CprE/SE 491 Weekly Report 17

Dates: 9/21/2017 - 9/27/2017

Dec1709 - ALVINN
Autonomous Vehicle Mission Processor with Machine Learning

Team Leaders:	Bijan Choobineh Darren Davis	**Advisors:**	Dr. Jones & Dr. Zambreno
Communicator:	Tracy La Van	**Client:**	Josh Bertram - Rockwell Collins
Key Concept Holders:	Jesse Luedtke David Schott	**Email:**	dec1709@iastate.edu alvinn@iastate.edu
Webmaster:	Robert Stemig		

Weekly Summary:

This week we made contact with Dec1710 to see if they can help us figure out how to stream the simulator to the board; however, we have not yet heard back from them. We are waiting to obtain access to HPC (has been requested).

Past Week Accomplishments:

- **Bijan Choobineh:** Due to having a midterm heavy week, accomplishments were minimal at best. Experimented with GStreamer to get a better understanding of its capabilities and limitations. Slight analysis on how to get analytical data out of X-Plane to our neural network, although Tracy made contact with the other team who have this done to see if they can help.

- **Darren Davis:** I was unable to accomplish anything this past week do to health issues with my mom.

- **Tracy La Van:** As team communicator, I prepared 492's two homework assignments and our first bi-weekly report in Google Docs so the team could begin working on them. I researched more papers for previous literature, specifically those done by Aggelos Katsaggelos at the suggestion of our 492 professor. Otherwise, I continued reading through Python Machine Learning by Sebastian Raschka.

- **Jesse Luedtke:** Installed and used FlightGear as a potential flight simulator for our final demo. Also researching GStreamer to find a way to pipe a video stream into our Caffe model.

- **David Schott:** Unable to do much due to interview commitments and travels. Requested HPC access, moved image files for training onto mounted storage device, and attempted to install Caffe.

- **Robert Stemig:** Researched the use of FlightGear as potential simulator as other group member Jesse was able to run on Ubuntu environment and simulator has AI capabilities. Continued working on pipelining video stream from GStreamer to DetectNet and AlexNet.

Pending Issues:

- **As a Group:** The group needs to work on their professionalism with doing quality work (technical and written) and submitting work on time.

Plan for Coming Week:

- **Bijan Choobineh, Jesse Luedtke, Robert Stemig:** Will be working with integrating a video stream into our image processing network. Pipelining gstreamer video to networks as well as testing delays from video stream to image processing from networks to output.

- **Darren Davis:** I will be catching up with the team and focusing on feeding video to a network if it hasn't been accomplished.

- **Tracy La Van:** I will continue reading through Python Machine Learning by Sebastian Raschka.

- **David Schott:** I will look into HPC access when it is approved and try to install Caffe onto the board.

Individual contributions:

NAME	Individual Contributions	Hours This Week	Cumulative Hours
Bijan C.	GStreamer Testing. X-Plane analysis	3.0	13.0
Darren D.	N/A	0.0	32.0
Tracy L.	Prepared 492 assignments, researched previous literature by Aggelos Katsaggelos, continued reading Python Machine Learning	8.0	18.0
Jesse L.	FlighGear and GStreamer research	4.0	29.0
David S.	Caffe, HPC access	2.0	30.0
Robert S.	Gstreamer pipelining video, processing time in DetectNet/AlexNet	5.0	12.0
	Totals:	22.0	134.0

Summary of Weekly Advisor Meeting (9/21/2017):

- Absent: Darren D., Tracy L., Bijan Choobineh, Dr. Zambreno
- Updated Dr. Jones with current progress on the board (what Darren & Jesse were able to accomplish this past week)
- Discussed how to output data via HDMI

- Discussed steps towards HPC lab
- Discussed various simulators we could use to pipeline data out

Summary of Weekly Team Meeting (9/26/2017):

- Absent: David S.
- Stand-Up:
    - Robert:
        - Looked at flight simulators / GStreamer (Windows/Linux)
        - Issue: What type of platform will we be using to demo?
            - Jesse's Ubuntu?
        - Figure out how to pipeline data out
    - Darren:
        - Blocker: Family Health Issues
    - Jesse:
        - Worked with Flight Gear to stream on board
        - Will keep looking into Fight Gear; get more objects into flight
        - Maybe help Robert with GStream
    - Bijan:
        - Worked with GStream, XPlane
        - Will be working with Flight Gear get it more configured (Jesse can show him)
    - Tracy:
        - Heads up on 492 assignments
        - Will continue reading