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 projects.vrac.iastate.edu/REU2014/

The End = A Changed Life

Posted on [August 6, 2014](#) by [Holly](#)

I went into this summer, thinking I would contribute what I had to offer. Maybe make a couple of friends, but once it was over I thought I would just go back to my regular passive ways of life. Gosh, I was totally wrong! I am not the same timid girl that moved to Ames 10ish weeks ago.

Before, the program I invested a small amount of myself to others around me. There were maybe two people (besides family) who truly knew who I was. I was always the one to listen to other people's issues and give feedback, but I have never actually exposed my whole entire life to anyone. I have friends, but we come and go out of each other's lives.

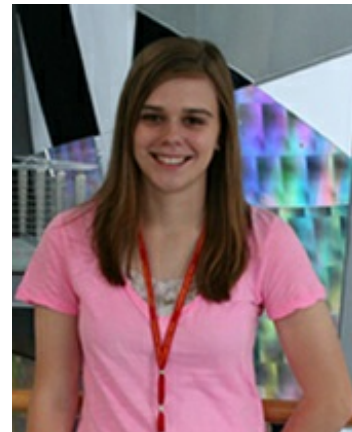
Little did I know the first 36 hours after meeting my roommates, Kelsey and Mariama, would begin to change my world. Those first few moments we had long deep conversations about everything and anything. I surprised myself at how desperate I was to share everything about me. Kelsey and Mari took the time to ask questions that no one had ever asked before and it really showed me how I wanted and valued their opinions. I got to know so many other interns over those first few weeks and saw the raw emotion of things they had endured during their lives that I could never imagine going through. At week 4 I started to realize I was not happy with my life and my past decisions. For the first time in a really long time I thought about myself and what I needed from the people around me. That week I ended a four year dating relationship and finally started living for me. I dropped my naive thoughts about the college culture and finally let myself be exposed to new experiences. I learned so much about myself and the people around me. I started looking at the friendships as a two way street, what can I do to help them and what can they do to help me.

The work environment and project taught me a lot also. I learned that it can be hard to find your role in interdisciplinary research, but once you find your spot you have to run with it, because your team is counting on you to pull your end. After a meeting with Eliot and talking to others I learned I need to be more assertive, vocal and not be passive in a classroom or work environment. Our project ended successfully without any major panic attacks. I am going to have to apply some of Shamaria's worry skills to my own work when I get back to school to not procrastinate. I look forward to coming back and meeting with the Colonel to see the progress of his 301 flight class. Hopefully I will see my teammates again to present at a conference.

Now that I am home, I'm still thinking about what I need. In fact I ended an unhealthy friendship just this week. Those two people I said at the beginning that knew who I was, are out of my life, and now I have new friends across the US, who care even more. I still have a lot of emotions and thoughts to process from this summer, but I'm hopeful this school year will be fabulous. I plan to be more vocal, outgoing and make new friends, where ever my education and career take me. I hope and look forward to when our paths will cross again. Interns, mentors, grad students and faculty, know that you have impacted me in so many ways that you will never know. If anyone ever needs anything, let me know so I can give back my thanks.

WEEK 10 DAY 4 AHHH

Posted on [July 31, 2014](#) by [Holly](#)



Edits have been made to the paper and it should be done, but we have to wait for approval. The poster is printed and looks amazing. I'm working on the video tonight for our demo at the symposium tomorrow. Hopefully it won't take too long and I can still pack.

Last night was a blast, so much laughter the rest minor details (as Mariama would put it). The aerospace graduate students invited some of us to eat BBQ last night. It was delicious and relaxing. We said good bye to our grad mentor Elliott last night, because he decided to ditch our symposium for a wedding (just kidding it is cool). Expect a long reflective final blog tomorrow. I will be uploading my pictures to the drive soon too.

Week 10 Day 3

Posted on [July 30, 2014](#) by [Holly](#)

Paper is coming along, it should be done by 5 today = YAY project so close to being done! Then recording our demo and practicing for the symposium on Friday.

The Turkish dinner was fabulous, thank you so much for your hard cooking Caglar and REU for funding the food. Tonight we have a team BBQ, then everyone is hanging out for a final night on Welch Ave. It should be fun.

I have some more packing todo, I started last night and got 4 tubs partially filled. My other goal tonight is to order more Mary Kay products to get ready for an abundance of facials when I get back to Simpson. I think I am focusing on the positives of the up coming transition back to home then school. I'm honestly surprised I'm not dwelling on the program ending, but maybe it hasn't hit me yet. I guess I will find out soon enough.

Week 10 Day 2

Posted on [July 29, 2014](#) by [Holly](#)

Poster is being printed and the paper is being revised. The project is close to being done.

Today has been interesting. Eliot presented information to us about conference and journal papers. It is interesting how publications are so important in academia, but not in the work force. Our last luncheon lecture was interesting and encouraging, because it really proves that HCI or virtual reality is interdisciplinary. It is amazing how one topic can cover so many spectrum of knowledge.

Elliott our mentor was able to get the Oculus Rift in the flight simulator lab. We were able to fly through a head mount display and it was pretty cool. It is crazy how that technology is only \$300.

I've had conversations about the future of my education with Stephen and Stacy. Stephen told me that no matter what path I take, I will be successful. Stacy really encouraged me to finish the undergraduate mechanical engineering degree. I think I will be a lot more marketable with a bachelors in physics and ME. Plus the experience and knowledge will be beneficial. Maybe if I do transfer to ISU for ME undergrad, I could still be involved with VRAC. I guess time will tell. For now I need to just focus on finishing this week strong.

Week 10 Day 1

Posted on [July 28, 2014](#) by [Holly](#)

IT IS THE LAST WEEK! There is so much that we keep saying we need to do, that I am almost thinking we should just not sleep this next week to get everything done, but unfortunately that is totally not realistic.

Today has been slow ... been tweaking the poster and working on my LinkedIn profile. Later today we will get a document with a bunch of red corrections. Then start processing and finishing the paper is the next priority. I still

have a few people I need to talk to about my future of education. Other than that things are wrapping up, which means I need to start to pack.

Week 9 Day 5

Posted on [July 25, 2014](#) by [Holly](#)

The light at the end of the tunnel is near. The paper is close to being done, just have to review it and finalize everything. The poster we have to tweak and get one more final approval. Then document and tweak a few things on the interface. It will be fun wrapping everything up next week and get to see some more cool technology. Elliott has promised an afternoon with the Oculus Rift and X plane, that will be fun and possibly sickening. This weekend should be a blast, final weekend full going to be full of memories.

