Wrapping it up

📅 August 11, 2024   👤 Lydia Lonzarich

This is a really delayed final post, but I'm here now.

Last Friday was our last official day in the lab ☹️

We started our day by completing the post-REU experience survey. We did this same survey prior to coming to ISU, so it was kinda cool to compare my answers from before to now, and see how much I've learned and grown. At 10am, we met with the same woman we met with at the beginning of the summer to offer our reflections on anything regarding this research experience. She also brought up the concerns and expectations we'd shared at the beginning of the summer so we could give our opinions on how we addressed those concerns, or whether our expectations aligned with or contradicted our experiences. Afterwards, we had a goodbye lunch with all the other interns, mentors, and faculty. That was hard. It started as just a talk with the people around you type of lunch, and then came all the speeches. Eliot started, and then Aron, and Anjali, and Alex, and Michael, and Sarah and… all such sweet speeches. During the lunch, Heliya and Yvonne surprised each of us interns with a unique gift, along with a story to explain the gift. I received a bracelet making kit because I was known for making bracelets. I just used the beads the other day to make a bracelet! We also received the shirts we designed to represent our REU cohort. Ruby did the heavy lifting to make our design ideas come to life, and I love how it turned out.

After lunch, we all changed into our REU shirts, and went to take pictures by the C6. Then, we had to say goodbye to Andrea. It was getting real now that we were down one. At 2:45, we left the VRAC one last time to go return our bikes. When we got back to Freddy, we just packed, ate some dinner, and then later in the night, we all hung out in our room. We played a few games, and then just talked until we were all too tired.

Saturday was the dreaded departure day. Ruby left right away at 9ish, so that was sad. Our apartment felt too empty with her gone. Then, we all finished packing, cleaned, and I had to say goodbye to everyone around 1pm. Harrison, Rodney, Alee, Angy, and Chu-Chu all left for the airport together, so I was left behind. Walking back into Freddy and the apartment after everyone and everything was gone

was so sad. It was so quiet and dark. Ugh. I'm so sentimental (if you can't tell by now), so after everyone left I had to get out of Freddy and even just Ames because I kept reminiscing about every little thing, and thinking of all the memories that were made there in just 10 weeks.

Anywayss, I made it back home by 7:15, caught up with my family, ate some food, and went to bed. Of course, it's nice to be home, but also, the first few nights back were hard. For the past 10 weeks, my nights composed of either a knock on our door from Harrison or Rodney or whoever to come in, and we'd gather around our kitchen island to chat, or they'd ask what the plan was for the night, or us girls would walk upstairs, wrapped in our blankets (because the guys' room was always so cold) to play switch, watch GoT, or just talk for a while. I think it'll take a minute to adjust to being back from the whole experience after all of this because it was so impactful in so many ways.

To the people:

I couldn't have asked for a better group of people to spend my summer research experience with. First of all, everyone in the VRAC is amazing. Their apparent passion for their work, and their energy and work ethic is inspiring. That kind of environment was fun to work in because it sparked curiosity and motivated me to produce my best work. As a new intern stepping into the VRAC for the summer, everything was a bit intimidating at first, but the support and encouragement from everyone quickly alleviated that feeling. It seemed like everytime I asked someone a question, they would go out of their way to help me, which definitely helped me learn so much in such a short time span. I don't want to single certain people out because I'm so grateful to everyone in the lab, and loved working with and meeting everyone, but I need to give a shoutout to Anjali. She was a huge help with Unity, often staying late in the lab with me so we could get something working. I would not have been able to accomplish all that I did in the short time frame without her support and guidance. But more than just being a huge help on my projects, Anjali was such a good friend. She somehow always had this happy energy that would never fail to boost me up when I was stressed out or frustrated with my work.

