

# Kayla Dawson

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 [projects.vrac.iastate.edu/REU2013/](http://projects.vrac.iastate.edu/REU2013/)

## Posts from me

### Last Day

Posted on [August 2, 2013](#) by [kdawson](#)

Today was the Research Symposium and our final day at VRAC. I can still clearly remember our first day so it's hard to believe that it's been 10 weeks and we are about to leave. From our first social activity at the ropes course I could tell we would be a really tight-knit group. I feel so close to everyone here and I hope they feel the same way about me. Everyone is always welcome to visit me! After all of the action of the past few days it will be weird to go home and relax for a few days but a week from now I'll be back in Miami starting my new job. Some of my friends in Miami didn't know what I would do for 10 weeks in Iowa and admittedly I wasn't too sure either but there hasn't been a dull moment. I can't wait to go back to Miami and tell them about all of the activities we've done. I can't get too sentimental in this blog post or I will cry and there are too many cameras around for that. I will really miss Iowa and all of the people I've met here. We finally got our picture in the corn today so I'm excited to take that back with me!

### First day of August

Posted on [August 1, 2013](#) by [kdawson](#)

Last day of work...kind of. Today was our last day of normal work. Tomorrow is going to be craziness! Some of the mentors have already started to leave which is super sad. It will be hard to say goodbye to everyone and even harder to fit all of my stuff back into my suitcases. Admittedly, I'll be glad to finish up this project and get back to biomedical engineering. This program has given me the confidence to really go for grad school and dive into research. I can't wait to bring everything I learned here back to UM with me!

### Out for Lunch

Posted on [July 31, 2013](#) by [kdawson](#)

So when I said we were done with our poster what I really meant was that we are taking a break from our poster because several problems would come up that we would need to fix. Great! That is mostly taken care of now and we are really focusing on the Results and Discussion parts of our paper. Today we went out to lunch with some of our mentors and talked about research, grad school, and life. It's nice to at least have that conversation going. Even though I don't know exactly what I want, I at least have people to talk to about it and can hear that my peers don't have their lives figured out either. One thing I did know is what I wanted for lunch. The dolsot bibimbap was so good! Now I'm fueled up to knock out this paper!

### Despicable Me

Posted on [July 30, 2013](#) by [kdawson](#)

So today we sent in our final copy of our poster and we are approving it at the printing place in the morning. Yay! Now we just need to finish the paper and prepare for our presentation/demo thing. Our mentors said they think our research was worthwhile...so I'm glad they don't think this summer was a huge waste of time. I'm pretty happy with what we've come up with.

We also heard from Pam about the HCI grad programs here. The program is really selective. It's good to know what to expect but it makes me nervous hearing they accept less than 10% of applicants. At the same time, the accepted people are funded so that's really cool.

A group of us went to see Despicable Me 2 which was excellent!!! We had a lot of fun. I'm glad we are still finding time to relax and hang out even as we get close to the end of the program. I hope to stay in touch with a bunch of the people I have met this summer (most likely over Facebook). Also, if you've never checked out David Thorne's blog (<http://27bslash6.com/missy.html>) I highly recommend you do so! We were talking about him earlier and it reminded me of how funny he is. Beware! He's also pretty mean...but in a funny way.

## Data Analysis

Posted on [July 29, 2013](#) by [kdawson](#)

We finished user studies! I can't explain how relieved I am. If we had more time we would've run more to get more significant results but I'm so happy to just be sitting down, working with the numbers. Watching participants complete our cybersickness task was making me really sick. So far the data isn't looking great but now we know something that doesn't work to mitigate cybersickness. We also have a task that definitely does induce cybersickness that might be used for future studies. It's all a learning experience and I've learned that I have a weak stomach.

## Game Night!

Posted on [July 26, 2013](#) by [kdawson](#)

Last night we had a game night here at VRAC. That was so much fun! I got to learn a new game, Dominion, that I really enjoyed. Unfortunately I don't know anyone back home who plays it so I'm not sure when I'll get to play it again. I love how much fun I have with everyone here and how much I learn from them. Yesterday was so much fun it almost felt like the weekend but we've got one more hard day of work before paintball on Saturday. Our weekend is actually going to be a lot of work too because we are finishing up user studies and polishing up our paper and poster. I'm not ready for our last weekend in Ames!

## I Don't Like Science

Posted on [July 25, 2013](#) by [kdawson](#)

User studies have continued but our research is beginning to make me uncomfortable. When I'm not bored out of my mind I just feel really bad for our participants. I'm trying to keep in mind that all of our participants volunteered so we could make a difference but this really sucks.

As a convenient distraction, we are having a game night tonight! We will hopefully have a couple video games and Craig brought a board game that I've never played. I can't wait! Everyone else is going down! I've begun insane amounts of trash talk so I pretty much have to destroy everyone.