Week 9 Day 4

Posted on [July 24, 2014](#) by [Holly](#)

The interface is done thanks to Shamaria's mad programming and problem solving skills. Now we have to test it this afternoon on the simulator lab computers. Hopefully there won't be any major issues. The paper is going well this morning. We are about 3/4 done with the rough rough draft. This afternoon finish up rough rough draft send it to our graduate student for revisions. Spend all day tomorrow to revise and rewrite then turn it in for more revisions at the end of the day tomorrow. Final task is to finish the poster and get it printed. YAY PROGRESS!!

Nothing significant has happened or will happen in the next 24 hours. Just continuing to plug away on the project. Get some golf in, go running, and half a dance party with Kelsey. Sounds like a decent night! HAVE A GOOD DAY!!!



Week 9 Day 3

Posted on [July 23, 2014](#) by [Holly](#)

Typing, typing, typing, typing pause ... typing, typing, typing, typing ... pause ... walk away come back ... type type click click pause read. Yup this is my day not truly exciting, but slow progress is resulting with the project getting closer to being done.

I have been doing a lot of thinking, but I have a feeling it is just the beginning of a long process of me figuring out what I am going to do with the rest of my education. About a week ago I came to the realization that I could graduate from undergraduate this spring with a full physics degree from Simpson. My original plan was to continue with undergraduate at another school for engineering, but now I'm thinking I could just go to graduate school. I went from thinking I have three years to figure this out to I need to figure this out now. So I guess I will be applying this fall to graduate and undergraduate schools. There is a lot to process in a small amount of time.

Work time! Have a good day!!

Week 9 Day 2

Posted on [July 22, 2014](#) by [Holly](#)

It is so exciting to see people talk about their passions and explain the discovery to a life long adventure. Our luncheon lecture was presented by Debra Satterfield and she has an amazing passion that was discovered through her disabled son. It is so cool to see her talk about helping humanity navigate difficult topics like autism, epilepsy, and the disabled world with the help of design. I respect her so much for everything she has been through. It's in our human nature to battle through rough sections, but it takes a special person to be able to live through tough times

and then turn around embrace the issue to only help others. I hope that someday when life becomes tough I will be able to be like Deb and help others before I think about myself. I'm not sure what else to say about the matter, but there is some intriguing research that is being led by Deb.

The days are counting down and the project needs attention. Just continuing to write the paper.

Week 9 Day 1

Posted on [July 21, 2014](#) by [Holly](#)

This past weekend was fabulous. Paintball was fun filled with lasting memories and bruises. The rest of the day was chill with lunch at BWW and hanging out in the evening. Sunday we went to the lakehouse and had a fun time eating and playing in the water. Luckily we were able to do a small burst of tubing. It was absolutely funny watching Mari, Getch and Mitchell tube. They had a ball and were falling off left and right. I have realized that even though I am not doing something constructive with the other interns, I thoroughly enjoy everyone's company and it just seems natural. I need to find constant people like that in my life.

This week we are finishing the paper and progressing through the interface design. It is getting into the work crunch time and the inevitable good byes are coming soon. Until then continue working on the paper.

Week 8 Day 5

Posted on [July 18, 2014](#) by [Holly](#)

Time to figure out a plan B for interface and hope that it will work. Hopefully we can get to a point where we have some form of operating platform. This afternoon work on the paper and program bugs.

Dinner with family last night was great and hitting the range afterwards was relaxing. I cleaned my clubs and made cookies the rest of the night. Hopefully our washer and dryer gets here today, because otherwise I am running out of clothes. This weekend needs to be here sooner for a break. Paintball Saturday and everyone out to the lake on Sunday. It will be fun!

Week 8 Day 4

Posted on [July 17, 2014](#) by [Holly](#)

Well sand volleyball did not go well ... it was awful and we didn't even get any food, because they ran out within the first half hour. I hit golf balls, walked around Walmart like a zombie, and ate food the rest of the night all in the company of great friends. Interface is still having bugs, I'm feeling useless that I can't help Shamaria. We have a few things to finalize for the poster than it is full speed ahead of writing the paper. I honestly think if we put in about 3 hours a day, it would be done in a week, which is exactly how much time we have. Tonight some of my family from out of town is coming up for dinner that will be fun to catch up with them. Otherwise if it is not too late, I might try to get nine holes in. I've been thinking a lot about my education and it has gotten to be more of a complex process than a couple of weeks ago. I'm not sure how to explain it just yet, but I think I will be talking to mentors and directors soon to get more perspective.

Week 8 Day 3

Posted on [July 16, 2014](#) by [Holly](#)

We are having some problems with the interface even starting on the computers in the lab. We think it is a software compatibility issue, but we can't fix it until the IT guy from the Aerospace department is available. The poster drafts are almost done, Mitchell and I decided to make it into a small competition. The rest of our team will be the

determining factor. We don't have a lot of time to finalize everything today, since we are leaving for volleyball at 3.

I was surprised how much fun I had playing sand volleyball last night. It makes me excited for tonight, but I will be exhausted afterwards. The goal is to cook sweet corn after the tournament for anyone who wants some.

Week 8 Day 2

Posted on [July 15, 2014](#) by [Holly](#)

We have a functioning interface that is displaying the information in a simple way. There are some things that would have been nice to include like a visual representation and position in a range, but due to time that will not be completed. We are going to try to test it on the simulator this afternoon. Then work on finishing up the poster draft, it will be exciting to get that accomplished. We have a meeting with mentors in an half hour.

I went golfing last night in my typical summer golf attire of a skort and polo. That was an absolute mistake! When I got to the last two holes in the round, I was getting tense and cold and decided to call it quits. I didn't really think about bringing warmer clothes. It reminded me of this spring when I was playing in 40 degree weather with three layers on, but instead it was low sixties, windy with skin exposed. It was miserable. Otherwise not much has happened since yesterday.

Week 8 Day 1

Posted on [July 14, 2014](#) by [Holly](#)

Today has been a productive day working on poster draft and the interface. It is going to be hard to find the balance of displaying information visually to attract attention but to also fully explain the concept in a small amount of words. I think our group is right on track for finishing on time, without having any sleepless nights.

