

SaTC: EDU: Collaborative: *Building an Electronic Voting Technology Inspired Interactive Teaching and Learning Framework for Cybersecurity Education*

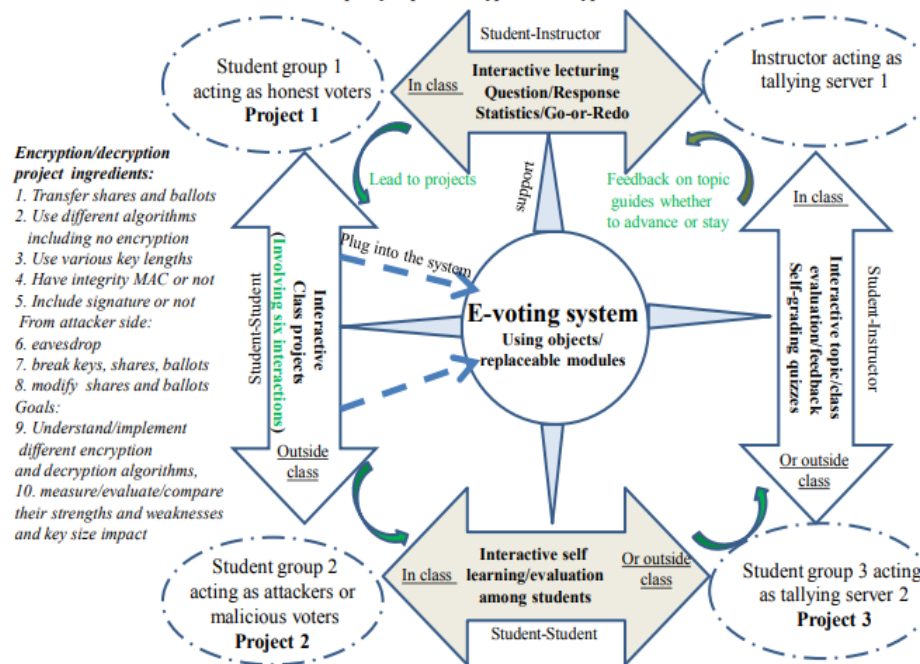
Challenge: Cybersecurity is becoming increasingly important to individuals and society alike. However, due to its theoretical and practical complexity, how to attract students into learning cybersecurity, keep students' consistent interest and even take a career in cybersecurity, and master well the foundations of cybersecurity is a grant challenge.

Solution:

Inspired by E-voting technology, this project addresses the challenge by developing a student centered block-wise composable, pliable, interactive teaching and learning framework for cybersecurity education: (1) it uses e-voting as an introductive and guiding example to incite students' interest into cybersecurity; (2) e-voting's rich properties are easily mapped into broad/rich cybersecurity topics, which allows instructors and students to compose different security curricula and topic units, and (3) the platform enables full student-centered teaching and learning interactive activities both within and outside the class room, among instructors and students, students themselves, and students and the e-voting-based platform.

E-Voting based interactive teaching and learning framework (for each class topic)

Exemplary topic: *Encryption/Decryption*



Scientific Impact:

The interactive teaching and learning modules enable student-centered extensive and deep interactive learning, e.g., student-centered interactions and full engagement in the entire learning process and systematic inter-connection/transition among different teaching and learning activities and between topics. All these merits will facilitate learning and research interests in cyber security, engage students in active learning, and help instructors in effective teaching, and enhance student learning outcomes.

Broader Impact and Broader Participation:

* It will attract more students, even undergraduates and high school students, to the cybersecurity field. * It will impact undergraduate research in cybersecurity, which has been shown by our several undergraduate students' success stories. * The developed materials, after diverse and public disseminations, can be adopted/adapted by instructors across universities and across courses, resulting in broader impact on cybersecurity education.

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