SaTC: EDU: Improving Student Learning and Engagement in Digital Forensics through Collaborative Investigation of Cyber Security Incidents and Simulated Capture-the-Flag Exercises

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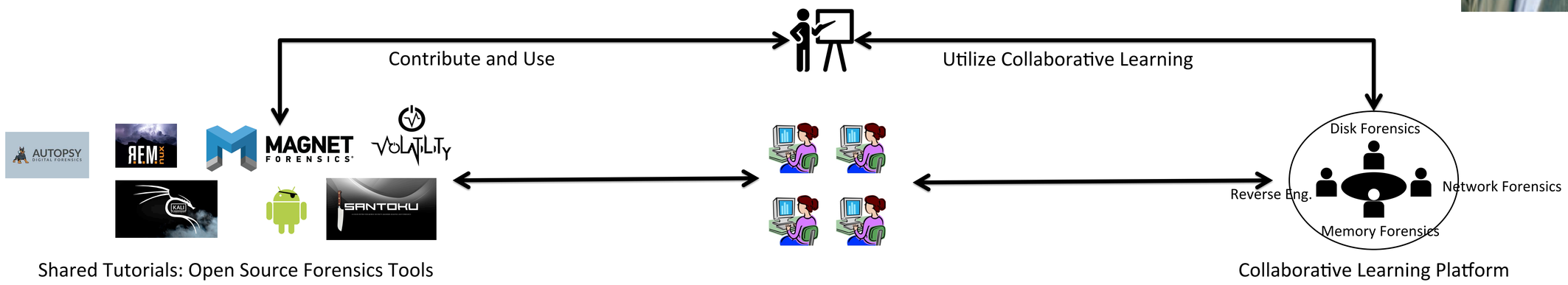
http://www.myweb.ttu.edu/asiamina/research_files/SaTC-EDU-DigitalForensics.html



Key Problems and Challenges:

- Teaching digital forensics requires extensive development of hands-on experiences and instructional modules
- There is no educational support for instructors
- It is hard and time consuming to develop course modules and lab materials for digital forensics
- There is no platform for sharing such teaching materials
- There is no platform for collaborative learning

Scientific Impact:

- Advance pedagogy and education of digital forensics
- Identify educational challenges related to teaching digital forensics
- Compare open-source digital and mobile forensics tool
- Identify the pros/cons of different dynamic and static analysis tools targeting digital and mobile forensics

Solution:

- Establish a public repository and platform for instructors to share their educational modules and lab materials
- Develop an educational platform for collaborative learning focusing on digital forensics and incident responses
- Develop online tutorials, instructional modules, hands-on experiences, and training videos on well-known and widely used forensics open source digital and mobile tools

Impact on Society:

- Make the shared repository publicly available for promoting cyber security
- Enable users to be aware of different types of malware
- Helps users discover different channels of attacks malware developers utilize
- The materials can be utilized as a self-learning course

Impact on Education and Outreach:

- Promote cyber security education
- Support pedagogy and education of digital forensics and malware analysis
- Support instructors with teaching artifacts and enable them to shair their lab materials
- Promote collaborative learning and team work

Quantify Potential Impact:

- Over 40 open source tools have been identified
- Over 10 training modules will be developed for each topic targeting different aspects of digital forensics such as 1) Disk, 2) Memory, 3) Network, 4) Mobile, and 5) Reverse Engineering

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