

## Northrop Grumman Engineers Mentor Students Competing in RobotX Unmanned Sea Battle

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SINGAPORE, Oct. 19, 2014 /PRNewswire/ -- Northrop Grumman Corporation (NYSE: NOC) is expanding its support for science, technology, engineering and math (STEM) education across the globe by sponsoring the Maritime RobotX Challenge in Singapore, Oct. 20-26. Bringing together 15 teams of university students from five countries (United States, Singapore, Korea, Japan and Australia), RobotX challenges each team to develop and test a highly-capable unmanned surface vessel (USV).



A video accompanying this release is available at: <a href="http://youtu.be/il\_s3pl\_o.lh4">http://youtu.be/il\_s3pl\_o.lh4</a>

In addition to the company's sponsorship of the RobotX competition, two Northrop Grumman employees are serving as mentors and judges. Guidance and control engineer Kyle Palmer and systems engineer Tyler Tamashiro are working with the university students during the boats' practice rounds and later judging the boats performance as they attempt a series of land-based and in-water tasks.

"The event has just begun and we are seeing a lot of excitement and enthusiasm among the students," said Tamashiro. "As mentors, Kyle and I look forward to engaging discussions with the teams and providing them with valuable advice."

Each student team received a version of the 16-foot Wave Adaptive Modular Vessel, in addition to a grant to build a propulsion system and outfit the vessel with computers, software and sensors. As part of the competition, each team's vessel has to complete a set of tasks including the avoidance and detection of obstacles, identifying and reporting on a specified target and searching underwater for an acoustic source.

"I find this competition fascinating, given that the students are working on the next generation of autonomous control and navigation," said Palmer.

"The innovations and ideas that come out of this event advance technologies that will be used by numerous industries in the future."

The competition, taking place at Marina Bay, is co-sponsored by the Association for Unmanned Vehicle Systems International Foundation, the Office of Naval Research and Singapore's Ministry of Defence.

For more information, please visit www.northropgrumman.com/RobotXChallenge.

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SOURCE Northrop Grumman Corporation

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