

[Home](#)[Menu](#)

Sofia Loya



[Airplane ride back to El Paso](#)



Posted on [August 5, 2017](#) by [cloya](#)

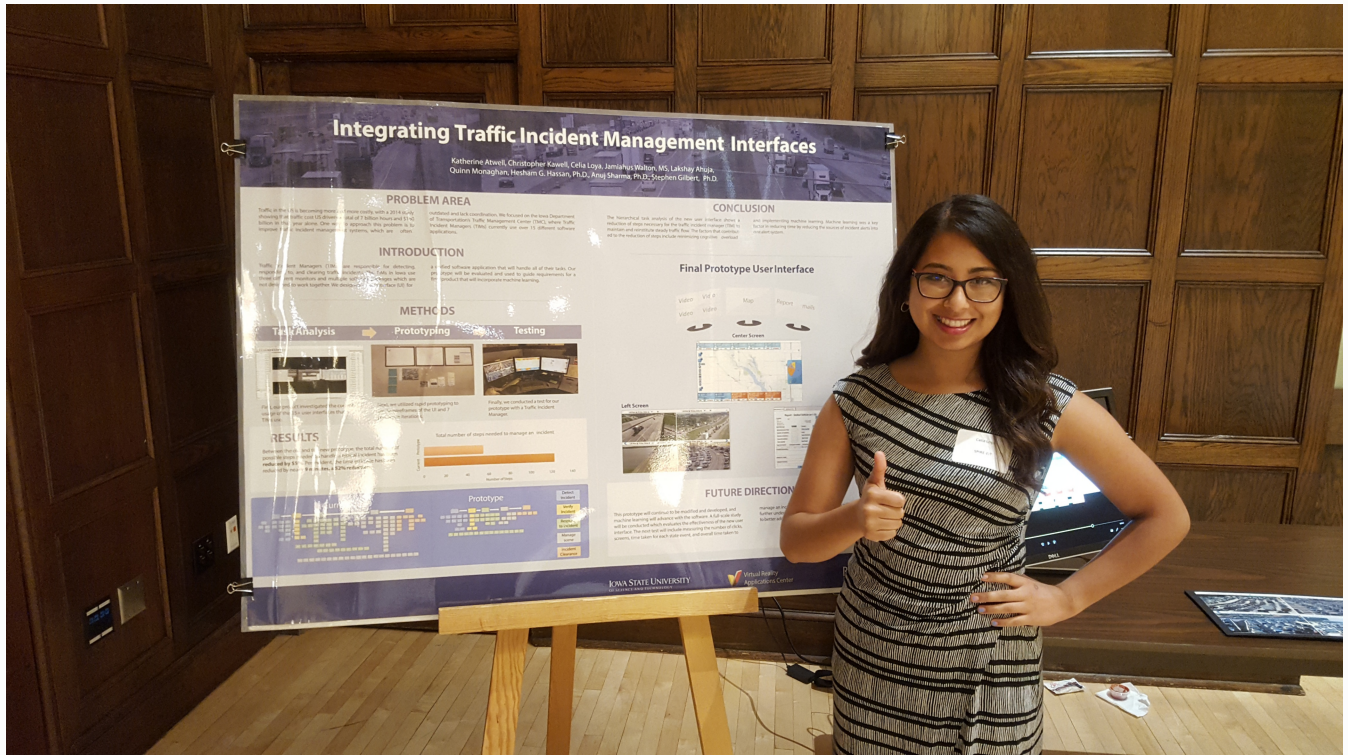
Howdy,

8/2 (Wednesday)

Wednesday was great because I got to talk to Dr. Gilbert one on one. He inspired me to continue research through out the fall semester. We looked at a couple of professors from A&M and found one that I am particular interested in talking to. Dr. Gilbert is the best because he was not able to help me directly with choosing the mechanical engineering professors since he is most familiar with Industrial engineering, but he was very enthusiastic about finding the people that could help me. He walked me over to the Director of the Virtual Reality Application Center, Dr. Oliver, so that I could network and find out more about the mechanical engineering professors at A&M. Dr. Oliver explained to me all the different fields of research for mechanical engineering and now I have a much better understanding off what happens. Overall I am glad I talked to Dr. Oliver because now I am very interested in the bio-mechanical side of solid mechanics. Dr. Gilbert has such a heart of gold to take the time to individually help me on my academic path.

8/3 (Thursday)

WOW! I finished my poster session! This was what the whole summer was leading up to! We had a lot more people stop by and ask questions than I had expected. My favorite part about the poster session was when I would explain how my research impacts them and they get excited too! It was a bit scary when our lead professor came over and I presented to him, but the smile on his face while I was presenting made it all worth it. I really enjoyed the poster session.



My first poster symposium



LOVE THESE GIRLS!!

8/4 (Friday)

This summer has been one of the most memorable times of my life and has reshaped my path. Kate and I were actually talking about how we want to reinvent ourselves this semester and all the goals we have. Not only did the teachers I have impact me, but so did the other REU members. Each of them are inspiring, intelligent, funny, and have helped me grow as a person.

Devi: Thank you for inspiring me to read and teaching me how to build a website! I admire your passion for learning and ambition. You taught me seize the day and even if you don't know how to make something(like the website) just do it because you'll learn through the process.

Britt: I love how passionate you are about computer science!!! Thank you for showing me all the resources you have about

women in STEM! I love how we were able to push and motivate one another to try new things like C++, learn computer hardware terminology, and work out! I loved hanging out with you and the conversations we had as we cooked!

Chris: First of all, thank you for being an amazing research partner and helping me learn everyday from breaking down what was a double in C++ to explaining quantum physics. You're an amazing teacher! You inspire me to stay curious in education and always ask questions!

Natalie: WOW! I have never meet anyone as bold, disciplined, and kind-hearted as you! You inspire me to take full control of every minute of my life to build something beautiful. Your fearlessness taught me to be myself apologetically, and try things I would never have thought of.

Emma: You are so beautiful and fearless in everything you do! At the same time you have such a kind heart. I could tell how much you valued each of us by how kind you are to everyone! Thank you for teaching me some tricks on cooking and for being the smart and inspiring woman you are!

Kate: YOU ARE SO BEAUTIFUL INSIDE AND OUT KATE!! Thank you so much for being an amazing research partner! I absolutely love how positive and helpful you are to everyone around you! You are always encouraging me to try new things like the grace hopper conference and have such confidence in my abilities! Thank you for being authentically you all the time!!!

Masashi: You are so passionate about everything you say, learn, and investigate. Yes investigate, because you are constantly reading articles and learning about what is new an upcoming in technology. It is so inspiring to see someone like you who is so knowledgeable and involved in what they love.

Alfredo: You always know how to enjoy life an be yourself! Thank you for teaching me so much about your project and cooking very good tacos! I always enjoyed when you explained a concept to the group like what infinity means because you are a great teacher!

Manny: I'll never forget when you told me "you have to have confidence in yourself because no one else can do that for you". Your never take life too seriously and always know how to enjoy yourself. You also taught me self discipline I don't know anyone else that can eat as much cottage cheese and pineapples as you!

