

7th Fleet Sailor Steers Navy Toward Virtual Reality

By Mass Communication Specialist 2nd Class Indra Bosko, 7th Fleet Public Affairs

YOKOSUKA, Japan (NNS) -- Imagine a next-generation virtual reality software program that will help steer Navy ships on the right course.

One Naval officer was not only able to imagine it, but he also invented a virtual reality navigation prototype.

Lt. Brendan Geoghegan is the first Sailor from U.S. 7th Fleet to win the 2015 Secretary of the Navy (SECNAV) Innovation Award.

Geoghegan won first place in the Innovation Scholar (Professional Military Education) Category for his entry, "Navigational Heads-Up Display: Will a Shipboard Augmented Electronic Navigation System Sink or Swim?"

As part of his thesis during his tour at Naval Postgraduate School's (NPS) Computer Science Program in Monterey, California, Geoghegan built a next-generation virtual reality software program, a 20-minute video game in which players or test subjects can immerse themselves as a conning officer on the bridge of a Navy ship and drive the ship out of port.

Geoghegan designed the virtual reality simulation to work with a brand new commercial headset called Oculus Rift.

His innovation was not only efficient but the tools he used for his project were inexpensive.

"There are numerous virtual reality headsets that are being released in the commercial sector this year at price-points well under a thousand dollars, which has never been done before," said Geoghegan. "I did it within one year by myself for under \$1,000." Geoghegan said he used his own funds to purchase the Oculus Rift, which the school later reimbursed.

"The real lasting impact of this research is that with very few resources (financial, skill set, and time) I was able to test an entirely new operational concept in the safety of virtual reality, benefiting from repeatable conditions and negligible risk to the subjects," said Geoghegan.

Participants of Geoghegan's project tested the waters on his software program to see if the players were able to steer the ship's course as accurate as possible.

Based on Geoghegan's experiments, there was a 50 percent increase on steering a ship on course.

"The software I built was only intended as a showcase and lab test to prove this technology could help if the Navy went out and implemented it," said Geoghegan. "I am a firm believer that virtual and augmented reality technologies will begin showing up in our daily lives."

Geoghegan's NPS Professor Dr. Amela Sadagic noted that Geoghegan's innovation improved the efficiency of ship navigation "by the way of using the concepts of augmented reality."

Ensign Elizabeth Cotter who has been a conning officer for over a year on USS Blue Ridge is excited about Geoghegan's winning experiment.

"I think it is an awesome idea," said Cotter.

Cotter noted that the only way that conning officers can receive real navigational practice is during underway or deployment. Prior to getting hands-on practice, naval officers have to attend a navigational class and practice conning on a simulator, a "fake ship set-up that is similar to a computer game," said Cotter.

Cotter would like the Navy to take the helm on Geoghegan's virtual reality software program and implement it in the navigational world. His program would allow the user to gain more personalized training.

Geoghegan's innovation "will be perfect, especially for future conning officers and for those who are in the process of getting their surface warfare pin," she said. "To be a good conning officer, is to be an experienced one."

Top leaders in the U.S. Navy have recently expressed great interest in cutting-edge ideas.

At an All Hands Call last week, U.S. 7th Fleet Commander Vice Adm. Joseph Aucoin congratulated Geoghegan on his recent win, and echoed one of Chief of Naval Operations (CNO) Adm. John Richardson's priorities - innovation.

Aucoin encouraged his Sailors to "think outside of the box", to stay educated, to keep up with 21st century technological advances and continue to contribute to the U.S. Navy's reputation of being the best Navy in the world.

"There are award programs that exist to recognize great sacrifice or great leadership. There are programs to promote those we think are meant to succeed. The reason I am so excited to receive this award is that in this case I have done neither," Geoghegan said. "While I did work hard on this project, the joy of being recognized is that maybe someone will take this research and expand upon it."

Geoghegan has recently taken on the role of Information Systems Security Manager (ISSM) for U.S. 7th Fleet, in which his daily duties include helping maintain cyber security for the fleet.

Lt. Geoghegan "instills high-performance, motivation and creativity," said his senior officer Cmdr. Manny Cordero. "Imagination is not only the uniquely human capacity to envision that which is not, and, therefore, the foundation of all invention and innovation," he said.

Geoghegan believes if the Navy adopts his innovation, it will help the next-generation of navigators "do their jobs better."

"I realize that it will be many years before our conning officers begin donning headsets that aid them in their duties," Geoghegan said.

"Just as 3D printing is drastically changing the way we can maintain supply chains, economical virtual reality is going to be a game changer in the way we test new warfare ideas, train sailors, and maybe even fight wars."

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