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Time: 2:30 - 4:00 PM
Location: CBB 104

Autonomous Systems: From Research to Critical Applications and Impactful Collaborations

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ABSTRACT:

This seminar delves into research and technology development in autonomous systems, transitioning from foundational concepts to their critical applications in aerial and maritime missions. The first segment of the talk will detail the innovative design and deployment of unconventional and hybrid convertible autonomous vehicle systems, including advancements aimed at achieving carbon neutrality—a truly critical application for a sustainable future. The second segment will then shift focus to fostering impactful collaborations. Drawing lessons from prior industry-academia partnerships, I will share essential ingredients for effective alliances that drive progress within autonomous systems and beyond. This will include a breakdown of the industry-academia collaboration lifecycle into logical stages, highlighting actionable steps academia can take to understand industry's strategic interests, maximize mutual understanding, and significantly increase the likelihood of transitioning research into impactful applications. Both parts of the talk will feature specific examples to illustrate key concepts.

BIOGRAPHY:

Kingsley Fregene is the Director of Technology Integration at Lockheed Martin. In this role, he oversees practices for defining and executing a strategic portfolio of research and technology development efforts. Prior to his current role, he held other roles at Lockheed Martin and Honeywell including Chief Engineer for Applied Research, and Group Leader for Robotics & Intelligent Systems. Across his industry roles and academic collaborations, Kingsley has focused on developing and fielding systems that save lives and keep humans out of harm's way. He is an IEEE Fellow, serves on the IEEE Control Systems Society Board of Governors, and has served on the editorial boards of the IEEE Control Systems, and Robotics & Automation Societies. He was the recipient of the 2021 American Automatic Control Council's Control Engineering Practice Award. His work has been featured in National Geographic: Engineering Inspirations from Nature, a video and workbook series for middle school students, and in the children's books Tiny Robots (2015) and Mimic-Makers: Biomimicry Inventors Inspired by Nature (2021). He received his Ph.D. and M.A.Sc. from the University of Waterloo, Canada, and his B.Eng. with first class honors from the Federal University of Technology, Owerri, Nigeria, all in Electrical & Computer Engineering.