Austin: You're one of the funniest guys Austin! I appreciate all of the corny dad jokes you told on a daily basis. Also, everyday I saw how hard you worked on the virtual environment for your project. Your patience and passion for learning has taught me a lot.

Jameel: Thank you for being so kind to me!! I can see how passionate you are in everything you do and especially in programming! You take on hundreds of projects because you love what you do and its so inspiring! Thank you for always being so kind to me and taking me to the doctors when I fell!!

I WILL MISS YOU ALL SOO MUCH! I wish you luck in your life endeavors and can't wait to see you grow! Best of luck, and see you at the REUnion

Thanks and Gig'em



Awesome mentor!



Love my MCA group!!



**britt voice "AAHHHHH"*

Posted in [Uncategorized](#) | [Leave a reply](#)

[Day 62 \(07/31/2017\)](#)



Posted on [July 31, 2017](#) by [clova](#)

Howdy,

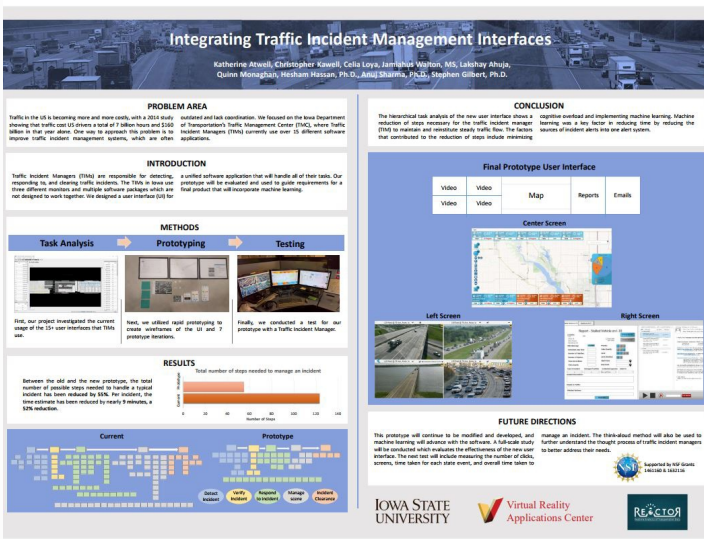
This was a fun past weekend! Britney and I went to the farmers market on Saturday and then went to explore the parts of campus we had yet to see! Then on Sunday after church Kate and I went to have breakfast and explored some more of campus!



Where Britt and I took our first photo together 📸



[Research is going very well! We just submitted our poster to get printed-723450650.mp4](#)



Final research poster

We are including the photo bellow in our paper to show how our rapid prototyping looks. I think it really shows how we progressed in the complexity of our prototyping in a span of about six weeks. I have really enjoyed learning about the science behind design. Every time I read a research article it ends up leading me to another research article that teaches me some other testing method or design principle I did not know. It's really interesting because I learnt how to make decisions that are backed up by science. My favorite part is learning about the edge of what is known in science and how they are adding to it.



From very early prototype -> last rapid paper prototype -> Axure online prototype (photo taken from our paper)

Thanks and Gig'em

Day 57 (07/26/2017)



Posted on [July 27, 2017](#) by [cloya](#)

Howdy,

It's 4:30 p.m., we just got back from Iowa DoT, and we are done rapid prototype testing. The stress is gone and it's a good time to be alive. This past week has been a little stressful with finishing our poster, adding to our article, prototyping, and setting up the scenario to test a subject at Iowa DoT.

I think this morning was the peak of our stress. We were supposed to be ready at 1pm to leave but it was 12:58 p.m. and we were a mess. I was laying out all the screen pictures on the table, Kate was revising pictures on her computer to print, and Chris was fixing the survey we had to ask.

1:05 p.m. Quinn asks us if we are ready to leave as I was cutting some of the prototypes and I said, "yeeah almost". I looked over at Kates computer screen and still saw her editing photos that needed to be cut and pasted. Then Chris comes over and frantically helps me cut everything out.

1:07 p.m.: everything is cut and now we are waiting on Kate to finish editing some of the photos.

1:09p.m.: we are printing the photos as Quinn stands over our shoulders trying to pressure us, but Quinns too nice to actually get mad at us.

1:10p.m. Everything is printed but not the right size. *panics internally because there is no time to fix this

1:12p.m. accepts faith and gets in the car to go to Iowa DoT.

The funny thing, we were still in high stress in the car as we cut out the remaining paper components for the prototype.

Thankfully, everything got cut, and everything was done by the time we got to Iowa DoT.

When we got there we were taken into a conference room with four managers, our major professor Dr. Sharma, Jamiahus, and Quinn.

The testing and data collecting was a lot less stressful and more enjoyable than I expected. The managers were very receptive to our prototype and its design. There was a lot of research in multi-tasking, user experience, and user-intuitiveness that went into the design decisions we made. We also realized there was a lot of coordination that had to go on when we were making the prototype to use correct locations and photos that the managers would recognize.

Thanks and Gig'em

Posted in [Uncategorized](#) | [Leave a reply](#)

Day 48 (07/17/2017)



Posted on [July 17, 2017](#) by [cloya](#)

Howdy,

This was a really good weekend because I got to talk to a couple of my friends from back home. It was really nice getting to catch up and hear all of the research they are doing. Some of us from the REU also went to Hickory Park and it was really good barbecue. I probably ate way too much, but it was so worth it.

It is a bittersweet time in the REU because I am excited to see my family soon but I don't want to leave this program. On Friday we got back our first draft of the introduction which had plenty of marks from our mentor. Which is good because we would rather get feedback now before it's too late. Today we were able to write a revision of our introduction paragraph which was a big step. Trying to figure out our direction of the paper and what the goal is was critical. We had to make sure we set a solid foundation for the rest of the paper, reach an international audience(since we are applying to an international conference), and create a good hook for the article. After plenty of arguing, constructive criticism, and headache we got it done.

Now we are creating our next UI prototype for tomorrow's meeting. It is starting to get more difficult in UI design because we have to back up our design with lit review and collected data. As opposed to the first couple of weeks where it was more observational based decisions from what we saw in the videos of the TIMs.

Thanks and Gig'em

Posted in [Uncategorized](#) | [2 Replies](#)

Day 45 (07/14/2015)



Posted on [July 14, 2017](#) by [cloya](#)

Howdy,

*warning: the following information is an assignment *

BAD USER INTERFACE DESIGN

In my scavenger hunt to find a bad user interface I came across the UI of the 3D printer that I worked with. This was an exceptionally bad user interface because when you wanted to manually control the position of the extruder the user had to use

the right and left arrow to scroll through the x,y, and z plane. It is a bad design because when you got to the last choice (z plane) the options did not loop back to the first choice(x plane), thus, the user had to press the left arrow twice to get back to the x plane.



Thanks and Gig'em

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[Day 44 \(07/13/2017\)](#)



Posted on [July 14, 2017](#) by [cloya](#)

Howdy,

On wednesday we had our big video conference presentation with USC! Each of the four project groups got a chance to give a PowerPoint presentation of our work, and we got to hear about their work at USC. It was fun giving the presentation because it helped us verbally connect all the aspects of the project we have been working on. Since we have been splitting up the work throughout the days and not necessarily having a strict way to complete all of our work it was nice being able to finally pull all of it together. I think the best way to organize what we are doing is by putting it into a story. By creating this story we were able to identify the key components of our project and the flaws that we have. Now that the presentation is over we know what problems we need to tackle like connecting multi-tasking to traffic control more fluidly.