This weekend was full of new experiences and fun. Friday night a group of us got out of the apartment and hung out around campustown. Of course we had to experience the famous super dog that sounds gross, but was absolutely delicious. On our way back we had to get insomnia cookies which were just as yummy. There is nothing better than wonderful food after midnight. Saturday morning, Mitchell and I drove to Northwood to get a guitar he bought from a guy off of craigslist. On the way back we stopped in Mason City and Clear Lake to experience small town Iowa and good BBQ. We barely made it back in time for Reiman garden, it was absolutely gorgeous. After everything was over it was time to revert back to isolated introverted ways. On Sunday I was able to enjoy the company of family and friends.

Conversation from last night between Kelsey and I:

Kelsey: Where is the garbage can?

Me: In the shower.

Kelsey: (Look of "What the heck?")

Me: I have a pan soaking in bleach in the garbage can in the shower.

Our room: laughing hysterically

Okay here is what happened. I brought back a dozen ears of corn and I was asking the guys for my pan back that they had used on week 3 to make pasta. Come to find out they left the food in it and opened it to find something was alive and hairy in the pan earlier that day. They forgot whose pan it was and decided to just throw it away. I was bummed but they were nice enough to go dumpster diving to find the pan. They attempted to clean it out, but it had a rancid smell. So I ended up taking the trash can filling it up with water and bleach and soaked the pan for a

hour in the shower. After that I cleaned it and then put it through a sterilize cycle in the dish washer. I have yet to see its condition today. Anyways that was our funny conversation from last night. And I do have corn that I intend to share with everyone assuming the pan is completely disinfected.

Week 7 Day 3,4,5

Posted on [July 11, 2014](#) by [Holly](#)

Three words that capture the last three days would be slow, torture and freedom. Wednesday the internet was down and we were able to leave early. Thursday we were apart of a mid summer presentation with three other schools via the internet. It was a long slow day 8:30 until 3:30 in the same room listening to presentations, but the benefit was we got out early. I have been rather lazy with the free time, but it has been fun hanging out with friends and even doing late night meals. On Wednesday I did meet with an adviser from the ME department to discuss transferring for my engineering bachelor degree. I found out I'm looking at least 2 and half more years after I complete Simpson, which I am not too trilled about. But the idea of graduate school is growing on me.

Shamaria has been doing amazing work on the coding for the interface. We are getting closer to finalizing the interface and continuing on with our work. I haven't been giving Shamaria enough credit and I want to apologize. Shamaria is da bomb and she is so talented! I am so glad to be working with her. We will be meeting with the Colonel shortly to get some questions answered. The goal is to have the interface done by next Wednesday for the poster draft. Next steps will be working on the poster and maybe getting to test the interface. It shall be fun, enjoy the weekend!

Week 7 Day 2

Posted on [July 8, 2014](#) by [Holly](#)

It is a long slow tiring day. The graduate school workshop was informative and engaging. I possibly have three years left of undergraduate and I really just want to focus on that for about another year. I will keep the door open for the possibility of a masters degree. In what? I don't know yet ... Physics, Mechanical or HCI. The luncheon lecture was interesting but not extremely engaging. Our group is going to finish our presentation today and try to have the interface completed by the end of Friday. I think this is feasible since the field trip for tomorrow got cancelled. I am ready for this work day to be done and get on the golf course.

Week 7 Day 1

Posted on [July 7, 2014](#) by [Holly](#)

AMAZING HOLIDAY VACATION!

I honestly don't know how to put what I am thinking into words. Over the past four days I was literally everywhere and had an absolute blast. Traveling everywhere did come with a down side of driving a lot.

Ames: I drove back and forth from Ames to my house about five times, but I slept peacefully when I was briefly in Ames. It was fun not being alone in the car a couple of those times. On the way to the lake, I stopped and showed Kelsey, Phil and Jesse where I grew up in small town Van Meter. They were surprised at how small it was and that there were people out and about.

Lakehouse: My parents and I were so happy that everyone enjoyed the lake. We got several comments that we were so friendly and open to hosting friends, but honestly that hospitality is common from folks in Iowa. It was comforting to have home prepared food and be outside. The plan is to get the speed boat in the water and have everyone out again to do some tubing and more eating, but there may be a small cost of labor.

Dropping in on camping crew: Two of the nights I went down to Green Valley and stayed with the camping crew. It was so peaceful and relaxing to be away from technology and enjoy the elements. I enjoyed further developing my friendships and socializing. Unpacking my dirty clothes last night and smelling the camp fire made me really appreciate the experience.

Today we are finishing up our mid summer presentation and brainstorming the visual design of the interface.

I'm glad to hear that everyone had an enjoyable weekend.

Week 6 Day 3

Posted on [July 2, 2014](#) by [Holly](#)

LAST DAY OF WORK FOR THIS WEEK! To be honest everyone has been a little uptight lately and I think we all could agree that the four day weekend couldn't come at a more perfect time.

We are making progress in our flight project. Shamaria has developed a digital number display to begin to test how the interface is going to work on the simulator computers. We started making our power point for the presentation we have to give next week. We talked with our mentors yesterday and they are all saying we are on track, which is good, but it seems like we are way behind. We plan to spend some time in the lab to test the display and find out the capabilities of X-plane's emergency situations, today.

Time to go to the lab, then four day weekend including labor, boat rides, fireworks and friends. Chatting will resume on Monday.

Week 6 Day 2

Posted on [July 1, 2014](#) by [Holly](#)

Not a lot has happened. A bunch of us had a relaxing evening watching a movie and hanging out.

Our luncheon lecture was Jim Oliver, he talked about masters, PH D and research academia. I don't know what to think for my future education. There is just so many factors, but I do have to realize that I may have three more years of possible undergraduate. I don't even know how to formulate or work through my thoughts now.

We finally get to meet with our mentor day via video chat. He will be back next week, then it really will be full speed ahead. We will have to figure out our next steps.

Off to go make plans for the holiday.

Week 6 Day 1

Posted on [June 30, 2014](#) by [Holly](#)

This week is going to be short with only three days. I still have yet to figure out the rest of my plans for the week, I might just go with the flow and see what happens.

Mall of America was fun, but exhausting. The day was eventful and productive, but I don't think I ever want to go back there again. I was surprised how the theme park had a lot of characteristics from the 90s or early 2000s, when we were growing up. I wonder why they would not want to upgrade to today's generation of youth. It must be expensive for an overhaul, but it almost seems critical to keep the youth engaged with current media characters. I spent a little bit of money on a dress, beads for making bracelets and other small things. When the 6 hour day came to an end, I was ready to retreat and get away from people. It has become apparent to me this summer that I value and need my alone time.