## Cathect

Posted on [July 24, 2013](#) by [kdawson](#)

Yesterday I learned a cool word, cathect, which means to invest your feelings or emotions into an idea, object, or person. I think I may have discovered the meaning of life in that word. We are constantly investing parts of ourselves in what we do. Before this summer, I never gave much thought to cybersickness and now I'm completely involved in this project. My entire focus is on seeing it succeed. We've also gotten an amazing response when recruiting people for the user studies. People who aren't working on our project have invested part of themselves in us and our project and want to see us succeed. I can't explain how grateful I am to have the support of everyone here. We could easily

have been given an assignment, showed up from 9 to 5, and not developed any relationships with people here. Many internships are like that but not this one. An much as I love Miami, It's going to be really hard to leave Iowa. It's going to be really hard to leave the people here.

## User Studies

Posted on [July 23, 2013](#) by [kdawson](#)

Today we had our first user study! I can't share the details yet but it went very well! I can't wait to start looking at the data and see what we come up with! This is real! We're really doing our study!

## Excellent Weekend!!!

Posted on [July 22, 2013](#) by [kdawson](#)

This weekend felt super busy but super fun! On Thursday we presented to other REU interns from UPenn and Rutgers. Their research was pretty different from ours and it was cool to see some new projects. We were also a lot more comfortable with our own presentations this time around. Afterwards we all had dinner prepared by Lisa, Paul, and Andrea which was delicious. A bunch of the mentors came so we got to socialize with them outside of VRAC.

On Friday we went to Principal Insurance and saw what UX is like in industry. It's cool to see how some elements of research that we associate with universities are also being used in industry. There are a lot of options for people in these fields. After that we toured the Science Center. I felt just like on of the kids except I didn't have to convince my parents to buy me astronaut ice cream; I just bought it myself. I loved seeing kids so excited about science. My favorite part, by far, was going into the animal room. I was really excited to touch the snakes and completely fell in love with Puff the hognose snake.

The animal-loving wasn't over yet because on Saturday we went to the Omaha Zoo. When I got accepted to this program I saw on the website that they were only 3 hours away from Omaha but I didn't know what was in Omaha. Well now I know! I could have stayed there forever but we were there for a pretty good amount of time. I spent a long time watching the monkeys and large cats. One of the things I really liked about that particular zoo is how close we could actually be to the animals. Usually you can barely get a glimpse of the large cats but at this zoo we were so close we could almost touch them (but we didn't!) and they still had areas in the exhibit where they could hide if they wanted to. I also made super intense eye contact with a gorilla when we put our hands together (which a thick layer of glass between them, of course). The long drive to and from the zoo allowed us to all talk and get to know each other even better. I feel like I've known everyone here for so long. It's going to be incredibly hard to say goodbye in two weeks but I'm so glad our program provided us with a ton of opportunities to bond and become friends.

After so much activity it's really weird to be back here working again but we have a ton to do before we leave. With IRB approval, we now just need to fix our little camera issue and do a dry run before we can begin real user studies! Hopefully we can get this all done quickly so we can generate significant conclusions by our final presentation/demonstration.

## Running?

Posted on [July 17, 2013](#) by [kdawson](#)

I'm sure that I'm about to jinx everything that is good in the world but it appears that our project is now working! With the exception of a weird camera issue that still needs to be tackled, today we fixed most of the quirks that we still had with our tasks. Tomorrow is our presentation and Friday is the Science Center but hopefully on Monday we will be running user studies?!

## No Improvements

Posted on [July 16, 2013](#) by [kdawson](#)

We spent a lot of time working on our project today but I can't say that we've made any noticeable improvements. We're going to have a lot to do tomorrow.

## Broken.

Posted on [July 16, 2013](#) by [kdawson](#)

So...we moved everything over to our own little lab space (borrowed from Michael) and suddenly things that were working over here no longer work! We also now need to design our poster for Wednesday and prepare to present again on Thursday. Luckily this week is also loaded up with social/fun events so we don't get too stressed out.

## Grad School?

Posted on [July 13, 2013](#) by [kdawson](#)

The grad school conversation is definitely happening. It seems like it's on everyone's mind and I'm getting nervous. That shouldn't be any surprise since I'm almost always worried about something. I've started to hear that I might worry too much to do research.....and unsurprisingly that makes me even more worried...but also determined. I want to be involved in something new and I want to improve people's lives. If I worry a lot it's only because I care A LOT. I'm not going to let my anxious nature hold me back from doing research. If anything, I'll use it to my advantage and make sure I always work my absolute hardest. I've begun researching ways that virtual reality environments can be used to develop neuroprosthetics and train potential users. I think that this could be an interesting direction for me (and for VRAC?). I've really begun to feel at home here and it's hard for me to imagine leaving now. A degree in HCI could really take me anywhere. If I end up applying to ISU for grad school I need to make sure that I am the most irresistible candidate I can be.

