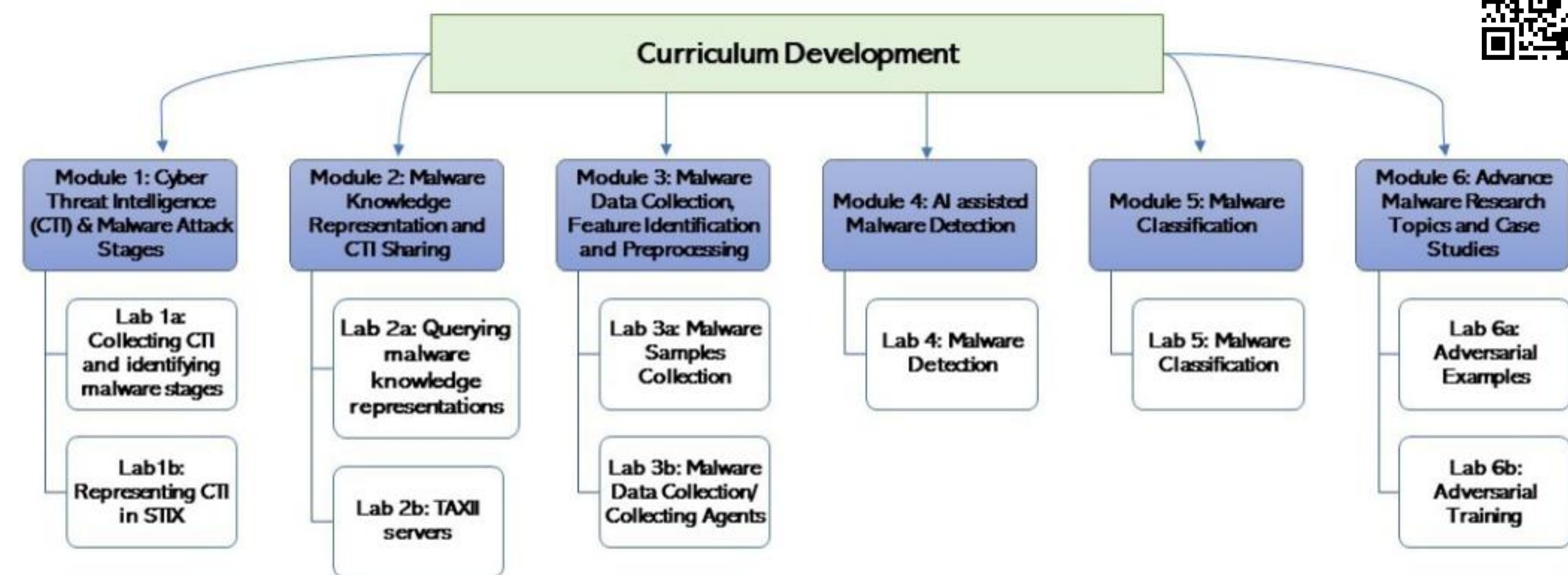


Collaborative Research: SaTC: EDU: Artificial Intelligence Assisted Malware Analysis



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Project URL - <https://sites.google.com/view/nsfsatcaima/home>



Challenge:

- Next generation workforce equipped with AI assisted Cybersecurity skills.
- Limited courses.
- Limited hands-on exercises.
- Dissemination of created modules.

Scientific Impact:

- Transferable, independent and portable modules for AI assisted Malware analysis.
- Hands-on lab exercises and case studies driven curriculum.
- Working with real-world datasets to gain experiential learning experience.

Solutions

The project aims to **build 6 self-contained and adaptive modules** in "AI-assisted Malware Analysis"

- (1) CTI and malware attack stages,
- (2) Malware knowledge representation and CTI sharing,
- (3) Malware data collection and feature identification,
- (4) AI-assisted malware detection,
- (5) Malware classification and attribution,
- (6) Advanced malware research topics and case studies such as adversarial learning and Advanced Persistent Threat (APT) detection.

Broader Impact (On Society)

Mitigate current shortfall of professionals trained in AI and ML for cybersecurity. AI- and ML-assisted cybersecurity offers data-driven automation that enable security systems to identify and respond to cyber threats in real time

Broader Impact (Education & Outreach)

We take a two-pronged approach to implementation by integrating our proposed independent modules in various undergraduate or graduate courses (at TTU), and by developing a new course (at MSU and NC A&T).

Broader Impact & Broader Participation

- Empowering over 400 students annually.
- Outreach workshops and tutorial sessions in minority focused conferences.
- Faculty Development workshop.

