CAE Research Project Meeting Minutes
11-18-2022

- Participants
  - Dr. Xin-Wen Wu
  - Dr. S. Ezekiel
  - Drew Rado
  - Emily Himes
  - Hector Linarez
  - Maria Balega
  - Sky Semone
  - Zaryn Good
- Meeting started at 6:00 pm
- Unanimously approved minutes for meeting on November 11th, 2022

Main Points:

- **Progress report**
  - Drew and others created an isolated network at IUP to optimize data collection without the interference of other data.
    - 19 hour data capture: 3 million lines of data, 2900 lines after post processing
    - MQTT responses need to be filtered correctly to get several hundred thousand lines.
    - Drew also worked on re-creating the malicious data generation from the original IoT-23 dataset. This involves having a malicious raspberry pi, with a bot-net on the same network.
    - Drew solved the issue of filtering IP addresses by the isolated network.
  - Drew took 5 hours of data collection which resulted in 2300 lines of data. It was preprocessed removing his personal devices
    - Make sure number of data is correct
    - Are IP addresses correct
  - Sky helped Drew accomplish the above, and also started configuring all other devices with code that will simulate IoT devices.
    - Researched other protocols with Arduino/raspberry pi/ server configuration.
  - Maria ran last weeks data and got the predicted 100% result, now she is waiting for the new data.
  - Emily was working on Documentation with Drew.
  - Zaryn is waiting on the datasets, he helped Maria.

  Discussion points
  - Primary focus is getting complete new dataset.
  - Using the IoT23 data as a baseline for this next step of research
    - Drew is creating a botnet, inspired by the methods of this dataset.
    - Maria mentioned that about 90% of the data was malicious, horizontal port scan with d-dos were the most common types of attacks.
    - Dr. Wu mentioned that we may need to create a multiclass dataset with several types of attacks.
  - Dr. Ezekiel met with Sky and Drew to give his input on the status of the research
    - Drew presented these changes

- Focus on gathering data in a way similar to the studies under investigation in the first part.
    - Dr. Wu mentioned that an index for our research progress would be nice to make things easier to access.

- **Tasks:**
    - Zaryn/Maria
        - Once data is present, run data through DCNNs
        - Help Sky, Drew, etc with interpreting this new data.
    - Sky/Drew
        - Collect new data and make sure it is comparable to the IoT-23 / part-one datasets
    - Emily
        - Review OneDrive materials
        - Work on documentation
    - Zach/Hector can help out Sky and Drew

Adjournment at 6:35
Next meeting will be held on Friday, November 25th at 6:00 pm