## Ethics Course

Posted on [July 11, 2013](#) by [kdawson](#)

Today was our second (and last) ethics class. I wish it wasn't over. I find it so interesting the situations that different people struggle with. We also continued to work hard coding our task. I got the tracking system mostly working (with an immense amount of help) but I can't seem to get the camera to rotate with the user's head movements. We also weren't able to hook up the head-mounted display to the computer. I've been told that these struggles are completely normal in research and I shouldn't worry. Unfortunately, I am a very anxious person so I am worried. We want to do a dry run tomorrow so we can do user studies next week but nothing is ready! I really want to see this work.

## Frustrated.

Posted on [July 9, 2013](#) by [kdawson](#)

I have no idea what I'm doing! I have spent all day asking people for help. Every time I feel like I'm getting a little bit closer and then I encounter another problem. I have never felt so incompetent. I know this is a learning experience but right now I feel like all I'm learning is that I'm not a programmer.

I'm not a programmer.

I know I need to get over this. I've taken one class on programming. It's not realistic for me to think I can do this

without any help. The people who have been helping me have a lot more experience so it makes sense that they know more than me. I just want to do a good job and not waste everyone else's time. The people who have been helping me have all been really nice but I know they all have their own work to do.

Tomorrow is our trip to John Deere so hopefully I'll be able to put this work to the side and focus on that experience. I would hate to be bogged down thinking about this stuff still.

## Fireworks and Camping!

Posted on [July 9, 2013](#) by [kdawson](#)

Yesterday I knew it was going to take me awhile to write this blog post so I said I would do it at home and completely forgot. So it's a day late but still exciting. It sounds like everyone had a fantastic 4-day weekend. Liat, Lanya, Connie, and I went on a multi-state camping adventure. Our first stop was Starved Rock where we camped and hiked to a couple waterfalls. It was gorgeous! The hike was not as advanced as we would have preferred but it was a good background for a photoshoot courtesy of our personal photographer Lanya. The next stop was Chicago to see the fireworks. It was great to have some city time and try Chicago-style pizza. We made sure to hit a bunch of the tourist stops in Chicago before moving on to Bear Caves. We actually didn't end up hiking out to the caves because we ended up going to Warren Dunes and hanging out on the beach. Lake Michigan is so large you would never know we were on a lake. The beach was bigger than the beaches I go to in Miami and the dunes were monstrous! I got a bit of a sunburn while I was out there but I had been really missing the beach. Overall it was a fantastic experience. I wish we could go again next weekend!

P.S. I bought my plane ticket for the Neural Engineering Conference! I'm officially going!!!

## July 4th!

Posted on [July 3, 2013](#) by [kdawson](#)

Today we presented our work to the group. We practiced our presentation a lot so we were pretty confident when it came time to do it in front of everyone else. It went well and we knew our material so we were able to answer any questions. Now we are just trying to get through as much work as we can because it's the end of the week already! We have the 4th and 5th off so a group of us are taking a camping trip and another group is going to Six Flags. I'm a little jealous of the Six Flags group because I love roller coasters but I'm really looking forward to camping and visiting Chicago. Hopefully the rest of the group won't want to go into a really tall building or I'll be able to occupy myself while they are doing that...Anyways, HAPPY 4TH OF JULY!!!

## We Are All Ethical

Posted on [July 2, 2013](#) by [kdawson](#)

Yesterday we had our first ethics class. It was really interesting and I loved talking about different scenarios. Yet I was surprised to learn how many scenarios other people had issues with that I wasn't bothered by at all. I'm not sure what that says about me....At least I know I read the news more than some because I knew most of the issues Eliot brought up.

Today we practiced our mid-project oral presentation over and over and over again. Hopefully by now we've got it down because we are presenting tomorrow morning. We also got help from a few of the grad students in figuring out how to set up tracking in our study. I didn't fully understand everything they said but I did hear them say "it shouldn't be too difficult", "this is probably the best way to do it", and "it should only take a grad student a couple of hours to set it up." Luckily, Curtis is a grad student! We will probably end up setting it up ourselves but it's good to know we will have help.

I can't believe we are halfway through week 6!

## Hiking and...More Heights!

Posted on [July 1, 2013](#) by [kdawson](#)

We had an excellent weekend! On Friday the interns all got together to relax after our busy week. The group has borrowed a guitar from Pam and apparently some people in our group play really well. We all sang along and were completely dorky and adorable. It was a great moment. On Saturday we went to Ledges State Park which they claimed was still in Iowa but it didn't really look like it. Hiking along the creek was so relaxing I could have stayed there all day. I even handled the heights relatively well until the last cliff. I might be overcoming my fear.

