Defense Innovation Unit Selects Google Cloud to Help U.S. Military Health System with Predictive Cancer Diagnoses

Using AI and augmented reality, Google Cloud will help improve patient outcomes and reduce cost

Mountain View, Calif., and Washington, D.C., Sept. 2, 2020 — Google Cloud today announced that the Defense Innovation Unit (DIU) has chosen Google Cloud to prototype an AI-enabled digital pathology solution at select DoD facilities. The project includes the delivery of augmented reality microscopes to DoD's medical facilities and access to artificial intelligence (AI) models that can help military doctors with cancer detection tasks on multiple disease areas. The early access to the digital pathology platform is for research use only. DIU is the organization exclusively focused within the Department of Defense (DoD) on scaling commercial technology across the DoD.

The Veterans Affairs Center for Innovations in Quality, Effectiveness, and Safety recently reported that within the United States, an estimated 5% of outpatient diagnoses are conducted in error. This translates to misdiagnosis of 12 million patients each year.* At the same time, the Defense Health Agency spends approximately $1.7 billion of its annual budget on cancer research, and that figure continues to grow.

The goal of the DIU-Google Cloud project is to help improve the accuracy of diagnoses, assisting physicians who face an overwhelming volume of data when making diagnostic and treatment decisions--and to help lower overall healthcare costs. Working with DIU, Google Cloud will prototype the delivery of an augmented reality microscope that overlays AI-based information for doctors, providing pathology-based cancer detection tools at the point-of-care. Google's approach will leverage TensorFlow, an open-source framework to help deliver machine-learning models as well as the [Google Cloud Healthcare API](#) for data ingestion and de-identification to maximize patient privacy.

The initial rollout will take place at select Defense Health Agency treatment facilities and Veteran's Affairs hospitals in the United States, with future plans to expand across the broader U.S. Military Health System. The AI-based models used to assist doctors as part of the prototype were developed from public and private datasets that were de-identified to remove personal health information and any personally identifiable information. All patient diagnostic data will solely be managed by the individual hospital or provider.

"To effectively treat cancer, speed and accuracy are critical," said Mike Daniels, vice president, Global Public Sector, Google Cloud. "We are partnering with DIU to provide our machine learning and artificial intelligence technology to help frontline healthcare practitioners learn about capabilities that can improve the lives of our military men and women and their families."

This is the second contract that Google has been awarded by DIU in the past three months. In May, the two organizations [announced an effort](#) to detect, protect against, and respond to cyberthreats globally. Carahsoft Technology, as Google Cloud's government distributor, played a key role in facilitating this work. The DoD's Joint AI Center (JAIC) is providing funding for the project and technical expertise. The capabilities will also help support the JAIC's warfighter health AI product line that aims to improve the diagnostic capability of military medicine.

 https://qualitysafety.bmj.com/content/23/9/727.full?sid=34b34ada-6159-4568-8b97-3a77d3db27ad

Results Combining estimates from the three studies yielded a rate of outpatient diagnostic errors of 5.08%, or approximately 12 million US adults every year. Based upon previous work, we estimate that about half of these errors could potentially be harmful.

About the Defense Innovation Unit

The Defense Innovation Unit (DIU) accelerates the adoption of commercial technology throughout the military and growing national security innovation base. DIU partners with organizations across the Department of Defense (DoD) to rapidly prototype, field, and scale advanced commercial solutions that address national security challenges.

About Google Cloud

Google Cloud provides organizations with leading infrastructure, platform capabilities, and industry solutions. We deliver enterprise-grade cloud solutions that leverage Google's cutting-edge technology to help companies operate more efficiently and adapt to changing needs, giving customers a foundation for the future. Customers in more than 150 countries turn to Google Cloud as their trusted partner to solve their most critical business problems.

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