

Naval Postgraduate School and Qualcomm Empower Student Ideas, Wireless Innovation

MONTEREY, CALIFORNIA, USA, May 22, 2024 /EINPresswire.com/ -- The emergence of autonomous vehicles and drones has increased the demand for communication technologies that can move vast amounts of data at the necessary speeds, but traditional communication systems have struggled to keep up with the evolving landscape of modern military operations. At the same time, U.S. service members are operating in contested distributed environments that require agile and innovative applications of technology in the face of multidomain threats.

These are the types of challenges that U.S. Navy Lt. Alexander Evans, a student at the Naval Postgraduate

School (NPS), and U.S. Marine Corps Capt. Brian Allen, an NPS alumnus, aim to solve through their research. Evans and Allen took advantage of a Limited Purpose Collaborative Research and Development Agreement ([LP-CRADA](#)) between NPS and Qualcomm Technologies to collaborate with NPS faculty and Qualcomm Technologies technologists to explore the application of 5G technology and develop innovative solutions for the fleet and Fleet Marine Force.

Evans, who is projected to graduate in September 2024, is investigating the viability of 5G slicing for multivessel communication to significantly enhance Navy tactical communications and demonstrate the benefits for faster data transmission and improved coordination among Navy vessels during complex operations.

"I believe that fostering greater involvement of students with industry partnerships, such as Qualcomm, significantly enriches our learning experiences at NPS," Evans said. "We need to do more to increase the connection between the DOD and industry. Working alongside Qualcomm,



U.S. Navy Lt. Alexander Evans, a student at the Naval Postgraduate School (NPS), and NPS faculty associate Darren Rogers work with 5G wireless equipment provided by Qualcomm Technologies under a Limited Purpose Cooperative Research and Development Agreement (LP-CRADA).

I was given the unique opportunity to advocate for and implement 5G technologies in ways previously unexplored by the Navy. This partnership not only allowed me to address specific communication challenges but also exposed me to the array of solutions that Qualcomm could offer to assist with these endeavors.”

Allen, who graduated from NPS in March 2024 with a master’s degree in computer science, spearheaded research that seeks to harness the extensibility of 5G and adapt it for military use. The goal is to integrate 5G into tactical military networks, potentially as a phased approach. By introducing 5G capabilities, the military can streamline its communication systems, reduce setup time, and adapt more swiftly to changing operational requirements.

“Through the partnership with Qualcomm, I’ve experienced firsthand the invaluable support of industry in advancing research at the Naval Postgraduate School,” Allen said. “Their unprecedented commitment, providing resources and mentorship, not only propelled my thesis but also underscores the vital role of industry-academia collaborations in driving innovation for future warrior-scholars.”

In both research initiatives, Qualcomm Technologies provided 5G equipment and technical support, facilitating development and experimentation and enabling ongoing research by NPS faculty and students.

Allen said with the equipment and support provided by Qualcomm Technologies, his experimental network has subsequently supported two additional master’s students’ research projects for their theses and contributed to modeling and simulation coursework in the [MOVES Institute](#) at NPS.

Officially established in February 2023, the ongoing relationship between NPS and Qualcomm Technologies has been important to research and innovation initiatives that address the concerns of the Department of Defense (DOD) at the speed of commercial technology and cultivate a tech-enabled workforce tailored for the DOD.

Under the LP-CRADA, NPS faculty and students are conducting research into 5G wireless communications, artificial intelligence, hardware development platforms and associated technologies, while also developing the concepts of employment needed for military applications and operations.

Darren Rogers, a faculty associate for research in the NPS Electrical and Computer Engineering department, is exploring 3rd Generation Partnership Project (3GPP) standards that provide the foundation for the development of new technologies.

“Qualcomm has been in wireless technology from the beginning and today are driving where wireless technology and trends are headed,” Rogers said. “They are involved in the 3GPP process, so it is great for NPS to have access and insight into how the process works.”

Qualcomm Technologies also engages with NPS to provide monthly presentations, technical support for technology and equipment on loan to NPS, and access to Qualcomm Wireless Academy for NPS students and faculty to leverage commercial training on cutting-edge wireless technologies.

NPS' partnerships with industry leaders are pivotal for bridging the gap between research and development and the practical deployment of technologies within military systems. Qualcomm Technologies, for example, already powers vast domestic and overseas networks, enhancing the capacity for widespread implementation. This capability is further bolstered through collaboration with a network of other industry, academic and government entities, which supports the scaling and adoption of new technologies. These collaborative efforts, supported by NPS' ability to explore opportunities with DOD offices, can advance the ability for these technologies to be effectively integrated and utilized in military operations.

One such relationship enabled in part by the Qualcomm Technologies partnership with NPS came from the FutureG Office, an entity within the Office of the Under Secretary of Defense for Research and Engineering (OUSD (R&E)). The FutureG office is working with NPS over the next five years to establish a deliberate approach to DOD active-duty and civilian graduate education focused on FutureG technologies, including DOD applications, network services and edge computing.

In addition to supporting specific NPS research initiatives with technology and personnel, Qualcomm Technologies provided equipment in 2023 to outfit the future NPS Emerging Technology Innovation Lab, a collaboration space for NPS faculty and students and NPS' industry partners to engage in demos, instruction, testing and learning. The space will support collaborative research and tech transfer enabled in part by the [Naval Innovation Center at NPS](#).

"Qualcomm is honored to work with the outstanding faculty, staff, and students at NPS in leveraging commercial technology for their complex problems," said Kim Koro, senior vice president and general manager of Qualcomm Government Technologies. "These current and future DOD leaders bring insights to these challenges and applying the value of commercial capabilities you can't get anywhere else. As a worldwide leader in wireless technologies, it's our privilege to bring a positive impact to these challenges and have the opportunity to work with this world class institution."

During a visit to Qualcomm Technologies' headquarters in San Diego in February 2024, one year after the establishment of the LP-CRADA, NPS leadership engaged with Qualcomm Technologies on topics from on-device AI to autonomy, while also exploring future collaborative research opportunities and information exchanges across additional NPS departments.

Added Rogers, "Qualcomm is forward-thinking with where the wireless technologies are headed and have roadmaps supporting the research and innovation along the way. It is paramount that

both Qualcomm and NPS understand how to be ready for what the future brings to both industry and DOD.”

The Limited Purpose Cooperative Research and Development Agreement (LP-CRADA) does not constitute endorsement of Qualcomm Technologies or its products and services by the Naval Postgraduate School, the Department of the Navy, or the Department of Defense.

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