Last night we had a girls dinner, we all contributed to the meal and it was delicious. Mari made the main course of chicken and potatoes, Janae made orange chicken, Shamaria cooked bread, Kelsey covered the vegetables, I made a fruit salad and Sam made no bake cookies. I was impressed with everyone's effort. It was fun to have everyone hang out, but again it became apparent that I needed alone time. I ended up cleaning and working on Mary Kay stuff. I actually slept like a rock last night with almost a solid 9 hours of sleep, that never happens unless I sleep in. I didn't even wake up to my alarm, which has never happened.

We are getting to the point in our project where we need to just spend a couple of hours in the simulator lab to try to figure things out. There is only so much we can do remotely in the VRAC office. I decided to approach the testing of our interface in a different way. Before I was just looking at possible system failures according to the dials we were given, but I don't know if the software will support those failures. Now I need to figure out what failure scenarios there are in X plane then see if they are applicable to our given information. Our mid summer presentation got moved, that is one less thing to worry about during this short week. We have to figure out our interface quickly, so that we can get the paper done in a reasonable time. It is getting into the grind time, full speed ahead.

This rain has been putting a damper on my golf game. I guess I need to go whenever I can, because the weather does not seem to be helping my motivation.

Week 5 Day 5

Posted on [June 27, 2014](#) by [Holly](#)

Not a lot has happened since yesterday. We have to edit our methods paragraph and turn that in today. Then start on our mid-summer presentation, it is already half way through the summer. We are hitting some road blocks of trying to figure out how to implement our design in qt without having a library for support. I've been looking at the actually mechanics of the plane and trying to determine the emergency scenarios we are able to use with the given dial. I'm having fun learning on my own how the engine works and where the physics is applied in each component.

The game night was fun with food and games. A couple of us didn't stay that long and ended up going back to the apartments and had some deep conversations. Gradually as everyone came back from the lab, some of us had a fun time hanging out and talking.

Otherwise not much is going on, just plugging along. I need to get back to golfing, this week has been an off week with the weather and other stuff.

Week 5 Day 4

Posted on [June 26, 2014](#) by [Holly](#)

We had a decent two hour break today for the FIFA game. I don't really care about soccer, but I enjoyed the break of not doing much. We are finally figuring out the remainder of the methods paragraph that is due tomorrow. We have been having this issue of trying to figure out the answers to the research paper components before actually starting the interface. It will be good to finish the writing portions and focus on the coding and implementing of the design. Tomorrow we are meeting with Colonel and hoping to test the basic functionality of our interface. Each person thinks drastically different in our flight group. We think so different we sometimes have a hard time communicating out point across. We can get slightly frustrated, but we are all patient with each other. The only draining thing is it takes so much thinking and energy just to communicate, so half way through the day we're all tired of talking.

Tonight we have game night in the VRAC lab. It will be fun, but I'm exhausted and ready to crash physically and emotionally. I'm excited for the comfort food of pizza and a small amount of gaming. Otherwise after that it will be time to be introverted. Time to edit this paragraph, get through tomorrow, then a getaway to Mall of America. I'm surprised I'm actually excited.

Week 5 Day 3

Posted on [June 25, 2014](#) by [Holly](#)

WE FINALLY WENT FLYING!!! Pictures are up on the gallery of the website. It went smoothly and actually was rather relaxing. The takeoff and landing was graceful, it seemed way to easy. Our pilot has been flying for eight years and she has only been in one emergency situation. That stat alone just proves that flying is very secure and the likelihood of a complete disaster happening are small. The media only reports on the disasters, which gives the general public the notation that planes are not safe. The one situation that the pilot has been in was only about a month ago. Supposedly the electric master of plane was left on over night and the battery was dead before the flight. They jump started the plane, but in the process they turned everything on. The pilot knew that there was a chance that there would be a system over load for running everything at full power with a battery that was going to be charging in flight. At the last 40 minutes of the flight they lost power to everything electrical in the plane. The first goal of the pilot is to stay calm and try to troubleshoot the issue. Once the issue is identified, it is then important to solve the issue to the best of their ability and analyze the time importance of landing. In this situation they turned off everything they didn't need and let the battery charge, while the plane was still running. After a few minutes the essential devices were back functioning and they were able to successfully finish the flight. In life some of the the problems you face can be from the smallest mistakes.

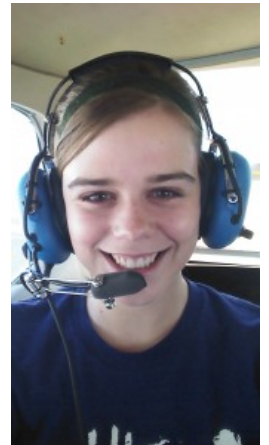
The HCI course this afternoon was interesting and informative. I didn't realize the extent or applications for the field of design. Debra the speaker was very passionate about her research and personal life revolving around areas of medical conditions such as dyslexia, autism, and Alzheimer's. Her first topic of discussion was the factors of design for the tostitos chips. That was an interesting jump from chips to medical conditions, but she certainly got her point across of a wide application area.

Anyway finishing up the lit review and then starting on Method's tomorrow. Friday talk to the Colonel and maybe start the interface.

Week 5 Day 2

Posted on [June 24, 2014](#) by [Holly](#)

Yesterday we sat down and discussed the IRB. Everyone is finally on the same page and understanding the situation. The problem is we are not testing our interface until the fall when school is back in session. Normally a person would fill out the IRB when they have a rough idea of who and what they are testing. Problem with our group is that it is just way to early to know any of that information. There is too many factors to even think about that portion of the study. We have finally been approved to wait a few weeks and then finish the application. When it does get completed, it will be more of a relief to the people who will be taking on the task of user testing.



This morning we went to a graduate workshop that focused on the writing aspect of an application. It honestly came a little soon for me, but I'm sure it was helpful for some of the students who are advanced in their education. I am still stuck with this thought that my reading and writing skills may hold me back or make graduate school very tough. I don't know I will keep an open mind and keep looking for different opportunities. I liked Getch's comment today, "Before coming to this experience, graduate school wasn't even an option and now I'm considering it. My life just got a whole lot harder." He said it perfectly and that is what I am thinking about several different matters.