After some events that occurred in the past week I have decided to become a vegetarian. Today was day one of my guilt-free (or at least guilt-reduced) diet. In the past I have jumped straight into being a vegan in the strictest sense possible. I think that was part of why I wasn't able to maintain the diet. Hopefully making a few gradual changes will allow me to keep myself healthy and still be happy with myself as an animal advocate.

Today we officially began programming our task for the cybersickness user study. I'm a little frustrated that Liat picks everything up so much faster than I do but I'm glad to have her on the team and have an opportunity to learn from her. This week is only three days because of the 4th of July holiday so we are going to have to get a lot of work done in a short amount of time.

## Mentors

Posted on [June 28, 2013](#) by [kdawson](#)

Yesterday was met another one of our faculty mentors, Richard Stone. Until now we've been meeting with the mentors individually so it was interesting to have 3 faculty mentors and Curtis all there at once. We got back a bit of feedback. I'm still not sure how we will incorporate all of the different feedback or where we are going to take our project from here. We've also heard from Chase who is helping us with the biofeedback aspect of our research. You can lie on a questionnaire but your electrodermal activity will tell us the truth!

## Picture Day

Posted on [June 27, 2013](#) by [kdawson](#)

Today we took group pictures in our matching shirts. It felt a little stiff and formal in the beginning but by the end we were having a blast and throwing ourselves on the ground. We even got a (very small) smile out of Paul. I can't wait to see how the pictures turn out.

Thai food last night was delicious! The green curry was excellent and they gave me so much that I have enough for dinner tonight as well. We also got desserts so I got to try the sticky rice that everyone was talking about. Stephen wore his Google Glass and really impressed the waiter.

We also had a UX class yesterday with Chase. That was really interesting for me. I love that Chase isn't really a programmer and has more of a biology background. I feel like I'm not alone in this sea of computer science/engineering people. I loved hearing about how biofeedback can be used to understand the user's experience.

As far as our research, we continue to work on our lit review and methods paragraph. The lit review is coming along well and we made some important decisions about our methods. Hopefully our meeting later will go well and we will feel like we have a clear direction by this weekend.



## Thai Food!

Posted on [June 26, 2013](#) by [kdawson](#)

I'm so excited about Thai food tonight! I've been craving green curry! We also met with Pam today. It's cool that the people running this program really care about how we are feeling throughout this experience. It turned into a bit of a vent session since we're all really stressed about our projects. Ultimately, I think we all just care about our projects and want to see them succeed so we are stressing out. It's week 5! I kind of thought we would know what we were doing by now.

## Goodbye, Maya!

Posted on [June 25, 2013](#) by [kdawson](#)

We are officially done with Maya modeling. Just kidding! We are about to be doing more modeling than ever! The cybersickness group will soon be programming a virtual reality environment using models from Maya. First, we need to figure out what task our user study participants will be completing. We're playing with a couple of ideas right now (some a lot harder than others). We are also hard at work with our literature review. It's amazing how many papers have been written about cybersickness. And yet, so many of the problems written about in 1993 (20 years ago!) continue to be problems today. I don't know how much of a difference we can make but we are sure trying our hardest to come up with something amazing.

In other news, Rusty the Red Panda was found, safe and sound!

## Breaking News!

Posted on [June 24, 2013](#) by [kdawson](#)

I just read that Rusty the Red Panda is missing from the National Zoo! I don't quite know how to handle this news. I hope he is found soon, secretly hiding in his exhibit.

Alright, back to REU stuff. We went to the farmers market in Des Moines on Saturday. It was huge! We had a great time. I just wish that I had bought more stuff while I was there. Lanya got some delicious cheese that made me a little jealous.

I'm also now contemplating attending the 6th International IEEE EMBS Conference on Neural Engineering in San Diego this Fall. It looks like I might be able to go for as little as \$500 (not including any extra sight-seeing or eating out). I'm still on the fence so I'm open to any opinions about whether or not I should go. I'll only be a Junior so I don't know if it's too early to start going to these things but it's almost like someone designed a conference specifically about what I'm interested in so it's hard to pass that up. One of the amazing things about this REU is that I can now afford to go to the conference if I want to. This REU isn't just a great opportunity in its own right but it also produces more opportunities for the future.



## Josh Groban and Google Glass

Posted on [June 21, 2013](#) by [kdawson](#)

Josh Groban was playing in the dining hall today! Just wanted to share that exciting news before I forget. Anyways, HCI stuff...Stephen got a Google Glass! He showed it to us today for a bit but I hope we get to see more of it. It's a little awkward right now but I can't say what I would like to see changed so maybe I just need to get used to seeing people wearing them. I can't wait to see if they become madly popular or if everyone kind of forgets about them.

