BIOENGINEERING
Fall 2020 Seminar

Date: **Thursday, November 12**
Time: **12:00 pm - 1:00pm**
Location: **Virtual**
Join Zoom Meeting—https://gmu.zoom.us/j/92554249038?pwd=V2p1ZUdqM1Y2RnBCcWhDU0V0T2FZZz09

Meeting ID: 925 5424 9038 Passcode: 640851

Glen Henshaw, Ph.D.

Biography: Dr. Glen Henshaw is the Naval Research Lab's senior space roboticist and the chief roboticist for DARPA's Robotic Servicing of Geosynchronous Satellites (RSGS) program. He has been instrumental in developing the technology, concepts of operations, and use cases for robotic satellite servicing for the US Department of Defense, which will culminate in the first launch of an operational satellite servicing vehicle in 2023. He is also the PI for multiple NRL research programs, notably the Meso-scale Robotic Locomotion Initiative (MeRLIn), which aims to develop a highly agile miniature quadruped robot. His research interests include robotic motor learning, nonlinear controls, robotic kinematics and dynamics, and robotic satellite servicing concepts and technologies. He received his PhD in aerospace engineering from the University of Maryland in 2003.

Title: Robotic Motor Learning and the Curse of Dimensionality

Abstract: Although robots have advanced considerably in the last decade, robotic dexterity still leaves much to be desired. This is due to several factors, but a lack sophisticated sensorimotor learning techniques is primary among them. Machine learning techniques, such as deep neural networks, have been shown to exhibit human-equivalent performance at sensory processing tasks, but rely on the existence of extremely large sets of training data and thus are impractical for learning motor tasks. The development of novel machine learning techniques that are extremely data efficient, capable of generalizing from small data sets, will be key to solving this problem. Unique ideas from neurobiology about the algorithmic generation of motion in the brain may provide a key insight into the design of such techniques. Dr. Henshaw will present preliminary results from applying these concepts to robots and discuss future directions involving the synthesis of robotics and neurobiology research.