Exploring Visualized and Explainable Artificial Intelligence to Improve Students' Learning Experience in Digital Forensics Education

UNIVERSITY OF BALTIMORE

Challenge:

There are major barriers for cultivating Computer Forensics and Digital Evidence (CFDE) professionals to comprehend the core knowledge of CFDE and practice cyber investigation techniques

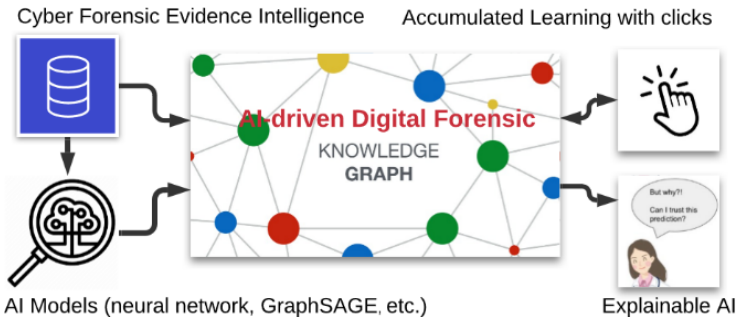

Figure 1.An AI-driven Digital Forensic Knowledge Graph

Scientific Impact:

- Formalize CFDE by building Digital Forensic Knowledge Graphs with real-world cybercrime cases
- Build visualized AI-driven DFKG with the inductive capability

Solution:

- leverage graph-based AI models to provide students visualized forensic evidence
- Explore explainable AI to support accountable and presentable forensic evidence to courts,
- Develop AI-aided CFDE instructional materials

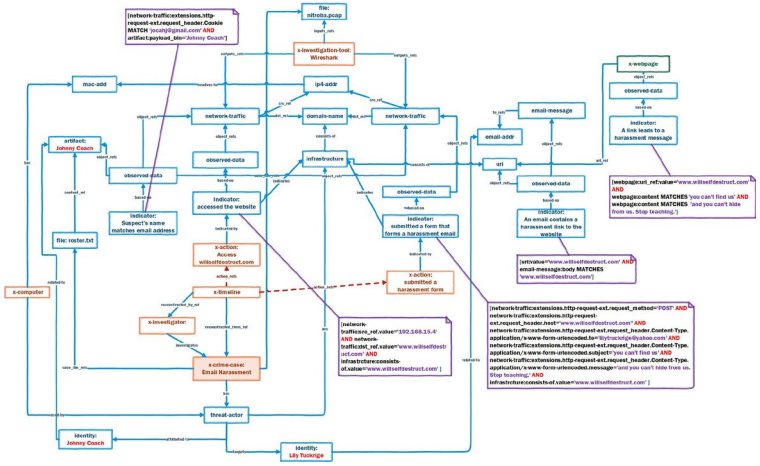

Figure 2. Illegal Possession Images Case Study

Broader Impact and Broader Participation:

- Dataset will be published online
- Learning materials will all be made publicly available to the both CFDE and data science community (20K visits in GitHub so far)

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https://github.com/frankwxu/digital-forensics-lab