I also learnt that I really enjoy the lit review part of this project. I like being able to back up our decisions in the prototype design with research to prove we are not ambiguously making design decisions. There is actually hard facts behind our design. Right now I am working on some lit review while my team is doing some rapid prototyping for our meeting on Tuesday. I also really enjoy rapid prototyping because we are constantly changing our design to improve it and never get too attached to a certain design so we are able to be more creative which is where our best ideas have come from.

Two days ago Kate and I were talking about our college bucket-lists and I realized I forgot to blog about it. Here is a short, ambitious list of goals I want to accomplish during my undergraduate degree:

College Bucket-list:

- continue with research
- make a start-up business
- write a kids book about the water cycle
- intern in industry
- start a blog and keep up with it (because this one will end soon)
- save up for a friend trip my senior year
- complete a hackathon
- do at least 20 hours of community service a year

Thanks and Gig'em

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[Day 42 \(07/11/2017\)](#)



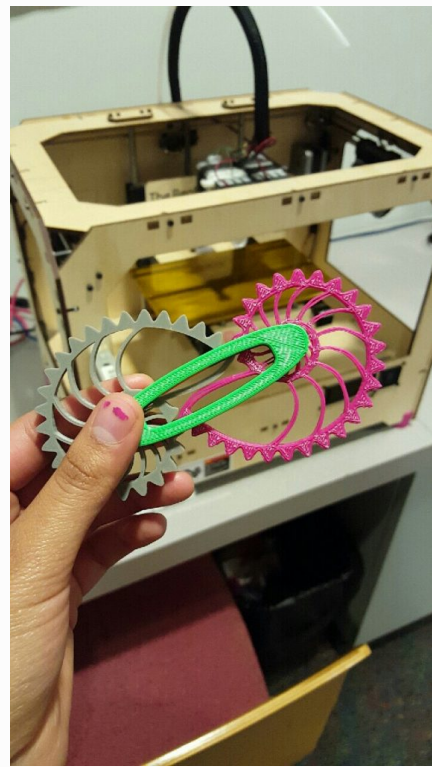
Posted on [July 11, 2017](#) by [cloya](#)

Howdy,

My week so far has been a combination of Major Course Activities (MCA) presentations, article rough drafting, and preparing for the symposium.

MCA presentation: My MCA was on 3D printing, also known as Additive Manufacturing. It was so much fun because I was able to use solidworks and a scripting CAD software called OpenSCAD. I had no idea this existed before I did this project. All of this was done two weeks back and I had been improving my design and adding to it since. I was able to show how a male part that was design in solidworks and made for extruded aluminum came out much different when 3D printed. The biggest take away was geometric dimensioning and tolerance. This isn't a very easy concept, but basically it is specifying the exact size of an object. A machine will not know how round to make your sphere, it won't even know that you're printing a sphere. That's why it is important to specify the cylindricity(how consistently round for a certain depth an object is), dimensions, radius size, etc. so that the computer aided design can be transferred into G code(machine language) easily.

I was also able to get a nautilus gear printed! It was much easier to print reprint the parts when scripted in OpenSCAD because there is an exact place to put the numerical size.



Way Better Than a Fidget Spinner

my favorite part about this project was our instructor. Every time I had a question Alex would first say "It depends" and shrug... but then he would go out of the way to explain it to me. He brought me manuals from his desk to visually show me figures, he 3D printed parts to explain how slicing worked, he sent me CAD files and made me convert them to .stl files so I understood how to manipulate the specific options on angle and how they related to the shapes in the tessellations of the parts. Alex is just the bomb and it's great to have a teacher as motivated and insightful as him. Also glad we got this photo of Alex's classic shrug:

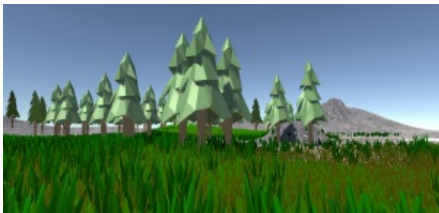


"It Depends" - Alex's Classic Shrug

We also got to see the other groups' projects.



Unity Shaders project (converted corn fields into virtual reality)



Unity immersive (Austins' Video game)

Update on Research project: We finally got out abstract in so that it will be posted on the handouts at the symposium. We are continuing the refine out UI prototype. We not have it on Axure(website design program) so that people can interact with the buttons and it is no longer static. Now we are working on our power point presentation for tomorrows video conference with another college. We are also continuing to edit our introduction, background, and lit review part of the paper. Loads to do but it will happen!

Today's impactful event: Today we had a talk from Eliot about his experience and how he got to where he is today. My favorite part was when he asked if we wanted to go to grad school and in my head I was saying No, but then after he talked for a while it turned into a yes. What I realized was that the level of work I would be given right out of college is not what I see myself doing. I really enjoy learning and want a challenge. A challenge that at first I probably will think I won't be able to handle but then I work through it and feel accomplished at the end because I did it. That is the type of work I see myself encountering with a Ph.D., so hopefully I will go for it.

Thanks and Gig'em

Posted in [Uncategorized](#) | [5 Replies](#)

[Day 36 \(07/05/17\)](#)

Posted on [July 5, 2017](#) by [clova](#)

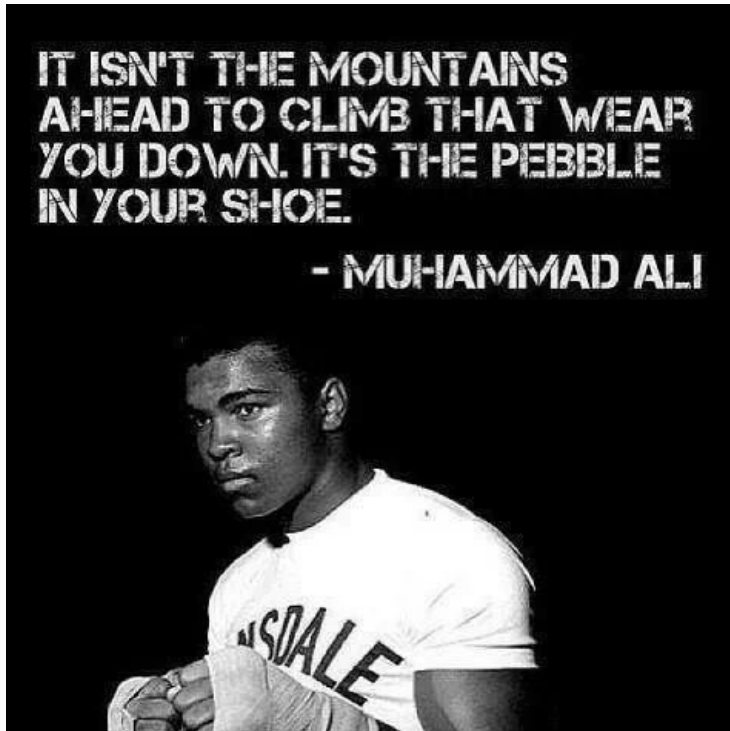


Howdy!

