VVateR is a virtual three-dimensional world for visualizing Cyber-Physical Systems such as a city-wide water treatment and water distribution plant. A key novelty of VVateR is its ability to enable visualization of cyber-attacks, the resulting process anomalies, and whether or not the anomaly is detected. VVateR is currently operational in iTrust. It is connected to two plants, namely a water treatment plant named SWaT, and a water distribution plant named WADI. Both SWaT and WADI are fully operational plants.

VVateR is accessed by wearing a virtual reality headset where the user/gamer can move about and interact with the plant in the virtual space. This opens up the plants for remote worldwide research collaboration and aids in capturing context from the plant that Mixed Reality promises to bring to industrial settings. VVateR helps visualize the interconnectedness of various infrastructures and the effects of cyber-physical attacks through complex and dangerous scenarios that can be safely tested in a virtual setting. Observing slow historical plant operation and path of attacks at varying timelapse rates makes the process of reconnaissance and incident-analysis arguably faster and more visually engaging than an analysis of the database logs. By acting as a Digital Twin when connected to a simulator, one can come up with numerous attack/defense scenarios and serious gamified challenges for training purposes. All these factors increase the preparedness of operators, policymakers, governments, and other relevant stakeholders in strengthening their cities and Critical Infrastructures through security by design. Other relevant projects being done at iTrust will also be discussed in this talk.

Date: Tuesday, April 30, 2019
Time: 3:00 PM
Location: Wean 4220