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3:40 PM – 4:00 PM
EdgeAI

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Abstract:
The explosion of the number of connected devices in the last 10 years has led to a considerable increase in the nature and scope of Artificial Intelligence at the Edge (EdgeAI). Furthermore, hardware, software, and mission use cases have come together to drive several advances in AI supporting Department of Defense applications. During this talk, we will describe how Deloitte views EdgeAI as a domain, deployment considerations for EdgeAI technology, and how EdgeAI can impact the challenges faced by the Navy. The talk will include a demonstration of computer vision deployed to a drone platform for remotely inspecting power lines and a wearable model deployment with applications in maintenance assistance.

Edge technologies are characterized by a networked combination of sensors and compute platforms to achieve an effect. Machine learning algorithms give these systems the ability to deliver insights in milliseconds. The combination of Edge technologies and deployed machine learning models forms an EdgeAI system.

The Department of Defense has made considerable investment in artificial intelligence, and the Department of the Navy has contributed to that effort significantly. Myriad use cases in the core mission domain of the US Navy exist for EdgeAI systems. For example, computer vision models deployed to wearable technologies can provide immediate "walk-through" assistance to sailors afloat as they work on shipboard weapons systems and power plants. Additionally, EdgeAI models can be deployed to unmanned systems to find and highlight potential issues during maintenance inspections of shipboard equipment or other remote infrastructure.

Several considerations become important when conducting AI/ML development for Edge applications. Our team uses the latest compute stack for training and deploying models to Edge environments, and we will highlight some of those considerations during this talk. Finally, we will show work that our team has done to address use cases of interest to the Navy mission, demonstrating the art of the possible in the EdgeAI space.