I am in such a good mood this week because just five days ago I found out I got into Mechanical Engineering! At my college all the freshman start off in general engineering then apply to their specific major at the end of the first year, and June 30th was when we received the results. I couldn't be happier!

On another note, this four day weekend was well needed. I was able to rest and recover from a bike accident and had a very insightful meeting with Lakshay (graduate student working on the back end of the UI), and Hassan (the professor working on the UI design). Everything makes sense now. Before this meeting everyone kept telling us "don't forget to add traffic alarms". We would always ask where are these alarms coming from? But we were just told "it's all in the machine learning". But who is inputting the information, where is it coming from? Response: "It's all in the machine learning". Kate, Chris and I were very confused for a good amount of time, but during the meeting on Monday Lakshay showed us his code that had all of the calculations that detect the probability of an incident in a given location. All of our confusion was a prime example of miss communication between the designer and manufacture that Alex always talks about in 3D printing.

This weekend went fast, but our deadlines are approaching faster. As we continue to modify and update our UI prototype we still need to write our research questions, Lit review paragraph, MCA presentation, methods paragraph, abstract, and continue to work on our research paper to submit to a conference. I just got overwhelmed writing all that out, but I know we can do it. I want it to get done immediately, but I know this will take some time.



Thanks and Gig'em

Posted in [Uncategorized](#) | [7 Replies](#)

[Day 28 \(06/27/17\)](#)



Posted on [June 27, 2017](#) by [cloya](#)

Howdy,

For a little recap of the later part of yesterday, in 3D printing we got assigned our projects. I will be working on adaptive parts made through additive manufacturing. For example, if a metal part needed to be connected to a monitor and you can't just screw a nail into a monitor through the metal to connect them. Instead you could 3D print a part that would connect the two parts. This would show how 3D printing is a cheaper option that allows you to create a simple fix to an issue.

Today I spent three hour in the JB conference room for meetings and presentations and am going to spend another hour in there later today. I never realized how tiring meetings can get. Now I understand why people go workout during lunch because they need a mental break from all the information.

The first meeting this morning went very well. Kate and Chris showed their virtual prototype (created on Axure) of an application that overlays all the current programs TIM's use. Then I gave a presentation of the physical prototype of a completely new application for the TIMs. This was my first experience of pitching an idea for a project that actually matters. I really enjoy working on this project because it's more than just a grade. What I contribute is going to be used by other grad students and professors which is very inspiring and motivational. I learnt how different presentations in a meeting are from school. Professors would stop me mid sentence and ask me questions rather than in school when all the questions are at the end. It makes more sense that they ask in the moment but it still made me loose my train of thought, address the question, then have to remember where I was in my presentation. Over all it went well, and I noticed that the physical presentation evoked a lot of conversation from the professors. I also attached a story with my presentation (of a crash) which freed that part of their thinking process and they we're able to problem solve and think of where I could fix certain aspects of the prototype. I think for next time I want to work on the creativity of the application, make it look completely different, and include machine learning. We also got a definite

answer to go forward with a physical prototype and a completely new UI. Today we made a lot of progress.

Thanks and Gig'em

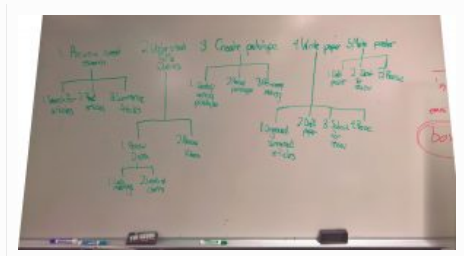
Posted in [Uncategorized](#) | [Leave a reply](#)

Day 27 (06/26/17)

Posted on [June 26, 2017](#) by [cloya](#)

Howdy,

Today I had a lot to get done from my deeper dive class to finishing a prototype for tomorrows meeting to creating this timeline for a quick overview of the rest of our time here.



Thanks and Gig'em

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Day 24 (06/23/17)

Posted on [June 23, 2017](#) by [cloya](#)

Howdy,

Today we had a lot going on. This morning we started our deeper dive classes. I choose 3D printing; I think that it has a closer tie to mechanical engineering because of the material behaviors that you need to consider. Where as, the other two classes are further exploring Unity, which I if you can't tell from previous post, I don't like it. In our introduction to 3D printing this morning I learnt that that 3D printing is actually the staple name. The correct term is additive manufacturing just as Kleenex is to tissue.

After the into to additive manufacturing Kate and I had a meeting with Dr. Gilbert and Quinn to talk about our rough drafts of the UI. He liked how detailed we were about ideas like color coding icons, including tabs and pop up windows. He also gave us some very good feedback like scaling everything, putting a chrome around all of the user interfaces, and possibly looking into adding machine learning like showing the probability of an incident occurring at a certain time! I think there is a lot that we can add onto our drafts for the next revision! I'm super excited I just need to make sure I do the correct research to back up the next parts of the design.

We also had a class on the Craft of Research where Anna was able to critique some of TIMELI's Lit review choices. She was able to highlight that we picked an article that was already outdated and gave us advice to look into articles that are an analytical review of our topic of interest. This helps because it can give an overview of the research done on that topic and I can go look into the reference part of the article for the sections that I want more information over.

Next on the list, we out second 3D class and more research time!

Thanks and Gig'em

Posted in [Uncategorized](#) | [Leave a reply](#)

Day 23 (06/22/17)

Posted on [June 22, 2017](#) by [cloya](#)

Howdy,

Today has been very productive! I watched a Traffic Incident Management video, which in short, is a screen recording of what the TIM are doing during a daily shift. I watched a video that was only an hour long but most are 4 to 6 hours long and can be up to 12 hours long. I have been reviewing what the TIM's do most often like scanning and talking to high way helpers, but I did not know exactly what that entailed and the steps they had to go through. Being able to watch over their steps was very nice because I could identify where the issues are and how a simple code could fix their issues.

I completed a second draft of the UI after I watched the video. I always have spurts of ideas and want to change my original design after about five seconds, so I need to make sure I am taking this design process slowly. I want to make sure I do not rush into anything to fast and have the research to back up my ideas. I think my next step is to read over an article of multi-tasking to get a good idea of how much a TIM can handle at once. Then, later today our research group is going to get together, show each other our rough sketches for the UI, and draft up a collaborative UI.

During our luncheon we had a great speaker, Mark Mba Wright, talk to us about his research in biofuel. He is researching the

process of the thermochemical conversion of biomass into ethanol (an alternate choice to crude oil). Right now this is the most profitable method of conversion because the ethanol produced will yield more than most methods. What exactly are they converting into ethanol? Glad you asked! Most of the popular choices would be sugar corn, cacti, corn, and miscanthus. Right now they are using miscanthus because this crop will produce ethanol that can fuel a car for the longest distance. I did not even know what miscanthus was before this, but now I know that about 2.75 acres of it can fuel a car for about 122 kilometers.