The cybersickness group is now working on a finally Maya model that represents our group/project. We are also working on designing our cybersickness study so we can begin programming our virtual environment. There's a lot to do.

## Head-Mounted Displays

Posted on [June 20, 2013](#) by [kdawson](#)

Yay! Today we met with one of our super cool mentors, Jon Kelly. He brought us to his lab and let us play around with one of his head-mounted displays (HMD). It was awesome and terrifying. The demo we did involved us navigating a virtual simulation of his lab with a giant pit in the middle of the room. We were able to fall into the pit which, again, challenged my fear of heights. Actually using an HMD helped get us thinking about what exactly we want to study and we are still tossing around ideas. At least we feel more comfortable with the idea of programming for an HMD. Especially since we can import objects from Maya which Liat has apparently fallen in love with. Hopefully things come together quickly because we have a lot of things due next week.

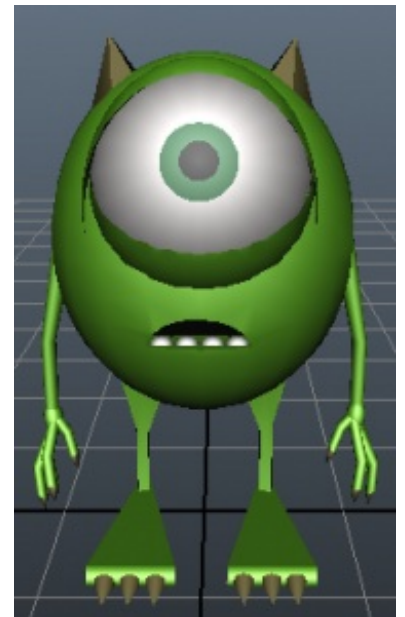
Our modeling class today was pretty open. We just worked on whatever we wanted to and learned more through the questions we asked. I added hands to my Mike model and have started on his girlfriends Celia but I am nowhere near finished with her. She will have a head soon....

## Mike Wazowski

Posted on [June 19, 2013](#) by [kdawson](#)

Today we went to see Jordan's MS Thesis defense. I was so different from what I expected. I couldn't believe the panel would just interrupt him in the middle of his presentation to tell him things he should've done differently! I would be so shaken up by that but he handled it all really well. His research is pretty cool and I'm glad we (the interns) got to help out by participating in the user studies. His results really emphasized the need for volunteers. Without a substantial number of participants it's really hard to obtain statistically significant results. I can definitely see that being a problem for us with our research this summer.

We also had a modeling assignment today to model a character. I chose Mike Wazowski! He's quite rough and has no hands but I got to practice what we've learned in class and now I need to focus on cybersickness again. This week will be really important for us in figuring out what exactly we are studying and soon we will have to learn how to program a task in Python.



## Robots!

Posted on [June 18, 2013](#) by [kdawson](#)

Today we had another luncheon lecture. This time we heard from Connor Schenck about his work with intelligent robots. His work is really cool and I can see how it brings us closer to having robots working in our homes. As I was listening, I was particularly interested in the physical aspects of the robot arm. It had 7 degrees of freedom with proprioception in those joints. Some people didn't understand why I said that aspect of robotics was interesting to me since "prosthetics isn't robotics" but I can see how robotics could still be really useful in neuroprosthetics. How



can I work on an interface between the human brain and the prosthetic without understanding the information the prosthetic takes in? Advanced prosthetics basically are robots. Both require a human to program a computer that controls the limb/machine. The only difference is how we assign the robot tasks so... basically the interface. In neuroprosthetics, the user's brain provides a command that the computer translates and executes. In robotics the user can give verbal commands or code the commands directly into the computer to be executed (there are many ways to give commands to robots). Anyways, I would love to know how the robot's proprioception works since transmitting information like that to the user of a prosthetic would be amazing. Human's naturally receive information from proprioceptors in their muscles and joints but that is lacking in prosthetics.

We also continued with our modeling class. We had to model a dinosaur. He's not as cute as some others but I understood the concepts we learned in class today. Here is my dino with my inspiration.



