CprE/SE 491 Weekly Report 18

Dates: 9/28/2017 - 10/4/2017

Dec1709 - ALVINN

Autonomous Vehicle Mission Processor with Machine Learning

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

Weekly Summary:

Our group heard back from Dec1710 after contacting them a second time. We have set up a time for 10/5 to discuss how the two teams might be able to help each other with implementation. The past week was not one of our most productive weeks due to midterms and illnesses. A document with assignments and deadlines has been prepared to help us meet our goals for the semester.

Past Week Accomplishments:

- **Bijan Choobineh:** Spent the majority of the past week completing and preparing for midterms that occurred. Analyzed the current setup in how the imagenet pipeline works and how it can be improved. Analyzed new network named SSD through looking at documentation and testing.

- **Darren Davis:** I spent the majority of this past week getting caught up on all my classes after my mom was in the hospital. I have started looking back into faster networks namely SSD. I also created a priority list of things we need to accomplish to be successful and went over it at our team meeting.

- **Tracy La Van:** Reached out to Dec1710 to prepare a meeting for discussing how to get video streaming into our network from the flight simulator. I continued reading through Python Machine Learning by Sebastian Raschka.

- **Jesse Luedtke:** Other than preparing for midterms, I worked on adding AI objects using FlightGear's scripting language, Nasal.

- **David Schott:** I did not get a lot done this week since I'm trying to catch up on missed material from classes, due to being away for 3 days last week.

- **Robert Stemig:** I did not get a lot of work done this week. I had two midterms to prepare for. I did a small amount of work with GStreamer as well as FlightGear for adding AI objects.

Pending Issues:
- **As a Group:** N/A

Plan for Coming Week:
- **Bijan Choobineh:** The primary goal will be to work with the DetectNet system and modify it such that it can detect and mark appropriately aircraft. DetectNet is currently setup to detect people, however it may or maynot have been trained on aircraft as well; just not enabled for detection.

- **Darren Davis:** Continue looking into the SSD network and installing it on the board. I will also help get a video feed into a network.

- **Tracy La Van:** I will continue reading through Python Machine Learning by Sebastian Raschka and possibly analyzing the SSD Python code to start understanding its structure. I will also start working on the 492 homework submissions.

- **Jesse Luedtke:** Passing a GStreamer pipeline to a neural network on the Jetson board.

- **David Schott:** Installing Caffe onto the board.

- **Robert Stemig:** Exploring the new neural network materials discovered/proposed by darren since the last meeting. Covering items such as live video input and performance as well as hopefully avoiding the issue brought forward about previous networks and having them essentially restart for each frame.

Individual contributions:

NAME	Individual Contributions	Hours This Week	Cumulative Hours
Bijan C.	SSD Documentation/Analysis, ImageNet C/C++ files	3.0	16.0
Darren D.	Researching SSD networks, priority list	5.0	37.0
Tracy L.	Continued reading Python Machine Learning	7.0	25.0
Jesse L.	FlightGear	3.0	32.0
David S.	N/A	0.0	30.0
Robert S.	Gstreamer,flight gear	4.0	16.0
	Totals:	22.0	156.0

Summary of Weekly Advisor Meeting (9/29/2017):
- Absent: Dr. Zambreno, Darren D., Jesse L., David S.
- Updated Dr. Jones on our progress
- Dr. Jones requested that we get in contact with other team; help each other (try for 492 time slot, maybe?)
- Dr. Jones will get to cluster access & information for us

Summary of Weekly Team Meeting (10/3/2017):
- Absent: Robert S.
- Jesse let us know about FlightGear having a language called Nasal that can program various flight scenarios for us - could be used with a GUI (buttons with scenarios) for others to interact with at the demo
- Darren presented his 492 Priority List
    - Stand up: Nothing this week due to Mother's health
    - Will look into SSD
- Jesse:
    - Nasal - worked on getting scripts executing
    - Will be working on video streaming on board
- David:
    - Nothing due to midterms and interviews
    - Needs to talk to Jones about about HPC
    - Will be installing Caffe
- Bijan:
    - Not much done this week but looked at SSD
    - Look into switching DetectNet from people to planes
    - Will help Jesse with video feed
- Tracy:
    - Still working on and will be working on the Neural Network side of things
- Robert let us know that he hasn't gotten much done this week but has looked into GStreamer & FlightGear
    - Help Bijan and Jesse with video streaming

Summary of Weekly Client Meeting (10/3/2017):
- Absent: Darren D., Robert S., Josh B.
- No meeting - client could not attend