20 Feet Tall!

Thanks and Gig'em

Posted in [Uncategorized](#) | [Leave a reply](#)

Day 22 (06/21/17)



Posted on [June 21, 2017](#) by [cloya](#)

Howdy,

Okay, I have to admit that it has been a while since I have posted about the research I am doing. Mostly because we've gained a lot of momentum this week in the research, so I have neglected my blog.

The meeting with my research group yesterday morning cleared up our goal. Now I can clearly see that we are working to reduce the time it takes a TIM to report on an accident. The professor in charge even went so far as to limit the amount of engineering specs so that "our imagination can run wild", I am so excited.

To work collaboratively as a research team we are compiling all of the data and task analysis information in cybox, the issue is that there is SO MUCH information. Luckily, Quinn and Jamiahus have been working close with Kate, Chris and I to direct us to the files that have the averages of the collected data. I have been spending my time looking at trends and watching videos of how the TIM interact with the 15 different software programs they need to use (I am still shocked they use so many). From this I am able to see what tasks they need to perform and what is their preferred method of completing such task. So far I have used my observations and the data to draw up some rough drafts of the User Interface. I have never worked on ux, but I am really enjoying the task! I have so many ideas of how to change the programming interface. One small change that I think will really help them is creating more visual icons that they can move and manipulate instead of text boxes because all of the software looks very much like a large data base, and that is not how user interfaces should look. Think about Instagram. If Instagram looked like an excel file where you insert photos and captions it would not be nearly as user friendly.

Right now the issue Kate and I are stuck on is if we want to use an adaptive or responsive HTML prototype. We are learning Axure, however, this is a responsive UI prototype meaning there would be a scroll bar at the bottom of the page instead of fitting to the screen. This could pose an issue for interruption in cognitive tasks of the TIM's, thus increasing the response time.

Thanks and Gig'em

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Day 20 (06/19/17)



Posted on [June 21, 2017](#) by [cloya](#)

Howdy,

I strongly dislike Unity right now.

There has been a trend in learning all of these programming, design, and game development platforms for me.

Step One: At first I start off with confidence I might learn quickly.

Step Two: I realize I do not know anything, and I want to lightly hit my computer.

Step Three: I think I begin to understand it.

Step Four: I realize I do not understand anything, and want to throw my computer across the room.

Step Five: I actually start to understand it and really like it (most of the time). . .

Currently I want to throw my computer across the room because of Unity. I also learnt that game design is not for me. I think this is an appropriate time to quote Kate, "If unity was a person. I would punch him in the face."

Today I also had a great lunch with Dr. Gilbert and the rest of the team. Dr. Gilbert is a very insightful man and today he gave advice on reading a book called "Getting Things Done". One of the key points in the book is to always keep two list on hand: one of things you want to get done and the other is questions you have for your supervisor if you run into them. This is very good advice. I am very excited to follow through with it.

Thanks and Gig'em

Posted in [Uncategorized](#) | [1 Reply](#)

Day 15 (06/14/17)



Posted on [June 19, 2017](#) by [cloya](#)

Howdy,

Today we finished up our classes in Maya and started classes in Solidworks. I had just gotten accustomed to Maya and now we are about to switch to something else. In the beginning, I was following the instructions and got a good handle on some of the functions like extrude, however, toward the end when we got to light manipulation I was completely lost. I started to get very confused and ended up working with the tools I knew and understood on a city scene instead.

At the start, learning Solidworks was a very frustrating process because the program uses icons with no text, so it was a steep learning curve. I was able to complete the beginner tutorial and build a basic camera. Later in the evening Kate and I came back to the VRAC at night to work on the candle holder. These programs have really tested my problem solving skills and improved them.



Thanks and Gig'em

*Peak into our group
cookout 🍔*



Posted in [Uncategorized](#) | [Leave a reply](#)

Day 14 (6/13/2017)



Posted on [June 13, 2017](#) by [cloya](#)

Howdy,

Today has been a research packed morning. I started off with a meeting for my research project TIMELI. The meetings are always a very humbling experience because it reminds me how little I know about task analysis and how much work goes into this project. Today the meeting included one of the professors in charge of the project, the graduate leader of the project, two masters students who are working on the project and four undergraduate students including myself. Jamiahus, a graduate student in charge of TIMELI, was reviewing the flow diagram of everything a Traffic Incident Manager (TIM) does. Going into this project I thought that it would not be very difficult to make a user interface, but as I learn more about task analysis and all the research that needs to be done before hand, the more I realize all the factors that need to be considered. This summer has taught me how to analyze data in a way that I could never have learn in the class room. It is not just busy work that I can forget about later, I get to use all of the information to help build a UI that will impact (and hopefully improve) someone's daily life.

After, we had a luncheon with Dr. Adarsh Krishnamurthy. He walked us through the research that he started off with as a Ph.D. students and what he is currently working on as a post-doc. As an Ph.D. student he did research for Solidworks, a computer aided design software, in Non Uniform Rational B-Spline representation (NURBS). As a post-doc he has built on that research to use NURBS to replicate the heart of patients with Dyssynchronous (the left side of the heart does not pulse at the same time as the right causing a deficiency in the blood the heart pumps). Amongst many other findings, the 3D representation helped the research team discover that the work loop is different sizes on both side of the heart which is a major link to unsynchronized contraction time of the heart.

Thanks and Gig'em

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Day 13 (6/12/2017)

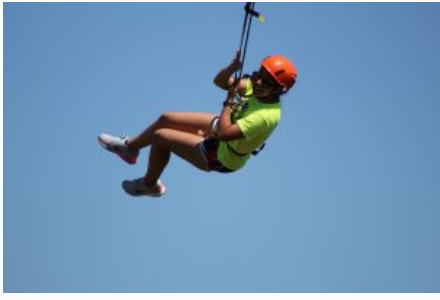


Posted on [June 12, 2017](#) by [cloya](#)

Howdy,

This was a super fun and adventure packed weekend where I got to bond with my co-workers! So here is a little view into our life:

After I let go of the tie to drop my swing I probably yelled way more than I needed too. The terror definitely turned into



At the top of a 30 ft high swing!

excitement really quickly.

The whole process of climbing the tower was much more intimidating than it looks. To put this into perspective : this tower is about 50 feet high, there was strong wind, and the little things you step onto kept moving. I was so glad that I decided to go at the same time as Kate because she pushed me to keep going. It was such a fun experience and I would do it again even if it was a little scary at first.



Climbing up the tower!



Kate and I at the top !



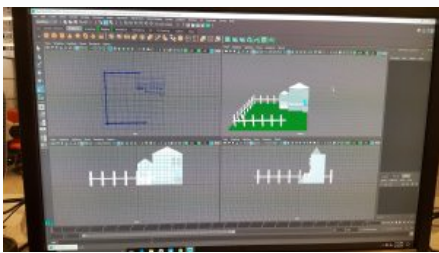
Exhausted, burnt, but happy 😊

On Sunday I went to the Community Art Center with Jameel and Kate to finish working on our bikes! We finally got them done with the help of Val (one of the volunteers). I never knew how to fix a bike until I learnt from Val.



Community Art Center

Today, I had classes on MAYA which is a Computer Aided Design Software. I have never used CAD so this was an interesting experience for me. It is a little tedious at first because there are so many buttons and ways that you can manipulate a figure. However, after a while I was able to get the hang of it!