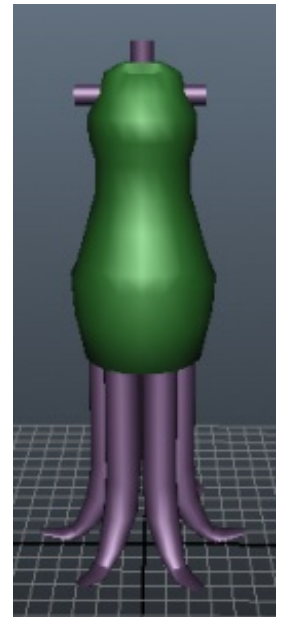
## Everything in 3D

Posted on [June 17, 2013](#) by [kdawson](#)

Over the weekend we went to Skyzone and Trader Joe's. Skyzone was a blast. I was really nervous at first since it seemed pretty dangerous but I got pretty into it during "3D dodgeball." It looks like this summer is going to continue to test some of my more ridiculous fears. Since we were already in Des Moines, we stopped at Trader Joe's. I'd never been before but most of the group was pretty excited about going. It was amazing! I bought so much stuff! I'll have to see if there is one near my school in Miami because I would love to go again.

After a relaxing Saturday, Sunday was all about finishing our 3D graphics project. It took a long time but our Bop-It looks adorable and everything works so I'm really happy. We all worked together really well, bouncing ideas off of each other and problem solving. I would've liked to figure out how to click on the components but that was too time consuming. I am once again unable to use my laptop because the charger is broken but a new one should be here either tomorrow or Wednesday. Working overtime in VRAC got a lot better after Andrea and Lisa bought us a bunch of snacks for when we are here. This program takes such good care of us!

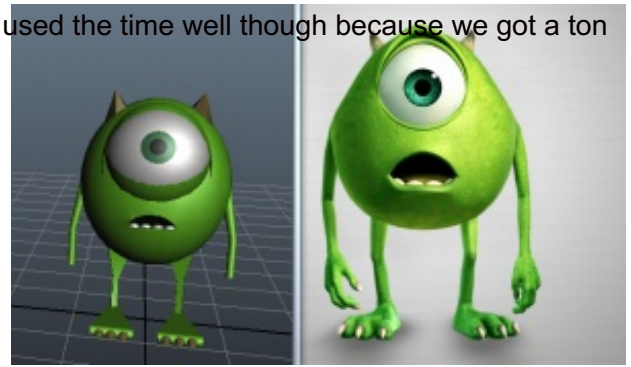
Now that our 3D graphics class is over we have started 3D modeling in Maya. The class is a lot of fun so far and we really enjoyed creating a scene of snowmen out of primitives. My scene has a little snowman about the throw a snowball at the snowman in front of him. I can't wait to learn more but I'm sure it will get a lot harder (since these classes always do).



## Where'd Week 3 Go?

Posted on [June 14, 2013](#) by [kdawson](#)

How is it Friday already? This week went by so fast! Somehow we used the time well though because we got a ton of work done! I finally got the lighting on my solar system to work right with the help of Liat, David, and our wonderful instructor Sebastian. I still have a lot of work to do to finish that assignment (add texture to the planets and a moving space ship?) but I'm not stuck anymore so I think I can do it. The Cybersickness group wrote our problem area paragraph, came up with a list of possible interview questions, polished our survey questions, completed the IRB certification, and applied for IRB approval of the things we've added to the research project (with a lot of help from our mentors here!). I say "with the help of" a lot but that's what's so great about this field. HCI is interdisciplinary so you have to work with a lot of people. It's really cool to see how ideas develop within a group and how we get work done. We've also started on our Bop-It game which was a little concerning at first but it seems to be coming together well. This week was really a struggle but I think we can all be proud of the work that has come out of it.



## More Lights!

Posted on [June 13, 2013](#) by [kdawson](#)

Today we had a recap of what we've covered in OpenGL and learned some new stuff about textures. I feel like I understand the concept of lighting and materials but it still won't work. I hope I can figure out what I'm doing wrong soon because I really felt like I was catching on. Light is so challenging.

Last night we took a break from our work to use light in a less stressful way: light painting! I was apprehensive at first because I don't consider myself very creative or artistic. In the end we all had a ton of fun. We had a lot of great ideas and it was a blast figuring out how to make them happen.



## Let There Be Light!

Posted on [June 12, 2013](#) by [kdawson](#)

Today our graphics class continued. I thought I was getting the hang of it...but I was wrong. We were supposed to turn the sun into a light source and so far I've failed miserably. I'll have to come back to it later to figure out what I'm doing wrong.

In other news, we might be using an EEG in our research! I'm super excited! Obtaining information from the brain is a critical component in neuroprosthetics and using an EEG will be a great step for me!



Our Problem Area paragraph is due on Friday, we are now working on a 3D graphics project, and Francely and I are leading this week's Journal Club. This is going to be a busy week and it's already half-way over!