The luncheon lecture reminded me of the work and research that is being done at the high school I graduated from. Assistant Professor Larysa Nadolny approaches her classroom environment in a different way of utilizing virtual game technology. I will have to send an email to my connections at Van Meter to inform them of her research and

techniques. The followup discussion between the other interns is a conversation I remember having multiple times revolving around 1:1 laptop technology and even VREP. The only key thing I have to contribute is that technology is a tool in an educational environment and the use of the tool is only as good as the support system and intentions.

Tomorrow morning we are flying at 8, hopefully the rain holds off. We got our 3D printed toothbrush accessory kit today and it is honestly cooler than I originally thought it would be. The rest of the day entails reading articles and finishing up our literature review paragraph.

Week 5 Day 1

Posted on [June 23, 2014](#) by [Holly](#)

This past weekend was a decent break like previous weeks. I got to catch up with some friends and family on Sunday and Friday night. I have realized through these last few weeks, how critical these relationships are for my happiness of life.

Saturday we went to sky zone, it was fun, but I wasn't too adventurous with the jumping. Zombie burger was alright, it was more fun to watch Sam's reactions to world cup. Mitchell, Alexis and I decided to walk to the capitol to waste time. I've been there several times, but still to see their reactions to historical beauty of the capitol was cool. I made the mistake of wearing flip flops for the first time this summer for a longer walk. I'm paying for the decision with a nasty blister. It's feeling pretty good after I tried a home remedy of soaking it in black tea and blister band-aids.

Kelsey and I am going to run tonight so we will see how it holds up after that. I made several people play my all time favorite game Ticket to Ride, Saturday night. I wasn't good at explaining the rules, but it was still fun. Hopefully everyone else felt kind of the same way. I was really tired and kind of grumpy, so I missed out on the star gazing party.

This week we have a lot of loose ends to tie: Finalize IRB, Methods Paragraph, Research question, Lit Review paragraph, Data extraction for x plane, and flying on Wednesday morning (hopefully the rain holds off for the morning). It was nice not having a class this morning, but I definitely struggled with staying awake. Here is to a productive and content rest of the day.

HAPPY BIRTHDAY AGAIN PHIL! Maybe we should all go out to eat or do something fun tonight.

Week 4 Day 5

Posted on [June 20, 2014](#) by [Holly](#)

Yesterday after waiting and talking to several people, our group finally discovered we have to fill out and IRB application for user studies. We won't be here for user studies of our interface, because it will be in the fall with the flight 301 class. But we have hopes that a graduate student (cough cough Chris) can pick up our project and follow through with the user studies. We are also thinking we may still want to be involved when we all depart to go home. For me that would be very exciting to still have research at ISU, because my course load is going to be extremely light this next fall at Simpson. Anyways the IRB is very tedious and hard to get filled out, because we don't know what to test and we haven't even created the interface.

The frogger project is coming along slow, we're having to learn on the fly. But all of the work credit goes to Shamaria and Mitchell. I'm contributing by finding textures and trying to map out the correct corresponding points. Journal club went good. The isogeometric team did a good job describing the difficult components.

I have never really been a runner, but Kelsey's motivation to try her best and preserve through exercise is amazing. Tuesday night we went for a mile run to the golf course and back. It was pretty humid and I stopped like four times

to walk. Last night we went on a different path and I only stopped once for like 20 steps for a breather. After that little break, I found a rhythm and was not tired which was surprising. We went 1.4 miles, Kelsey was surprised I kept up. Heck, I was surprised I kept up. Perseverance!

Week 4 Day 4

Posted on [June 19, 2014](#) by [Holly](#)

Open GL has gone smoother this morning. Things started clicking or making sense, but I still don't have the solar system done.

The luncheon lecture went decent. Jared Danielson talked about how the veterinary department has implemented using research and HCI to better their department. It was informational and there was a variety of discussion.

There is a light at the end of the tunnel of these three weeks. We are hoping to crank out our IRB Application before tomorrow. Once we get the IRB and frogger done it is full speed ahead with the flight project. We have to meet with the Colonel and ask some more questions. Elliott is out of the state for three weeks, so we are chatting with him once a week. We have to 3 things we have to figure out before we talk again:

- potential emergency scenarios for testing
- how to pull data out of x plane (software)
- the type of information from dials in the cockpit

Some good news came a little bit ago. We don't have an evening activity tonight due to rain, so we get some time to catch up and relax. Then we were informed that work on July 3rd is optional. It sounds like most people are not going to be here, so it will be nice to have a four day weekend. Kelsey and I were maybe thinking about making a day trip to Omaha, NE. I might drop in on the people who are camping for a day, otherwise go home and help get some work done. Anyways good to know there is more positives ahead right now.

Week 4 Day 3

Posted on [June 19, 2014](#) by [Holly](#)

Trying to stay optimistic, but this week is busy. My todo list is long, but I'm surprisingly getting enough sleep. This post is for Wednesday, but I'm just now getting to it a day late.

We did not go flying on Tuesday. We go to the airport and the instructors were like you do not want to go up there, because you will get sick with the turbulence. Once we heard the instructors say if they were going to be riding and they would get sick, we were like let's wait. So the plan is to fly next Wednesday at 8 in morning. It won't be as hot and conditions should be better. Supposedly this year has been awful for small plane aviation.

The open GL course is going, but it seems like there is a bridging gap between understanding the concepts and the actual implementation of the code. I have no idea how to fix the gap, but the time constraint of one week and the fact this is the busy week of the summer are not helping. I've only been able to devote in class time to it, because there is just so much more to do. I just hope some way we can get frogger done. I will most likely model the frog in Blender tonight or Friday.

We have the IRB application due on Friday and I just finished the training for that this morning. The application came way too soon for our group. We haven't even designed the interface and we are already talking about testing that seems a little quick and not relevant right now.

We sat through a three hour lecture on statistics for scientists. I was engaged most of the time, but to be honest I

didn't really get anything out of it. It wasn't the most productive three hours of my life. I do like that we practically got a printed version of a textbook for free.

Week 4 Day 2

Posted on [June 17, 2014](#) by [Holly](#)

Its flying time in t-minus 45 minutes. All is still going as planned.

We made a discovery about our potential user interface hardware. It looks like that we will probably just develop our add-on on a desktop. It is going to be too difficult to go through different programming languages and there is compatibility issues. We are recreating the frogger game for the Open Graphics course that is due Monday. We have yet to start, since we don't know a lot about Open GL yet.

