

CprE/SE 491 Weekly Report 4

Date: 2/14/2017 - 2/20/2017

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 the group had a team meeting and advisor meeting with Dec1710 present. Upon doing so, the team was advised to brainstorm requirements which may sound fun to implement and create a presentation for them next week.

Past Week Accomplishments:

- **Bijan Choobineh:** Due to other classwork, did not get as much done as desired. Continuing to email client about getting NDA forms. Continuing tutorial work and specializing research on Open CV and MATLAB.
- **Darren Davis:** Researched and down loaded OpenCV and MATLAB to play around with at home. MATLAB appears to be a good choice for quick prototyping and testing for computer vision on CPUs but it appears this work doesn't transfer to GPUs. Watched some tutorials on MATLAB and started trying to view photos with different filters applied. I haven't gone any further with OpenCV. Briefly started looking over the requirements for the project plan.
- **Tracy La Van:** Did not get as much work done as I hoped this week due to other classwork. Did the weekly report, meeting minutes, and started on the project plan.
- **Jesse Luedtke:** Installed and started getting familiar with TensorFlow. Looked into potential sources for training data.
- **David Schott:** Did not get much work done due to personal reasons and a highly saturated schedule.
- **Robert Stemig:** Downloaded MATLAB and begin testing some of the image detection functionality

Pending Issues:

- **Bijan Choobineh:** Need to get clearer project direction soon. Need to get NDA forms from client soon.
- **Tracy La Van:** Need to see Dr. Mina about course requirement clarifications (hoping Monday morning but if he is unavailable, I requested Tuesday during class).

Plan for Coming Week:

- **As a Group:** Help create a Powerpoint presentation for Dr. Jones. Need to finish project proposal for class.
- **Bijan Choobineh:** Continuing my research and practice on tools such as MATLAB and OpenCV. Will work with the team on the project plan. Will continue to email client until we get the NDA forms.
- **Darren Davis:** I want to review different ways of running meetings and try to implement something like a scrum for our team to follow. Hopefully this would allow us to take away more while having shorter meetings. Also, I need to further review project plan requirements to help get that completed this week. Continue learning how to use MATLAB.
- **Tracy La Van:** Will work on project plan, powerpoint for Jones (??), continue education. Will send out Matlab information to group since I have worked with Matlab in the past.
- **Jesse Luedtke:** Find a computer with an NVIDIA GPU that supports CUDA acceleration and NVIDIA's cuDNN library for accelerated deep learning.
NOTE: Tracy has a laptop with NVIDIA GeForce GT 750m and Bijan has a desktop with GeForce GTX 970 and a laptop with GeForce GTX 950. All three are capable of running CUDA (along with other various technologies).
- **David Schott:** Work on familiarizing myself with MATLAB for quick prototyping and discovering potential data sources once project goals are clearer. Assist with powerpoint presentation and any other tasks advisers/client deem necessary for the decision-making process.
- **Robert Stemig:** Familiarizing myself with matlab framework and opencv

Comments and Extended Discussion:

[Full online course about machine learning from Stanford](#)

Individual contributions:

NAME	Individual Contributions	Hours This Week	Cumulative Hours
Bijan C.	Meetings, Matlab/OpenCV	5.0	23.5
Darren D.	MATLAB, OpenCV, tutorials, project plan	8.5	26.0
Tracy L.	Weekly Report, Meeting Minutes, Project Plan	4.0	18.5
Jesse L.	TensorFlow, training data	8.0	22.0
David S.	Meeting, Tutorials	3.0	11.0
Robert S.	Meeting, Matlab, opencv	5.0	19.0
Totals:		33.5	120.0

Summary of Weekly Team Meeting (2/14/2017):

- Present: Bijan Choobineh, Darren Davis, Tracy La Van, Jesse Luedtke, David Schott, Robert Stemig
- Robert needs to figure out wiki still - emailed dept of engineering to ask for help
- Everyone needs to work on design doc- will combine them later
- Need to meet with Dr. Mina about course requirements and clarifications
 - Tracy will try to set up the meeting

Summary of Weekly Advisor Meeting (2/16/2017):

- Present: Dr. Jones, Bijan Choobineh, Darren Davis, Tracy La Van, Jesse Luedtke, David Schott, Robert Stemig, and also Lixing, Alex, Sean, Chris, Evan (VOLDEMORT)
- Absent: Dr. Zambreno, Lucas (VOLDEMORT)
- Need to make separate weekly report for Dr. Jones - he does not want the one we do for class
 - because he does not believe it will be informative enough for him
 - Team foreseeing Issues with this request
 - Maybe compromise
 - Give a 20 sec update on top of Monday report
 - Maybe Dr. Mina will let us switch dates for class submission
- Matlab vs OpenCV - Matlab for prototype
- Jones wants slides for a mock up demo (presentation/marketing pitch) - useful so everyone is on the same page
 - Wants wildest dream demo then he will cut it down & what features are needed for this "grand vision"
 - 4-6 YouTube videos to visualize what we are looking to do
 - We need to seem excited about it
 - Chris wants rankings on features
 - Will create a spreadsheet for rankings
- Digital textbook on NN - 15 pages or so, email him

- Email about HPC stuff (Alex wanted)