Real-time Cyber Analysis to Improve Response to a Cyber Attack in Energy Delivery Systems

**Project description:** Energy delivery systems (EDS) operators have multiple guidelines for cybersecurity. However, these recommendations and guidelines may not be fully implemented in part because the details can be overwhelming. In addition, these types of documents may not be reviewed until they are needed (e.g., during a crisis). All these guidelines are only helpful if the operator can access them effectively in real-time to respond to a crisis, and assess the impact that following a given recommendation will have on the state of the cyber system. In addition, choosing the right response plan could be challenging if the guidelines have various and sometimes conflicting recommendations.

In this project, we have a three-fold objective. First is to create a database of response strategies and a real-time simulation tool to assist EDS operators in responding to a cyber-crisis. Second is to better understand how EDS operators decide on a response plan in a cyber-crisis situation in order to help them perform better. Third, to improve both the database and simulation tool based on operator experience.

**Learning opportunities:** Overall, this project can enhance your critical thinking, simulation modeling, and data analysis skills, and prepare you with hands-on experience in cybersecurity, simulation, and decision-making sciences. Selected candidate(s) can join the project immediately.

**Qualifications:** Required skills include attention to details, as well as excellent reading, writing, and communication skills. Programming skills are also essential. Familiarity with cybersecurity and simulation modeling techniques is a plus but not required. We are particularly interested in working with motivated and organized students who are committed to doing research.

**Relevant URL:** You will be working with Cybersecurity at MIT Sloan (http://ic3.mit.edu).

**Contact:** Please email Dr. Mohammad Jalali (jalali@mit.edu) with your CV, and feel free to ask any questions.