

EE/CPR E/ SE Weekly Report II

Feb 11, 2019 - Feb 15, 2019

Group Number: 08

Project Title: Artificial Intelligence for Requirement Analysis Tools

Client & Advisor: Collins Aerospace & Dr. Simanta Mitra

Team Members & Roles:

Ryan Cerveny: Scrum Master, Meeting Scribe/Facilitator, Project Lead, Communicator

Apurva Patel: Project Lead, Report Manager, Technical Support, Communicator, AI Training Lead

Jonathan Murphy: Testing Engineer, Researcher, Requirement Lead

Takao Shibamoto: Chief Engineer, Researcher, UI Lead

Weekly Summary:

The focus of this week was mostly research in our AI algorithms and libraries. Along with this, we changed our faculty advisor, discussed front end options, and continued training our teammates with python.

Past Week Accomplishments:

Change of Advisor(Apurva & Ryan):

As a team we discussed for the issues with the current faculty advisor. Apurva and Ryan went to Dr. Daniels and introduced our problem to him. Performed all the necessary documentation process with the new advisor and turned it in.

Server Misconfiguration & Jira (Apurva):

On wednesday, the server broke, port 80 and 8080 disappeared. Apurva worked on it and fixed it. Jira, stopped due to server issue and data was lost for the sprint. Apurva reworked on it and make it working

Research (Ryan Cerveny & Apurva Patel):

Ryan and Apurva Patel worked on researching word2Vec. Apurva Researched on implementation of the algorithm in python as well as learning it in general. Ryan, specifically invested his time in learning algorithm over all, and libraries that could help us to implement the algorithm, such as the python library: gensim. Word2Vec algorithm was a suggestion by our client. A brief documentation is in the progress for the word2vec algorithm.

Setting up docs for advisor at dedicated server(Apurva Patel):

Apurva worked on the front end of the server, put all the required docs from the clients and the advisor on it, so that, they don't have to go to different website to look at the docs and the progress on the project. link : sddc2019-caairat.ece.iastate.edu

Began work on a few sections of the Project Plan (Jonathan & Takao):

After dividing up the Project Plan into individual sections, Jonathan began working on the Estimated Resources section, and will soon begin work on the Statement of Work section. Takao began to develop a draft of the Project Timeline. When our group meets next, we will collaborate in order to bring all of our sections together into one cohesive report and develop a final draft together.

Researched Python's Deep Learning Applications / Researching Word2Vec/Word Movers Distance Algorithms & Python's Gensim Library (Jonathan & Takao):

Since Jonathan came into this progress with less Python experience than some of the other members, it was necessary for him to do some additional research. During this week, Jonathan spent a few hours (approx. 3 - 3.5) working through a Udemy tutorial which taught him some more deep learning concepts and how to implement them in Python. Takao and Jonathan also researched the Word2Vec and Word Movers Distance algorithms as well as explored the functionalities of the Gensim Library in Python, similar to the research that Apurva and Ryan did mentioned above.

Began Rough Sketch of Component/Use Case Diagrams (Jonathan):

Jonathan began a rough outline of use case and component diagrams that will be included in the project plan. These will be shown to the rest of the group and to our contacts at Collin's Aerospace when the drafts are complete to gather feedback and make any necessary changes before final submission.

Pending Issues:

- Seeking more clear documentation and requirements (i.e. sample Input and Output)

Individual Contributions:

Name	Individual Contributions	Hours this Week	Hours Cumulative
Jonathan Murphy	<ul style="list-style-type: none">● Began work on Section 4.a ("Estimated Resources") section of the project plan.● Continued to research Python's deep learning applications by taking Udemy	Approx. 6	Approx. 14

	<ul style="list-style-type: none"> courses. ● Researched Word2Vec/Word Mover Distance and Gensim Python libraries. ● Began rough sketches of component diagrams / use case diagrams. 		
Apurva Patel	<ul style="list-style-type: none"> ● Server Configuration ● Reset Jira ● Change Advisor and Documentation ● Decided to go with HTML, CSS, JavaScript instead of Laravel ● Researched on Word2Vec ● Setting up the frontend for the advisor <ul style="list-style-type: none"> ○ sddec2019-caairat.ece.iastate.edu 	8	16
Ryan Cerveny	<ul style="list-style-type: none"> ● Researched Word2Vec ● Made presentation for advisor meeting ● Changed our advisors ● Researched Gensim python library ● Decided HTML, CSS, JS for front end 	6	Approx. 15
Takao Shibamoto	<ul style="list-style-type: none"> ● Researched A.I. ● Began working on timeline for Project Plan ● 	Approx. 6	Approx. 14

Comments and Extended Discussion:

We decided to change our faculty advisor from Dr. Namrata to Dr. Mitra. We decided to do this because Dr. Namrata was very slow with communicating with with us and expressed little interest in the project. Dr. Mitra on the other hand is on top of those needs and was willing to take over the position. We also finished any changes in paperwork which was needed from Dr. Mitra becoming the faculty advisor.

External Question for the client to be discussed:

- Structure of input data and desired output
- Strong examples of each classification of links
- Desired attributes of the front end
- Clarify use cases/actors
- Use gensim? Or write Word2Vec algorithm manually?
 - Assuming that we use word2vec

Plans for Upcoming Week:

- Implement small experiments for Word2Vec

- Research Hadoop
- Project plan diagrams and document
- Find datasets for testing
- Ask for clarifications on in and outputs of the project.

Summary of Weekly Advisor Meeting:

During our meeting with Dr. Mitra, we discussed what the best way to approach this problem would be since we were not completely clear on the requirements based on the documentation that was provided. Mitra suggested that we ask Jason and our other contacts at Collin's for some more specific data regarding the project, such as sample input and output that is expected for the program. Mitra also suggested that we develop (or find) sets of sample data and experiment with the Word2Vec Algorithm to see how accurately it groups the data into specified categories. Mitra suggested to continue to write small experiments in order to explore these algorithms and push our experiments to Git so that each individual member can learn from the other members' experiments.