object detection using novel technologies. The aim of the project is to develop the encoding mechanisms for multimodal data collected through neuromorphic sensors for underwater object detection.

The challenges to underwater object detection include limited optical sensor visibility due to water turbidity and lack of light penetration, combined with interference due to environmental factors such as tides, temperatures and salinity, together with financial implications due to specialized equipment and increased maintenance frequency.

The University of Strathclyde's **Dr Chaitanya Patil**, Lecturer in Naval Architecture, Ocean and Marine Engineering is leading the pioneering project. Dr Patil is a specialist in marine system intelligence with a particular focus on modelling and simulation across cutting-edge technologies.

Dr Patil's current research around intelligent marine systems utilizing advanced machine-learning methodologies lead him to develop the project focused on Neuromorphic sensor fusion for underwater object detection (SENSE) has been facilitated through EPSRC Grant reference EP/X525820/1.

Dr Patil approached Robosys due to the Company's notable expertise and standing in the field of maritime navigation, autonomy and background in vision systems and associated algorithm development, in order to initiate a collaboration to help propel the research into neuromorphic systems.

The emergence of neuromorphic systems has delivered new methodology to how traditional computation is performed in robotics. Neuromorphic supported intelligence features brain-inspired efficiency, enabling robotics to swiftly and robustly learn and adapt to new scenarios and operations.

**Aditya Nawab**, Founder, CEO & CTO of Robosys Automation, comments, "We are delighted that Robosys Automation is collaborating with the University of Strathclyde in this exciting and ground-breaking project. As maritime industry innovators, the Robosys' technical team continually explores novel methods of pushing the envelope. This project with the University demonstrates this, with change detection sensing working hand-in-hand with cooperative and competitive computation for perception and control, which will enable ever-increased learning and problem solving, being essential in the future of a safer, smarter and greener maritime."

Following the culmination of the initial underwater object detection project, and as a reflection of the significance of the positive impact this technology will bring to the maritime and ocean technologies sectors, it is planned that this project will be further developed by the University's PhD Students and Researchers in subsequent years.

Discover more at [www.robosysautomation.com](http://www.robosysautomation.com).

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# NOTES TO EDITORS

## ABOUT ROBOSYS AUTOMATION

Since 2012, **Robosys Automation** has been regarded as the world leader in maritime autonomy and smart shipping applications, delivering pioneering and intelligent navigation solutions to crewed, lean-crewed and autonomous vessels, USVs and ships, from 12m to 320m.

Headquartered at the UK's National Oceanography Centre with offices in USA, Canada, and India, Robosys' solutions are proven and boast full IMO Degree 4 Maritime Autonomy capability.

Robosys has two decades of experience in developing and supporting AI maritime autonomy and smart shipping solutions with its platform, propulsion, and sensor-agnostic software; for both operational purposes, and for training simulation in synthetic environments.

Robosys' solutions include its ground-breaking **VOYAGER AI** software which transforms any motorised vessel into a fully autonomous Unmanned Surface Vessel (USV); which features independent navigation, collision and obstacle avoidance, anti-grounding and dynamic route optimisation.

In addition, Robosys offers numerous options to complement VOYAGER AI, including COLREGS-compliant Collision Avoidance Decision Aid (CADA) applications, to enhance the safety in the support of crewed and lean crewed watchkeepers. Other options include Voyager Platform Control providing Remote Steering, Engine Control and Propulsion Control, together with Voyager Platform Management, providing Alarm Monitoring, together with Switch & Relay Controlling.

Applications are used in vessels undertaking surveying, pilotage, defence, bulk, short sea, search and rescue, and research operations.

Robosys' global partners include the **Australian Maritime College (AMC Search)**, Maritime Research Institute of Netherlands (**MARIN**) and the **Marine Robotics Innovation Centre (MRIC)** at the UK's **National Oceanography Centre (NOC)**.

Find out more about Robosys Automation at <http://www.robosysautomation.com>.

## ABOUT DR CHAITANYA PATIL

Chaitanya Patil is an academic researcher/lecturer at the University of Strathclyde, specializing in Marine System Intelligence and the digitalization of the maritime industry. With a focus on modelling and simulation, He is passionate about leveraging cutting-edge technologies to revolutionize the way we understand and optimize maritime assets and overcome the challenges like decarbonization, regulations, infrastructure, and safety.

His expertise lies in the development of digital twins, which are virtual replicas of physical assets. By combining physics-based models and data-driven approaches using artificial intelligence (AI), he creates sophisticated plant models that capture the intricacies of maritime systems.

These digital twins enable real-time monitoring, analysis, and predictive maintenance, ultimately enhancing the performance, safety, and efficiency of maritime operations.

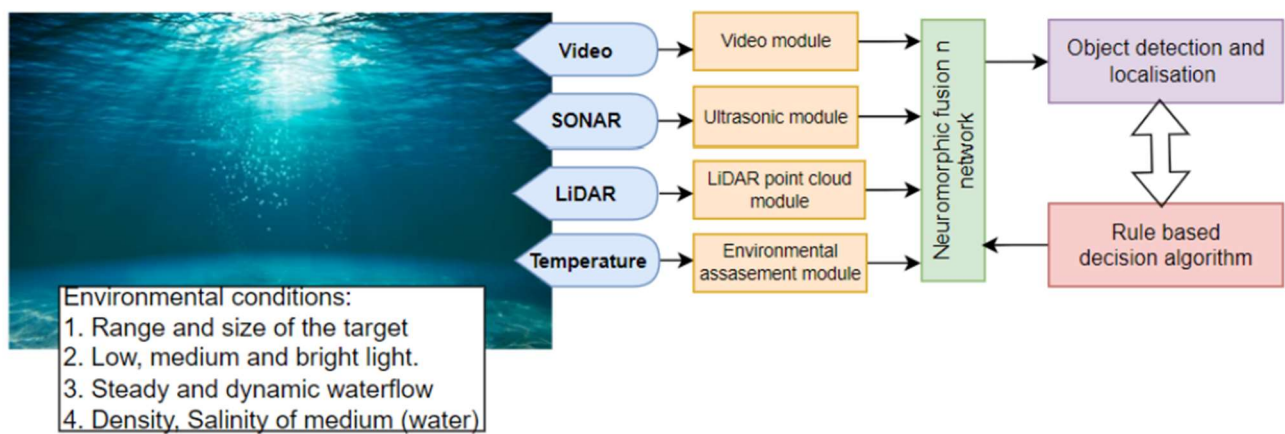


Figure 1: Schematic of the global idea for underwater object detection through multimodal sensor fusion

Throughout his career, he has worked on various projects involving the integration of AI, data analytics, and simulation techniques to optimize vehicle performance, reduce energy consumption, and improve sustainability in the transportation sector. His research also extends to exploring novel approaches for risk assessment, decision support systems, and intelligent control strategies.

As a dedicated academic, he actively collaborates with industry partners, regulatory bodies, and fellow researchers to drive innovation in the maritime domain. He is committed to bridging the gap between academia and industry, translating research findings into practical solutions that have a tangible impact on the digital transformation of maritime.

## SOCIALS

#RobosysAutomation      #UKMaritime      #RobosysVoyagerAI  
 #University      #NAOME      #Strathclyde      #MSI

## MEDIA USE

Main image caption: Robosys and the University of Strathclyde are collaborating in a novel subsea neuromorphic object detection project

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## PRESS CONTACT

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