My first model in MAYA 🤖

Thanks and Gig'em

Posted in [Uncategorized](#) | [1 Reply](#)

[Día 10 \(6/09/2017\)](#)

Posted on [June 9, 2017](#) by [cloya](#)

Howdy!

After work yesterday we had some creative brainstorming (which turned into head aches and arguing) of a T-shirt design.



Deciding on shirt design

I meant to learn some OOP before I got to work today, but right after I got home I knocked out. My thirty minute nap turned into me waking up at 7 am. Whoops.

Today is friday and and I am super excited because it is Alfredo's birthday! We got to sing happy birthday and the staff bought him a birthday cake! So sweet of them!

We worked on C++ today and object oriented programming. Let me tell you this is a pretty confusing topic. I am starting to have a better understanding of it when they used a cookie cutter example. Cookie cutter is your class, the cookie is an object, and the sprinkles or color are the properties, and of course there is all of the syntax that goes behind that. Slowly but surely I am getting there.

In journal club today we talked about an article on MistForm, an fog screen that uses machine learning to change shape. It was a very difficult article to read because of the jargon and advanced math that was packed in there. The cool take away from this article was the convention that it was published, ACM CHI 2017

CHECK OUT THIS COOL LINK:

[Association for Computing Machinery](#)

CHI is this HUGE conference on Human Factors in Computing Science. It is sponsored by big companies like Google, Facebook, Bloomberg, IBM, and the NSF just to name a few. In this conference you can submit papers, demonstrations, case studies, late breaking work, and video submissions. It is a very prestigious conference and only the best get selected. Any undergraduate that would be published here would probably be accepted into almost any college for grad school. This looks like something very cool to look in to!

Thanks and Gig'em

Posted in [Uncategorized](#) | [Leave a reply](#)

[Día 9 \(6/08/2017\)](#)



Posted on [June 8, 2017](#) by [cloya](#)

Howdy,

Yesterday after work I went with Kate and Britt to get bubble tea. It was a very modern restaurant. The lady who owns the restaurant was so hip she had purple hair and was so cool with us. I tried a tea and I really liked it. It was very flavorful and had mango stars in it. After, Kate and I worked together on learning more C++ just for fun. The struggle to learn a new language of programming is so real for me. If there was a such thing as a computer science gym I would probably be bench pressing 5 lbs right now. I am definitely building up those mental muscles, and the VRAC cultivates an environment of motivation to learn and do anything. I really feel inspired to push through the learning curve and learn more.

Also, everyone has been making their personal goals public on their blogs, stay tuned for a post about my summer goals next week!

Today we started off our day with two hours of research which was nice because we got to dive deeper into our TIMELI project. I was able to read a few articles that Quinn suggested and I learnt about design concepts when creating a user interface. I feel like my progress is going slow and I am behind in my project. I feel that I am almost wasting my time reading, but at the same time I need to read all of these articles to gain the knowledge to create a user interface. I was talking to my group about it and they said they felt the exact same way, so it was nice to know we are all on the same page 😊

Thanks and Gig'em

Posted in [Uncategorized](#) | [1 Reply](#)

[Día 8 \(6/07/2017\)](#)



Posted on [June 7, 2017](#) by [cloya](#)

Howdy,

I got a question for you:

What's the derivative of Amazon with respect to cost of shipping?

.
. .
.

Amazon Prime!



```
cout << "HAHAHHAAHHAHAHAHA!" << endl;
```

Anyway, I hope your day was brightened by some A1 cal humor:)

First, I NEED to shout out my best friend Danielle for checking out my blog last night! Literally the smartest, most beautiful, boy magnet out there. Every time I am with her, it never fails that a guy asks for her number, or asks me for her name! It has become a game at this point LOL.

Today we started off with some more C++ courses! I probably ask the most questions because this is all so foreign to me. I am causing all sorts of trouble.

Fortunately, our teachers are so nice here and INTELLIGENT! They explain everything very clearly, and I have been getting a very good understanding of C++! I am becoming very interesting in coding and am possibly thinking about picking up a minor in it. I might just be addicted to the satisfaction of a successful program. Hmmm....

I also want a minor in Spanish as well though. Do I sense academic suicide. . . possibly.

In other news, today was picture day, so we all dressed up in our snazzy red polos and went around campus to take photos. I love walking around campus because it is sooooo beautiful!! This is the type of college that is in movies with students studying outside on the grass.



KATE THE GREAT
AND I 😊

Thanks and Gig'em 😊



Britt and I down by the
lake 😊

Posted in [Uncategorized](#) | [Leave a reply](#)

[Día 7 \(6/06/2017\)](#)



Posted on [June 6, 2017](#) by [cloya](#)

Howdy,

Today has been a different experience for me. In the morning we had a lot of time to individually work which consisted of me reading research articles that related to mine and learning some more C++. Also, check out lynda.com if you are learning C++ 10/10 would recommend. Very understandable lessons that walk you through the programming interface and the syntax. It's free if you are an Iowa student so that was a huge plus for me 😊

Then we got to have a luncheon with Dr. James Oliver, the Director of the Interdepartmental Graduate Program in Human Computer Interaction (where I am working). He talked to us about a wide variety of topic. One of which was graduate school of course. Graduate school has always been like a needle in a haystack for me. I know it's there but it seems so out of reach. I also thought that it would be better to go into industry right after receiving my undergraduate degree so that I can see what I want to specialize in. However, talking to Dr. Oliver opened up my perspective of going to school for a PhD. He touched on the topic of being "over qualified" for a job. That is probably my biggest fear a long with many others looking into grad school. Dr. Oliver talked about his friend who specialized in trilogy(the study of friction) but then went to work on HVAC for a company. He did really well because of his ability to learn.

I learnt that even if you specialize in a topic in grad school, companies will see that you enjoy learning, are motivated, and have a high level of knowledge which is very valuable.

I am really enjoying what I am doing here. The sky feels like the limit because I can keep learning, exploring, and researching to my hearts content. I am blessed to have been given this opportunity and thank God for every moment.



5/10 girls pictured. Miss you queens!

Also I miss these girls and their beautiful hearts!!

Thanks and Gig'em

Posted in [Uncategorized](#) | [Leave a reply](#)

Día 6 (6/05/2017)

1

Posted on [June 5, 2017](#) by [cloya](#)

Howdy!

Today was an exciting and fast day of learning C++! I have been wanting to learn how to program in C++ since my second semester of college (which was just last semester), so I was very excited for today's class. I am actually kind of sad to see that we only get to learn C++ for one week, but it makes sense since we still have so much to learn in only nine more weeks. WOW time is going by fast and I just started.

I just learnt how to program last year in labview and Matlab but ever since them I have been interested in learning more languages. We started with the basics today in C++ with simply outputting a string, however, I found it more difficult than expected. The syntax is much different and less intuitive than what I was taught programming on. Everyone here is very nice and willing to help, so I was able to get help from the super genius' chris, sushi, and kate! I love learning in this type of environment where there is really no major grades being distributed and you have the opportunity to ask questions and research what you do not understand rather than working on an assignment that is a time waste.



