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## The NATO Centre for Maritime Research and Experimentation Challenges Robots to Compete in Sea, Land and Air Venues

*CMRE is part of the consortium of the new EU project euRathlon which expands on the well-established SAUC-Europe underwater competition with land and airborne contests*

A new European Union initiative will create an exciting new Grand Challenge for intelligent search and rescue robots. The euRathlon project, <http://eurathlon.eu> is a three-year effort, funded by the European Commission. It is led by the University of the West of England (UWE) with seven partners, including CMRE. Three competitions will see robots and their teams of designers go head to head in a series of demanding outdoor scenarios that mimic the real challenges of a disaster situation. The adoption of common standards for communication and shared concepts will facilitate integration and collaboration.

euRathlon begins in 2013 with a demanding land-based competition, followed in 2014 by an underwater competition. For that underwater challenge the project will provide core hardware components enabling the teams with backgrounds in other domains to compete. This clearly shifts the focus of the competition onto cognition, intelligence, and autonomy of the robots. In 2015 the Grand Challenge will feature all three elements: land, sea and air. The robots from the different domains will need to work together to respond to a mock disaster scenario inspired by the Fukushima accident.

The robots will be designed by teams of technologists from universities, research groups and industry, who will work to a set of rules and strict technical criteria. The aim is to accelerate progress in cognitive cybernetics to meet the challenge of developing smart robots which can operate safely and effectively in unpredictable and hazardous physical environments.

For CMRE euRathlon represents an extension of the successful experience started in 2010 with the Student Autonomous Underwater Vehicle Challenge - Europe (SAUC-E). One of CMRE's Scientists, Vladimir Djapic, says: "We are excited to have an opportunity to organize such a high-profile event involving, extending and showcasing European cognitive robotics technologies in all three domains. Further, participation in euRathlon will highlight areas into which the CMRE may diversify. It will be a perfect opportunity for a survey of technology developed by academia and industry for applications other than those considered traditionally."

The euRathlon competitions will be supported by annual workshops. In parallel, there will be an open process of developing benchmarks to allow comparison of different robots in the euRathlon competitions, and for adoption in the wider community.

**About CMRE.** The STO-CMRE (Science and Technology Organization – Centre for Maritime Research and Experimentation) is located in La Spezia, Italy. Formerly NATO Undersea Research Centre (NURC), the Centre focuses on research, innovation and technology in areas such as defence of maritime forces and installations against terrorism and piracy, secure networks, development of the common operational picture, the maritime component of expeditionary operations, mine countermeasures systems, non-lethal protection for ports and harbours, anti-submarine warfare and marine mammal risk mitigation. CMRE operates two ships, NATO Research Vessel *Alliance*, a 93-meter 3,180-ton open-ocean research vessel, and Coastal Research Vessel *Leonardo*, a smaller ship designed for coastal operations. In addition to its laboratories the Centre is equipped with a fleet of autonomous underwater and surface vehicles and a world-class inventory of seagoing sensors.

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