## Catnip

Posted on [June 11, 2013](#) by [kdawson](#)

Yesterday we began our Graphics course. Our first assignment was to write our names which was pretty easy (thanks Mom and Dad for giving me a short name). Today our assignment was a little more challenging-create a 3D solar system with moving planets that are rotating around the sun and spinning around their axes with a moon that's also in orbit and the ability to pause or reverse rotation.... Yeah, just a little more challenging. I haven't quite figured it out yet and I'm losing some motivation now that I know we are using an old (practically useless) version of OpenGL. At least everyone continues to get along and work well together.

Last night we went to Ada Hayden park for a cook-out. The food was delicious, we had a great time, and I learned that my phone's camera has a panorama option! I used this newly discovered function on my phone to take some pictures of the gorgeous, man-made lake at the park. We also told embarrassing/funny stories and received nicknames based on them. Now we have some inside jokes to use just incase the grad students don't already think we are weird enough.

Today we heard from Judy Vance, a Professor of Mechanical Engineering and HCI for our luncheon lecture. It was really interesting to hear from a female in ME (a field I had strongly considered before landing on BME). I was particularly interested in her work with haptics. She talked about how important that feedback is in virtual reality environments. It reminds me of the work I want to do with prosthetics. Touch feedback is equally important in the real world for prosthetic users. Imagine having an arm that is completely numb. Touch is a huge way that we interact with our environment that just isn't available in prosthetics yet. I would love to work on transmitting sensory information from a prosthetic to the brain.

Not to ramble on but Professor Vance also talked about the importance of going to different schools for your degrees. I'm really not sure where I'll end up. I think if I could go to any school, I would finish up my BS in Biomedical Engineering (Electrical) at UM, get my MS in Biomedical Engineering (Neuroprosthetics) at USC, and then maybe come back here for my PhD. I would love to study the use of virtual reality environments in designing neuroprosthetics and training people to use them. I could really chatter on about prosthetics all day long but I have some serious cybersickness work to get done!

## Bonding

Posted on [June 10, 2013](#) by [kdawson](#)

Our group had an excellent weekend! We all got together to play games-Catchphrase, Apples to Apples, and Bop-It. Christian is the Bop-It king but I will beat his top score before the end of the summer! We also went to a picnic with other REUs on campus. It was great to see a bunch of people doing different research on campus and to learn about their projects.

The cybersickness group is also closer than ever. We completed our C++ project over the weekend and will soon begin our graphics project. I feel like we are really getting used to working together. We have all completed the IRB Certified Training and will soon be submitting our survey/interview questions to the IRB for approval. The IRB plays a huge role in research so I'm glad we are learning how to work with them.

I am ready to kick off Week 3!

## Finding a Paper

Posted on [June 7, 2013](#) by [kdawson](#)

Today was our final C++ class. We will present our final projects (if we finish) on Monday. Part of me is glad to be moving on to something new but another part is nervous about leaving the comfort zone of Visual Studios and C++. We have officially covered the little bit of knowledge I had coming in and our now moving on to bigger and crazier things. I hope I can keep up! Our game of Blackjack seems to be coming along nicely; we overcame some struggles this morning with the help of Brian and Colin (our amazing instructors). I'm glad Liat is forcing me to use classes and pointers. I probably would've avoided using them if I was coding this by myself but I'm glad I have the opportunity to learn them now. I'm beginning to see how they will be useful in the future.

We also just had our second Journal Club meeting. The paper we read was short and easy to read but it had a lot to it. We had a pretty good discussion about how the paper is written and about modifying a paper to present research to different audiences. Next week Francely and I will be leading the discussion so we need to pick out a paper soon. I found one I really like on using virtual reality to train people to use neuroprosthetics (prosthetics controlled by the brain). It really excites me but I don't know if it would interest the other people here and it's a bit long. Hopefully Francely will have some ideas too and we can pick one everyone will like. Honestly though, how cool is that? They can create a virtual arm that a person controls with their brain to work out the problems with the prosthetic before they even build it! I love the connection between the work they do here at VRAC and the research I want to pursue in my own career.

## Continued Thinking

Posted on [June 6, 2013](#) by [kdawson](#)

I got so caught up in programming I almost forgot to blog! Today we had another Luncheon Lecture. This time we heard from Nik Karpinsky, a PhD student in HCI and Computer Engineering. He showed us his work with 3D modeling which was really cool. The amazing thing is how much money he gets to put towards his research. I would love to have a bunch of cash to study cool things! I really do love research. I've been thinking that if I was able to become a professor, I could do my own research and have undergrads doing all of the grunt work! Not that I think professors do that....but I could...if I wanted to. Nik mentioned the uncanny valley which we learned about in our Journal Club last week. It got me thinking again about if that uncanny valley exists with respect to prosthetics. How do people respond to prosthetics that look like real limbs as opposed to ones that don't? I guess if I end up as a professor that might be something I would want to study. I've seen some really cool prosthetics that don't try to look like natural limbs at all and instead try to be something new and unique. The results are amazing!



