# CFEAR: Cyber Forensics Education via Augmented Reality

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## Research Objective

This research explores the potential of augmented reality technology-based teaching and learning approach to enhance cybersecurity and forensics education. Creative educational and research programs using Smart Glasses will be developed that will inspire young adults to pursue critical skills needed to drive our cybersecurity and STEM future.

Augmented Reality Mobile Forensic lab with Microsoft HoloLens

Extracting Indicators of Compromise from security articles using Vuzix M100

Research conducted with the Smart Glasses and applications may help to identify the unique skillsets of cybersecurity analysts, learning gaps and augmented reality learning solutions.

## Research Approach

An inquiry-based learning approach will be adopted to identify the creative ways to impart cybersecurity education through Smart Glasses. Students will be asked to perform a routine lab assignment while wearing Smart Glasses. They will be asked to think out loud. Therefore, all the activities including various actions taken by the student to complete the lab work as well as spoken words will be recorded for later analysis. With the help of collected data unique skillsets, deficiencies, and learning gaps will be identified; performance results of students using the Smart Glasses will be compared to that of the control group who is subjected to normal learning environment.

### Work-In-Progress

A design and development of a proof of concept Android application is under development which in real time can identify and extract the Indicators of Compromise (IOC).

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A design and development of an Augmented Reality Windows application for Microsoft HoloLens is under progress which assists students in completing the lab successfully.

### Future Work

The Smart Glasses market is very new and more products are manufactured by different companies. The features related to this project will be studied using the more advanced version Vuzix M300 of Vuzix Smart Glass.

As a future work, we plan to administer the survey and transform the results into course modules, which will be injected into undergraduate and graduate cybersecurity and forensics courses.

Interested in meeting the PIs? Attach post-it note below!

National Science Foundation
WHERE DISCOVERIES BEGIN

The 3rd NSF Secure and Trustworthy Cyberspace Principal Investigator Meeting
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