We had a graduate panel discussion during our luncheon lecture today. It definitely cleared some of the confusion or mystery about graduate school, but I still have concerns.

Anyway time to go! More details later.

Week 4 Day 1

Posted on [June 16, 2014](#) by [Holly](#)

THIS WEEKEND WAS EVENTFUL AND REJUVENATING!!! Hello week 4, it is going to be good, fun, and happy. ☐
☐

Friday night was a good debriefing night full of food, Mario Cart and chilling with friends. Originally our flight group was suppose to fly on Saturday morning, but due to the wind our flight was postponed. We will be flying tomorrow at 2, hopefully it will go as planned and it is suppose to be beautiful tomorrow.

Saturday we went to Ledge's state park. I AM SO LUCKY I DID NOT GET INTO POISON IVY! We went tromping through the weeds the entire evening and I only ended up with a few scratches. My favorite part was walking through the creek bed without shoes on. There is just something about putting my feet in sand or mud that reminds me of my youth at the family lake house. Stacy, Mitchell, Kelsey and I decided to go on an adventure through the less traveled portion of the creek. The water was colder, clearer, but full of more settled mud and brown algae. We were hoping to meet up with a road as we were going along, but the road didn't come. We ended up traveling for about 40 minutes and kept getting deeper into a valley of timber. We finally turned around and the trip back took a lot less time than when we were going forward. I did all of this tromping with flip flops on, because I didn't want to get my tennis shoes soaked for the rest of the day. I know that was not one of my smartest moves, but I survived and it was a challenge. We were able to see the high trestle bridge at Madrid, I have wanted to see it for awhile. I was a little disappointed that it wasn't completely lit up.

Sunday my parents came up and we went golfing for father's day. It was fun and I beat my Dad, but he had an excuse from ACL surgery 13 weeks ago. It was still good to see them and catch up. We went to a decent Mexican restaurant for dinner, the group might have to go try it. Or there is a sports bar in that same area that has 2014 Best hamburger in Iowa. Later that afternoon I directed my first Mary Kay facial party with the girls. I decided to become a Mary Kay consultant about a month ago to try to build my self-esteem and get out of my comfort zone of shyness. I need to work on my presentation skills, but Mari was my first sale. Thanks girl!

Today we started OpenGL and it went fairly decent. I am looking forward to applying math to graphics and get a preview of linear algebra for next spring.

PS: Why are buildings on campus catching fire? First Sweeny ... now UDCC (location of lunch meal).

Week 3 Day 4 & 5 Rough

Posted on [June 13, 2014](#) by [Holly](#)

I'm sorry if this sounds like I'm complaining, but know I truly am just venting. This week has had a lot of horrible moments, but if this is the worst week of the whole summer than I just might be able to make it through the summer successfully.

Reasons why its been rough:

- 1) I wish I was outside and not sitting at a desk all day long.
- 2) These weeks have seemed more like a continuation of school in class time. I've been bored during a lot of them, because I am already familiar with the principals from this week.
- 3) It was brought to my attention that my weaknesses in my personality are potentially hindering my contributions to the REU group. That took awhile to sort through emotionally, now evaluating what I can do to move forward.
- 4) Luncheon lecture and follow up meetings did not help the mood of the week.
- 5) The way that modeling was taught was not well at all. I know how to model in different programs and I have taught modeling through VREP ... this week it was not presented in an efficient way. WAY TOO MUCH INFORMATION!!!
- 6) I wish the program would coordinate with the UDCC to plan our lunches accordingly in our schedule. We have yet again ran into tons of people eating at the same time. There is not as good food and a lot of lines. I stood in line for food for about 30 minutes before I could actually sit down and eat. That is crazy.

There are more items that contributed to the week, but I will finish my venting. The negatives out weigh the positives, but there were some happy moments.

- 1) Playing MarioCart on WiiU
- 2) Finishing the abstract draft
- 3) Bowling was fun last night, pictures should be online soon.
- 4) I got to catch up with some people I haven't seen for awhile.

This weekend will be rewarding with several activities on Saturday and relaxing on Sunday. 😊

Week 3 Day 3

Posted on [June 11, 2014](#) by [Holly](#)

We finished the abstract for our flight group and plan to submit it to conferences across the United States. Now that we have that finished we can focus on designing the interface and tuning our flying skills in the simulator. We are flying in a Cessna 172 on Saturday, it will be fun. Today is another day where I just want to be outside and enjoying the weather, but the real world doesn't accept the idea of working 8 hours a day.

Our modeling class got into 3D printing today and I came to another realization. In high school, there was a RepRap 3D printer that was donated and no one really knew how to get it operate. Come to find out those were one of the first experimental 3D printing machines that required a lot of research and transfer between programs to

finally produce a final product. The grad student who presented his research said it is a challenge even for him to navigate through information. Since then my high school got rid of the printer and has gotten another printer that works and is used throughout the school. I wonder what happened to the print. Today we were asked to make a model and have it 3D printed, I am almost considering building a robot or something that can be mechanically enhanced at a later time. We will see if this idea goes anywhere.

I started thinking about the potential for the technology. I almost think everyone is going to have a printer in their homes in the near future. It would essentially be easier to buy the printer and plastic and print toys for children as they get older. Companies could start printing their parts, ultimately relying less on outsourcing. There is a movement in the education world that wants to utilize these resources, which is exciting. But, it will not work unless there is an established network of support, I have seen it with virtual reality systems in high schools. A project or group can only be as good as their network, support and funding.

Week 3 Day 2

Posted on [June 10, 2014](#) by [Holly](#)

Yesterday was busy with pictures, presentations and 3D modeling class. We finished our programming Simon 2.0 game and presented it. Shamaria and Mitchell did an awesome job working out the logistics and bugs of the program. I offered my support when I could, but last week was their week to shine. Yesterday we started to learn Solidworks for the beginning of our 3D modeling class. I didn't realize how similar Autodesk's Inventor was compared to solid works. I used inventor in high school for engineering PLTW classes. I have been working on Blender (another 3D software) the past couple of years and I realized that there is a mind process jump between Solidworks and Blender. Solidworks is applying physics and constraints to ensure objects can be built in real work, while Blender doesn't have constraints. It will be a process of adjusting between programs, but I excited for learning Maya on Thursday. Our pictures went well, hopefully they will be in the gallery soon.