## Under Pressure

Posted on [June 5, 2013](#) by [kdawson](#)

When we got here we were warned that the second week would be completely overwhelming. Although I'm not quite that stressed yet, I am beginning to feel the pressure. Our group continues to struggle with programming our game (blackjack) together so we are making it much more difficult than it needs to be. In addition to our programming assignment, we still need to write the final draft of our survey so we can get it approved by the IRB. This needs to be done before we can really do any research so it is definitely time-sensitive.

To cut down on the stress, we still try to socialize outside of our work. Lunch is a fun time because we can all put our work down for a bit and relax together. However, we are all nerds so we do bring a lot of our programming talk to the dining hall with us. Many of us have also been going to the gym together. The gym here is huge! I love that the cardio machines have TVs on them and they can track all of your workouts. Tonight we are skipping the gym and watching Iron Man 3/Great Gatsby together instead. One of the things I love about this specific REU is it is structured to encourage group bonding. I hope we continue to be a pretty close group.



## First Luncheon Lecture

Posted on [June 4, 2013](#) by [kdawson](#)

Today was our first luncheon lecture. We heard from James Oliver, Director of VRAC, about the things he wished he knew when he was in school. It was really helpful to hear from someone with experience in industry and in academia. As of now, my plan is to get my Master's degree and go into industry but I really thing I'm interested in research. Maybe a Ph.D would be better? I guess that will be something to think about this summer.

Our research group has been working hard reading up about research in cybersickness. Soon we will have a better idea of our research question and have a plan for how to solve it. In addition to that, we are now programming a game together for our C++ class. I've never had to program with other people before so it will be a new experience.



## First Weekend in Iowa

Posted on [June 3, 2013](#) by [kdawson](#)

We finished up last week with some exercises to get to know each other. The Myers Briggs test and ARG training helped us learn about each other and work together in diverse groups. It will be interesting to see what issues will come up within our groups and if we will remember what we learned from the first week to handle any conflicts.

Over the weekend we went to a ropes course. That was definitely the most terrifying experience of my life! There were several tasks that tested my fear of heights and required me to rely on my teammates. The good news is, nothing else we can do here will worry me as much as that course did and now I know I can trust everyone here to catch me if I fall-literally and figuratively. It's amazing how fast we are building relationships with each other.

Last night we began an unofficial programming course with Professor Strength and this morning we began our

actual programming class. So far we've been reinforcing things that I've already learned and covering some lingo that I didn't quite understand. We haven't gotten into anything too scary yet but I'm really glad we are using C++ in Visual Studios since that's basically my only experience with programing. I would hate to be starting from scratch here when everyone else seems to have so much experience. I'm still waiting to see how I will best contribute to my group.

## Friday!

Posted on [May 31, 2013](#) by [kdawson](#)

Our first week here is almost over! I can't believe how fast everything is happening! We are now able to find our way around without getting too lost. Yesterday we toured many of the facilities here, some of which our group has been approved to use. It's impossible for me to do those facilities justice. They really just need to be experienced. All I can say is that they transport you to whole different worlds. I was standing on the USS Reagan and then took of my glasses and was in a tiny little cube. So far everyone is excited about our research subject, cybersickness, because most people here have had some sort of experience with it. It seems that, even though our technology is really impressive, people still have trouble dealing with virtual reality and it can cause them to get headaches or nausea. We've participated in some user studies for projects that other people here are working on and in each one we were warned about the risk of cybersickness. I can't wait to really get to work on our project!

Next week we will begin our classes which are a huge part of why I came to this REU. As a Biomedical Engineering major I have spent a lot of time in Biology and Chemistry classes. I really want to strengthen my understanding of technology to be more useful to future employers. The technology I've seen here is the future! I've also been able to talk to people about grad school. Talking to students who made the decision to come to grad school and why they made those choices has really gotten me thinking about my own future. When I first started college I never though I would continue on the get a Master's degree but every day I become more and more sure that I will do just that. I've carried on for a bit here but I know I'm still leaving so much out. I'm just really excited about the opportunity that I have here!

## Orientation or Scare the Interns?

Posted on [May 30, 2013](#) by [kdawson](#)

Since coming to Iowa I've been warned to prepare for storms, tornados, and flooding. I've also been told than in two weeks we will all be completely overwhelmed. I'm more nervous than when I first got here and I was already pretty nervous then. Talking to the grad students yesterday helped. They're all really cool and we got to participate in some user studies which were AMAZING! It's hard to imagine that the things I'm learning now could one day lead to me designing studies like those. Everyone here is really nice. That's making it a lot easier for me to get comfortable here. I'm starting to feel like a cyclone!