

School of Information Security and Applied Computing
College of Engineering and Technology
Eastern Michigan University

Artificial Intelligent (AI) Research Talk in Autonomous Robotics and Sensing

5:30 - 6:30 pm on Wednesday, December 2, 2020 via Zoom

Title: Robotic Assessment of Dam Outlet Works

Guest Speaker

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Information Technology Laboratory (ITL)



Abstract—The United States of America has an estimated inventory of 91,000 dams with an average age of 57 years old. Outlet works are an important but mostly hidden feature of many of these dams that regulates the reservoir height by releasing a controlled amount of water downstream. The valves/gates used to control the release of water through the outlet are generally composed of steel, cast steel or cast iron, which are all vulnerable to corrosion and fatigue issues, representing a significant vulnerability to the structural integrity of the system and putting personnel entering the conduit/tunnel at risk. Further, the valves/gates on many of these aging structures have exceeded their design life, and in some cases, have not been regularly inspected or maintained. Additionally, the US Army Corps of Engineers (USACE) has a portfolio of over 700 dams, many of which are older, constructed using materials or procedures that would not be acceptable under current design standards. For all of these reasons, a remote inspection robotic platform capable of mapping conduit and gate to aid with initial safety evaluation of the outlet works is being designed and build by ERDC and current progress will be presented.

Bio: *Dr. Anton Netchaev* is a Research Computer Scientist at the US Army Engineer Research and Development Center's Information Technology Laboratory (ITL). Dr. Netchaev is the Principal Investigator of multidisciplinary research team of over twenty scientists and engineers. Currently he specializes in fields of autonomous robotics and sensing with partners across DoD, industry and academia. Dr. Netchaev holds a PhD in Computational Science from the University of Southern Mississippi along with degrees in electronics and computer engineering.