About six of us went out last night to get food and hang out. It was fun to bond with more people, but I wasn't expecting to be out so late. The only disadvantage of the bus system is that it can dictate your time if you don't plan according for the evening. We went to Noodles and Company again and then target, just a relaxing evening.

For our luncheon lecture, Rey Junco talked to us about his research with social media. His conversation reminded me of all the presentations my librarian (Shannon McClintock Miller) from high school did about social media. I will have to get in touch with her and see if she knows of Rey. Both of their work in education goes well together of embracing technology and not becoming scared of it.

Our flight group met with Elliott yesterday, we got a lot of questions answered. Our mentors want us to finish the abstract, so that we can start applying to undergraduate research conferences. The conferences would be sometime late 2014 or early 2015. We plan to finish our abstract by 5 o'clock today, so better get working.

Week 3 Day 1

Posted on [June 9, 2014](#) by [Holly](#)

The weekend flew by fast with a lot of activities. It rained a lot on Saturday, partially during the farmers market, but there was still good food. I ran into Jack Harris and his wife, I met them in high school when I was working with VREP. Jack is the retired director of the Advanced Industrial Engineering department at Rockwell Collins. Their department works with prototyping and testing products in a virtual environment before physically making new parts. I interned for them after my senior year of high school and I have kept in touch. It was good to catch up with them. I left the REU group for the remainder of Saturday to pick up grandparents up from the airport, seeing the other

grandpa and help finish the hard wood floor in the house. I crashed for the night around 7.

On Sunday, our flight group was able to get most of our abstract completed. We have yet to meet with our mentor, Eliot to see what we need to finish on it. We started talking about our potential interface and how to evaluate the performance. We still have a lot to figure out. In the afternoon there was an all ISU REU picnic, the food was good as always from Hickory Park. The whole point of the picnic was to interact with the other students, I did not try very hard to be social, but I was getting tired of being around people. Phil and I walked back to the apartment and had a lovely conversation about our projects and VR. I did not realize how tall Phil was or how short I was until yesterday. I spent the rest of the day doing laundry and paperwork. It really did not feel like the weekend and there was not a lot of down time.

Week 2 Day 5

Posted on [June 6, 2014](#) by [Holly](#)

It is absolutely gorgeous outside today I do not want to be in the lab at all. I can think of several things I would rather be doing outside. It is amazing how much I respect the outdoors when I can't be outside. Anyways not much to talk about. Last night we had an extra activity of light painting. It was a fun experience and I was surprised at the capabilities of a camera, the pictures are on the REU website. Our flight simulator group gave our journal discussion this morning, it was really awesome that our client Colonel Martin was able to join us. This afternoon we plan to finish our programming game and get further along on our abstract. There is kind of a light at the tunnel of all these first few tasks that need to be done. Not much else going, we have farmers market tomorrow and then I'm driving home for the afternoon to help do some physical labor at the house project. Have a good weekend everyone!

Week 2 Day 4

Posted on [June 5, 2014](#) by [Holly](#)

Not a lot has happened in the last 24 hours since my last post. Shamaria worked hard on the programming for our group project that is due Monday. She ran into several road blocks, I feel bad that I'm not at a level to help. Our flight simulator group has a fare amount of tasks to get done. We're presenting a literature analysis for the REU group tomorrow along side our client, Colonel Robert. We finally got our specifications for what we are to be working on for our simulator interface. We are working on a Beechcraft Baron B58, a twin-engine 6 seat aircraft. Below is a picture of the control board we need to redesign in a virtual environment. Now that we have those specifications, we actually have to start doing additional research. Elliott are mentor is after us to develop an abstract to start submitting to conferences. We need to get our ducks in a row of priorities and move full throttle ahead.

Last night I went to Veenker Golf course and got on the course to play 9 holes around 7 o'clock. Normally I can play nine holes in about an hour and twenty minutes if I'm not waiting. I played the first four holes by myself walking, until I caught up to some slow pace golfers. I ended up waiting on a hole for about 10 minutes, when a middle aged guy caught up to me. He introduced himself as John and offered to play the remainder of the round together. We played a few more holes and ended up skipping to other holes to miss the waiting period. I informed him of my major and interests in mechanical engineering and he was said his cousin was a mechanical engineer professor at ISU and his name was Jim Oliver. I started laughing, I played golf last night with the VRAC director's cousin. Jim has met me and has had conversations with me about two years ago, but he may not particularly remember me. It will be interesting to talk with Jim when he gets back from France to see what he has to say about the small world connections. If I would not have had to wait on a couple of holes, I would not have not met John. It is among other details that makes me wonder, am I suppose to end up at Iowa State for finishing undergraduate engineering and potential graduate school.

Eliot presented his career history to the REU group today to show us that we can not predict the future and we have to have an open mind to change. I had seen Eliot's work with BodyViz about six years ago when they were working

on large virtual reality systems. I was an upcoming sophomore in high school and I went to one of the first Virtual Reality Education Pathfinders conference where Eliot or his colleagues presented the discovery technology. Since that time I have not seen or really heard who particularly is using the products. It was interesting today to hear that they have been working on a mobile version on a tablet. It was another one of those connecting moments where I finally got an answer for something that originally started several years ago.

After this first week's experiences and presentations like Eliot's I have some thinking to start about what are the next steps for my future.

Week 2 Day 3

Posted on [June 4, 2014](#) by [Holly](#)

Our REU group has been very motivated to exercise lately, until it starts to rain. A majority of the group was going to go to the gym, but then we all lost the motivation as we were waiting for the bus. Andrea and Caglar told us that we should stay in our apartments for the evening, because of the storms that were going through. After some analysis of the weather, we decided it was clear enough to go out. We had a blast at Hickory Park, they always have amazing food. I have heard from several people that it was fantastic and they want to go back again.



C++ is going alright, it is for sure not a strength of mine. Our group is doing a memory game of colors for our programming class project. We have four days to work on it and get it done by Monday. It should not be too difficult for my team members, but it will take me awhile to fully understand the programming aspects.

As a flight group we are wanting to get most of our literature reviews done this week. We are writing and fine tuning our problem statement, abstract and research question. We are already a week into this research and we are close to being done with 1/4 of our research paper. It is going to be a scary, stressful and exciting summer.

Week 2 Day 1 & 2 6/2-6/3

Posted on [June 3, 2014](#) by [Holly](#)

We started learning C++ yesterday morning, it went alright. The notation is different compared to python and I was really confused to begin with. I plan to work on some tutorials outside of lab to try to fully understand what I'm doing. Shamaria has been a lot of help working through the code. Thanks, girl! Today went a lot smoother now that I know the syntax. We have some work to do on homework and project, but overall it is manageable so far.

