Lt David Crow

Activity Report 6

21 July 2019 – 25 August 2019

Week 1

* Reviewed more references
* Found another ~50 references (cited in works I already had) for review
* Found a bunch of CAN data at <http://ocslab.hksecurity.net>
  + Hacking and Countermeasure Research Lab
  + Several different CAN attacks
  + Lots of driving data generated by different drivers
* Reformatted all OCS data into log files fit for Capt Stone’s pipeline
* Started modifying thesis document on Overleaf

Week 2

* Wrote CSV to snapshot parser for ORNL data
  + Breaks every data string into 256-byte chunks of data, where one data string contains all sequential data from one arbID of one capture (which is, necessarily, from one car)
* Obtained/cleaned Capt Stone’s CAN captures
* Wrote log file to CSV parser for Capt Stone’s data
* Wrote CSV to snapshot parser for Capt Stone’s data
* I now have formatted data for 20 vehicles
* Additionally, ran Capt Stone’s CAN captures through his pipeline and saved all output
* Restructured parsers such that snapshots now contain 1024 bytes of CAN data from one arbID of one capture (instead of 256)

Week 3

* Constructed initial neural network for CAN data classification
  + 93.21% accuracy without model tuning
* Still need to develop siamese neural network to improve extensibility of research
* Intend to submit to ICCWS if project proves successful
  + <https://www.academic-conferences.org/conferences/iccws/>
  + Abstract due 23 August
  + Notification of acceptance: 3 September
  + Full paper due 11 October
  + Notification of acceptance: 20 December
* Project draft finished — submitted to Dr. Borghetti

Week 4

* Re-ran CAN classifiers — balanced accuracy maxes out at about 83%
  + Balanced accuracy is more telling that standard accuracy
* Will submit ICCWS abstract to Dr. Graham by end of 8/21

Week 5

* Submitted abstract to ICCWS 2020 with Dr. Graham and Dr. Borghetti as co-authors
* Will finish report (with Dr. Borghetti’s feedback) in early September
  + Will then submit to Dr. Graham and to public affairs
* Will finish Chapter 2 by end of September (I’m sorry it’s so late)