*My first program in C++
#ProudProgrammer*

Also, going a little out of chronological order of my day, this morning I put on my dance officer shirt from my first camp in 2013. Then I opened snapchat and saw the new officer line was at the airport on their way to officer camp. How I wish I could go back to my sophomore year when I went to my first officer camp. Literally four years ago! Time really does fly by! If I could go back and give myself advice I would say to not be so fearful of any challenge simply live in the moment and learn all that you possibly can. I can't go back in time, but I can take that advice right now while I am at the REU because one day I will look back on THIS experience and wish I was here again.



*Dance Officer Camp
Shirt 2013!*

Thanks and Gig'em

Posted in [Uncategorized](#) | [1 Reply](#)

[Día 4 \(6/03/2017\)](#)

Posted on [June 4, 2017](#) by [cloya](#)

Howdy!

The REU staff really wants us to not only learn a lot but also enjoy our summer that is a very nice part of the program! Today we went to go play laser tag, bowl and play arcade games! I haven't played laser tag since I was probably eight years old, so being a nine-teen year old and getting to relive my childhood was a lot of fun. Our team got first place so that was pretty awesome. After, the girls played a game of bowling.



94 post super wow!

Shockingly I got first place; I haven't played since I was probably twelve years old. Then when we got back to our apartments, we headed off to target to get a few groceries. The bus system here is really nice and has been very useful during my time here. Here's a photo of Britt and I waiting for the bus in some shade.



Britt and I

During the evening, we went to the gym together. I really like the gym here because they have a large variety of machines and

you can tell that everything is relatively new! I really like working out because it reminds me of how my mom and I would spend time together. Back at home, we like to go to the gym together and I always cherish that time with her, so going to the gym definitely helps with my homesickness.



Working out with my co-workers!

Thanks and Gig'em!

Posted in [Uncategorized](#) | [Leave a reply](#)

[Día 3 \(6/02/2017\)](#)

Posted on [June 4, 2017](#) by [cloya](#)

Howdy,

YAY it's friday!



HAHAHA! Have to love coding jokes!

So today, we started the day off by taking a personality test. What a lax way to start a Friday. I got a ENFP, Extraverted iNtuitive Feeling Perceiving. Out of twelve people, three got extraverted. I think it's safe to say we fit the computer science stereo type. However, unlike what most people would think introverted/ extroverted is how a person recharges. For example being extroverted means that I get my energy when I am in a group of large people where as introverted recharge by themselves. It was also interesting to know that my type is bad at small task, deadlines, and procrastination. I think that my parents and Danielle can attest that . . . probably not a good thing. It is the Mayer's Briggs (personality test) if you are interested friendly reader.



My personality type 🙄

Afterwards we got a technology tour! Definitely my favorite part of being here so far! This has been my first time exposed to virtual reality and augmented reality games, so if you are lost in my explanation trust me I was at first too. First, we went into the magical cave...* whoa scary*. Actually, it is the c6. Such a great explanation right! The C6 is the world's highest resolution, fully immersive virtual environment. The man who gave us a tour of it was super enthusiastic I loved it. He explained 3D movies in a way I could finally understand. I had never noticed this before, but 3D movies require two projectors. One for the right eye and the other for the left eye. When you put on the 3D glasses, they filter each side for your eye and bring the two images together in the cornea. That is why when you take off your glasses you can see two images and if you wear your glasses

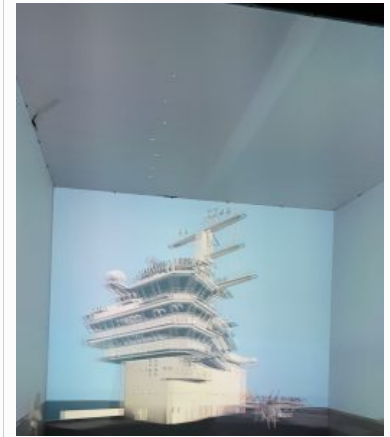
upside down, the picture looks clear but 2D because each side is made for a specific eye. Technology, crazy hu? A movie theater has only two projectors per screen, but this one had four for each wall with six walls. WOW. The resolution is wild. There was a point when our instructor but us in a field with flyer jets and made one fly directly at us. I screamed because I felt like I was there and it was going to be hit. So silly. This experience made me think of an accident that Boeing had a few years back in 2008 I think. One of their planes crashed and it took them two years to isolate the issue and figure out that the crash was a result of ice crystals in the fuel. I wonder if they had the C6 to virtually model the internal parts of the commercial airplane, would they have found the issue faster or does it require more physical testing to have found the ice?



Outside view of the C6. It is shaped like a silver cyclone, and very VERY large. Wow so artsy!

After work, we all went down town to the art walk on Main Street! I think the highlight of the night was when we went into the music store and everyone knew how to play an instrument. When we walked in the store was quiet but by the time we all got out hands on something

it got pretty loud, but a nice load because everyone was so good at playing music. I even learnt how to play the ukulele!



View from the outside without 3D glasses



The whole gang minus Austin, and Emanuel is covering Devi; I'll fight you Manny

When we got back to our apartment, we headed to the guys room because they had the oculus! Britt played the game with robots, not sure the name. It was really funny because it was her first time playing and instead of shooting the robots she decided it was easier to rip their heads off. HAHAAH aye Britt! Then they though it would be funny to make me play the horror game. I literally don't fight anything I just get scared. I don't know why I agreed to that. So when you are just watching the game doesn't look scary but the sound affects and how real everything feels when you put on the oculus is wild! Oh and they also thought it would be funny to tap me while I was in the game so I got even more scared. I yelled bloody murder so loud that the RA had to come and check on our room. It was funny but I felt bad for the RA.

Thanks and Gig'em 😊

<https://projects.vrac.iastate.edu/REU2017/wp-content/uploads/Snapchat-1396650606.mp4>

Posted in [Uncategorized](#) | [Leave a reply](#)

Día 2 (6/01/2017)

Posted on [June 4, 2017](#) by [cloya](#)

HOWDY!

Day two we got down to the fun stuff! Research introductions. I really enjoyed listening to all the research projects that everyone was going to be working on. The first one was Improving Navigation in Virtual Environments. Issues arise when dealing with orientation in a virtual environment. The example they gave was when you physically walk forward turn right then walk forward it is easy to point back to where you started, but even just reading those directions is hard to picture where you started, now imagine in a virtual environment. What I also got to learn was that there are three types of interfaces: completely coordination, completely discoordination, and partial coordination. Completely coordination is intuitive; it is when body movement matches movement in virtual reality (VR). Completely discoordination is the opposite. A user is usually seated in a chair and movement is coordinated to a controller. Partial coordination I honestly did not understand until I used the oculus. So partial would be like when you can walk forward and it matches in VR but you can also teleport with a controller, which is pretty sick when your playing games.