Our group took time yesterday to go to the flight simulator lab and start to learn the basics of flying. There was a lot of crashing between the three of us, but it was a learning experience to see how complex it is to fly. I was surprised how much I actually knew about the basic physics of flying. I learned a lot about rockets my first year at Simpson that became very applicable. I'm glad I recently took differential equations, I was able to better understand so many more concepts.

I have been doing a lot of collaborating with other people to get their opinions. It can be surprising to realize how many connections I actually have. Two high school classmates are going to give me a run down on the actual mechanics of a plane to try to better understand the system. I collaborated on a wind tunnel project in high school with some students from Owatonna, Minnesota and they have been a big help. I have yet to send some emails to other people who are following my education. I also have one last connection I need to make with my Uncle who is retired from the air force, but he oversees flight simulators in South Carolina. I'm happy that I have an established

collaborating network, but it is exciting to know I will have a bigger network after this REU.

Before getting to Iowa State I had no idea what graduate school even looked like. The week so far has been very eye opening to get a better image of what it is. I will certainly continue to think and possibly pursue graduate school. Our graduate mentor Elliott took the three of us out to lunch today to get to know the aerospace graduates. It was a privilege to be excused from our scheduled time to get to know other students and learn about their experiences. I can't wait to see what these next 9 weeks will lead to in the future.

A Great Deal of Experiences & Knowledge

Posted on [June 1, 2014](#) by [Holly](#)

A lot has happened in the last 72 hours, that I have not had a chance to document anything, now finally taking time on this late Sunday evening.

Thursday May 29 (Afternoon)

We went on a tour of VRAC that was more interesting than the last tour I got a few years ago. Before entering college, my mom and I came up to visit with Jim Oliver and Stephen about the VRAC program. That day Jim was recruiting me to come to Iowa State to start my engineering program and become apart of the VRAC family, but I had other ideas and ended up pursuing my beginning education at Simpson. The day that Jim took us through, it wasn't clear who or what the department was doing. He showed us similar projects that the REU saw, but the grad students were not present to display their work. That was the big difference between my tour experiences, on Thursday I met the grad students and saw how invested they were in their projects. It reminded me of similar days back in high school to [VREP](#), when I saw younger students working on projects for endless hours outside of the classroom time. It truly is interesting how that interaction can improve an experience by so much. We saw the C6, augmented reality, John Deere combine simulator, and aerospace labs. I came to two realizations on Thursday about a past internship I had at Rockwell Collins:

1) The augmented reality and haptics demo we saw on our tour was a project from Rockwell. The basis of the project was to have a camera that produced a live feed on a monitor, then use augmented reality to provide a helpful assembly user interface. The issue was when employees were working on circuit boards on the factory floor, it was hard to make sure parts were inserted with the proper orientation and exact location. This small issue could be deadly in an airplane computer. I don't remember specifically for sure, but the summer I was at Rockwell Collins my colleagues or mentors informed me of the issue and the potential ideas to solve the issue. At that time it was just a thought, but few years down the road with different professional communities collaborating there was a base concept. The concept still has flaws with how to track items without getting large markers that are not wanted on the products, but still overall it is cool to see the progression, research and collaboration in just the few short years.

2) While at Rockwell my colleagues and mentors were working on a project with ISU to produce a low cost tracking environment. I made the connection that the project that my colleagues were supporting was either a REU group or a graduate group. It was a fascinating connection to realize how close I was to this type of research and collaboration just two years ago. Then to also just get basic questions answered almost two years later.

I ended Thursday by purchasing a membership to Veenker golf course. I plan to get as much practice as I can to get ready for my final season on the women's golf team at Simpson College. Also it will be nice to get away from the lab to go do what I love outdoors.

Friday May 30

On Friday my flight simulator group (Shamaria & Mitchell) was finally able to understand our project more clearly. The main issue is that in different types of airplanes the gauges are in different locations. There is an issue of trying to display this same information in the same location in different planes. The idea is to have a separate device that can be plugged in to input all of the information and then efficiently display the information for all airplanes. The ability to have all the information in one area could potentially help pilots evaluate emergency situations quicker. We have broken the project up into three roles: Mitchell project lead with all the human factors aspects, Shamaria programming and software leader and me as the hardware and interface leader. We have a team of six graduate students who are supporting us and we have Col. Robert Martin who is our client. Our main research idea is "Evaluating a dynamic interface to enhance decision making for flight", we still have some tweaking to do. But overall I am happy with our progress and excited to see what we can accomplish. The other fun aspect of this project is to get a base knowledge of flight and aero-dynamics. That means we get to train with Microsoft Flight and actually get to fly in a Cessna 172 in a couple of weeks, thanks to our mentor's connections!

Saturday May 31

We spent the morning at a high ropes course in Marshalltown where they had a giant 32 foot swing. I am not one for the dropping feeling when on a roller coaster, so I was not thrilled to push my limits. Ended up going on the swing, tolerating the dropping feeling and screaming. The anxiety was worth it. The other cool thing I did was belay Getch while he was climbing. There is a size difference between us but it was still cool to see how physics could keep him safe despite the size difference.

Sunday June 1

Our group did some research in the library for the flight simulator. I did not realize how big the ISU library actually is. Our research did not last long, because we got hungry and decided to walk to the Memorial Union only to find that it was closed. We ended up walking back to Freddy Court and then going to Buffalo Wild Wings for food. A couple of us are ending the night by playing card games and the game cube. It has been fun bonding with other people than just my roommates. I have to thank Kelsey for doing a five minute dance party before she went to bed and then everyone else for not laughing at us.

Orientation Days & Beginning Blog Post

Posted on [May 29, 2014](#) by [Holly](#)

Orientation days can be tedious, but so far the first two days have gone by faster than I imagined. The beginning atmosphere of the program is embed with full fledged support from faculty, mentors and interns. It is reassuring to know that we all can succeed or fail within a day and still be in a supportive learning environment.

Building towers out of gumdrops and uncooked spaghetti, a team bonding exercise, showed all of us how much potential we have to be successful in this program. It presented the common elements of working in a team: brainstorming, problem solving and collaboration.

The applications and opportunities for virtual reality specifically are endless and evolving. I have high expectations for this summer and can not wait to learn more team and VR skills.