Next, we learn about TIMELI (Traffic Incident Management Enabled By Large-data Innovations), which is the project that I will be working on! Right now, the DoT at Iowa has to use about 15 user interfaces to identify traffic accidents and report them correctly. Since Iowa State University has just taken on this project recently the undergraduates (Chris, Kate, and I) have the liberty to help decide which part we would like to research. We could either do machine learning/ data analysis, task analysis, or UI design. Since I want to be a mechanical engineer I feel like machine learning/ data analysis would probably align most with that discipline but I am not sure I understand what machine learning completely entails yet. From what I understand, we would be creating a program that recognizes when there is high traffic or an incident and will alert the correct people autonomously. Whenever I take on a project I really enjoy running tests to find the issues so that I can problem solve (hence the reason I am doing engineering), so this would align nicely with task analysis. UI design is probably my favorite right now because I can help to program and build the user interface. I am still a beginner to coding, and I have never worked in the programing interfaces used in this project but I would love to learn. As a side note, I have really been into learning how to program because it so satisfying to build a solution to a problem from an algorithmic language. Although I want to be a mechanical engineer, I have an interest in computer science, I know my dream job lies at the intersection of mechanical engineering and computer science I am just not sure how that looks yet or what steps to take.

Then we learnt about AR/VR next which quite honestly is what I wanted to do at first because it has to deal with the latest technology in manufacturing. I don't know how much I can share on this topic but something I learnt from this project is hololens. Hololens are like glasses that you see in futuristic shows or movies where you can see the real world around you but there is an overlay of a screen; it considered mixed reality technology. SUCH A COOL NEW TOOL. I had no idea this type of thing existed and all the things that are now possible.

The last project that I learnt about was Cool:SLiCE . Iowa State is teaming up with Penn State, Oregon State and Wayne State to create a web-based engineering education platform. It teaches students how to incorporate sustainability into the engineering process.

We broke off to go meet with our whole team of undergraduates, graduate students, and faculty mentors after the presentations. One of my faculty mentors received his masters in civil engineering from Texas A&M University! This was my first time meeting a fellow Ag in the work environment. It was cool because we related about the exhilarating experience of an aggie football game and midnight yell practice! 91 more days until aggie football A-A-A-A-A! On another note, our mentor also asked if anyone had participated in a hackathon, which I always felt too nervous to participate in one last year. My goal for next semester is to do at least one hackathon.

Thanks and Gig'em 🍷

Posted in [Uncategorized](#) | [Leave a reply](#)

Día 1 (5/31/2017)

Posted on [June 4, 2017](#) by [cloya](#)

Howdy!

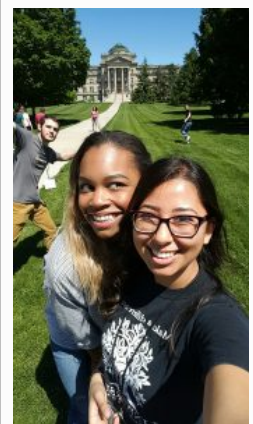
I just finished my first day at the VRAC (Virtual Reality Application Center) and got to see more of the campus. I am starting to like Iowa State more and more because it is so beautiful! Everywhere I go it is so green, so many trees, and such a tranquil and beautiful scenery.

We started the day with a tour of the VRAC- where we will be working- and of the campus. I reached 10,000 steps by 11 am so that can just tell you how large the campus is. Something I really like about the campus is how all the buildings go with a common modern theme and the whole school specialized in engineering and technology. While we were on our long stroll around campus, we took a break and played Frisbee. Many of the other undergraduates impressed me. They were all pro-frisbee-ers!



Sushi throwing me a frisbee and I totally missed

After we headed over to the main offices to get our ID's. It was a weird experience seeing my face on a different school's ID, I felt like I was somehow betraying Texas A&M University.



Here is my apartment-mate (question mark-not sure if that is a word) and I outside the Iowa Old Capital Building



College assimilation

Once we were done with all of the paper work, we headed back to the VRAC where we got an REU orientation by Eliot (Co-pilot of SPIRE-EIT). His whole presentation was familiar and very informative. At my college we have these classes called "Engineering 111 and 112", the worst organized classes you could ever take. They teach important engineering process, programing, and how to work in a group, but in the most complicated way possible. It's terrible. Eliot's presentation taught about an fourth of the engineering objectives in the most concise and clear way possible. I finally understand. Something that he touched on was all the stakeholders for this REU like the DoD and gates foundation. There was about ten in total but in the beginning, I thought it was only the National Foundation of Science. It was interesting to see all of the people interested in what we are doing. I also learn that the whole purpose of this program is to promote diversity in graduate school. Their hopes is that this small introduction will help in our decision to continue onto graduate school. I had never considered graduate school because of the cost, but I am learning there are many ways to help pay for it.

Thanks and Gig'em 🍷

Posted in [Uncategorized](#) | [Leave a reply](#)

[Arriving to Iowa \(5/30/2017\)](#)



Posted on [June 4, 2017](#) by [cloya](#)

HOWDY! My name is Sofia Loya, I'm an engineering major from El Paso but most importantly, I'm the loudest and proudest member of the Fightin' Texas Aggie Class of 2020!! A-A-A-A-!!!!

WOW! This is my first day and I am on my way to Iowa for the first time in my life! Leaving my family is never easy for me because I get home sick fast. However, for some reason I was more excited than sad to leave this time. I think because I am really looking forward to a program where I get to focus on a specific topic I enjoy. With that to say, I am still very nervous that I am not prepared or smart enough for the research project but I always like to remember a quote by Suzy Kassem, "fear kills more dreams than failure". I am just going to head into this program with confidence and enthusiasm to learn as much as I possible can.

Later in the day, I was got onto the last plane that was headed to Iowa. Funny enough I sat down next to an older lady who had on an "Iowa State" shirt and I could tell she was proud of her college. She told me how she studied chemical engineering as an undergraduate and later went onto medical school. Now she is a family doctor. She was the sweetest thing, after we got off the plane she waited for me so that she could show me where the luggage pick up was. I could tell the people in Iowa where going to be very kind and compassionate.

When I arrived in Iowa I saw a someone (whom I later got to know as the free spirited Graduate mentor Anna) holding a sign that said "REU STUDENTS". The first people that I met was Emma and Brittany as Anna took all of us back to campus for a dinner with the faculty. They were really funny and nice girls. It was refreshing getting to hear the stories of other females in engineering and their stories of what they are involved in and how they got to where they are today. Something cool that we found out was that we were all a part of organizations that brought cultural awareness to our college campus!

The last event of the day was having dinner with the two co-pilot's of SPIRE-EIT Stephen Gilbert and Eliot Winer, the program coordinator Amy Carver, and the two Graduate mentors Anna and Angelica. It was really nice getting to meet everyone because I got to see their personality and expectations before we started working. I could tell from the speech that Stephen and Eliot gave that they mean business, which is exactly what I am here for. I am excited for everything they will challenge us with, which is easy to say right now because I am not drowning in work yet. Something I found about college is that it is all independent progress, but there are MANY people willing to help get you to your goal. A lot of it is looking for advice from people, getting involved with challenging experiences, and staying motivated. I could tell that from this dinner that I was in the right place. Everyone is willing to help me reach my goal but they are definitely going to challenge me which is what I need to get better as an engineer. I am motivated by their drive and cannot wait for all the classes and research. **Thanks and Gig'em**

Posted in [Uncategorized](#) | [Leave a reply](#)