As for the other interns, I have so much love for all of them. It's still so crazy to me how well we all got along considering we come from different backgrounds. I think part of what made these people so special to me is that they were all so genuine, and brought their own unique vibes and personality to the group. I loved how we could mess around and have fun with each other, but also have really intellectual conversations and get things done when we needed to. In a lot of ways, these people made me feel like a kid again – I could be myself, and still be considered and heard. I sometimes feel like a floater friend, meaning I have individual friends from different groups or I float between groups. This makes it harder for me to form those strong and, I guess more genuine, relationships, so it was really special to have formed that this summer. They're seriously like my second family.

Also, shoutout to the curiosity crew. Even though we had our challenges and setbacks, we were always able to get things done at the end of the day, and get them done well. Sophie and Harrison were great teammates – both such hard workers and dedicated to the work we were doing, which made the experience so much fun. It was lovely working with them throughout this summer.

So, although the research alone was incredibly impactful and enjoyable, these people really made the experience so memorable for me in so many ways.

To the research experience:

As for the research, to say I had fun and learned a lot this summer is an understatement. Before this summer, I always knew that I enjoyed math and computer science, but this experience – working with

LSL, Unity, VR, writing technical papers, and collaborating with others in these fields (and more) — solidified my desire to explore these fields further, and helped me recognize what I want my future to look like and how I can apply my skills and passions into a career. In other words, I feel like I've found a spark – something that gets me excited for my future.

I'm sad to leave the Curiosity EEG project because I've become so invested in it. The process of figuring out LSL, creating the VR Unity environment to run experiments in VR was so challenging, yet so rewarding. This project in particular – the work and time I put into it – was instrumental in not only helping me realize my desire to go to grad school, but also being able to now articulate *why* I want to go to grad school.

I anticipate going back to my normal undergrad routine – the tests, the papers, all that – will be an adjustment because it seems to be a different way of learning. From the taste of research that I had this summer, research seems to engage more of a creative side of thinking. I really loved having the opportunity to explore different avenues to solve a problem, and get creative in order to overcome challenges because there was no right / obvious way to do something. Yes, these are some of the things that made research so frustrating, but they're also what made it so rewarding. There was nothing better than the moment I saw the LSL stream with both the Muse EEG data and the event markers from Unity for the first time, or when we saw our Unity environment finally come together. But to get from the first steps to those wins, I had to accept that research isn't meant to be linear. In the beginning, I would beat myself up when I would have no physical progress to show for my days of work, but I had to realized that I was making progress with whatever I did, because I was – I would always walk out of the lab at the end of the day with more knowledge than I had when I walked in that morning. It took a while to get to this point though, because, for pretty much my whole life, adults have told me what to do, I'd do it, and then I'd get some sort of feedback telling me if I was on the right track or not. With research, you lose a lot of that structure, which sometimes made it harder for me to navigate where to start or where to go. I guess what I'm trying to say is that I learned how important it is to just jump in with an open mind. What you dedicate your time towards might not get you where you wanted, or it might just get you going in the right direction. Either way, you learn along the way, and that's something.

This experience also helped me identify areas where I can grow, or that I need to work on. Being in such a low-stakes environment, I had the opportunity to address these things, and experiment with strategies for improvement.

Along these lines, I gained invaluable insights about myself and just life in general. I've learned how to collaborate on a team more effectively, align my skills and passions to a career, write and present technical work, and think and act like a researcher. I owe the discovery and development of these skills to this summer REU. These people and this situation have challenged and inspired me to step outside of my comfort zone at times to grow and excel.

I feel like I'm walking away from this experience as a new person – more self aware, more curious, more excited for my future, and with so many new amazing people in my life.

Overall, I could not have asked for a better REU experience.

Also, I know the whole bit about writing blogs everyday wasn't favored by everyone, but I do think it was a really valuable aspect to this REU. It was a great opportunity for reflection. Taking that time to put my thoughts into words seemed to help me take more away from lectures, recognize my flaws sooner, and respond to my mistakes in a way that was more constructive than passive.

One final thanks to everyone who made this summer possible and unforgettable ! :))

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Wednesday & Thursday
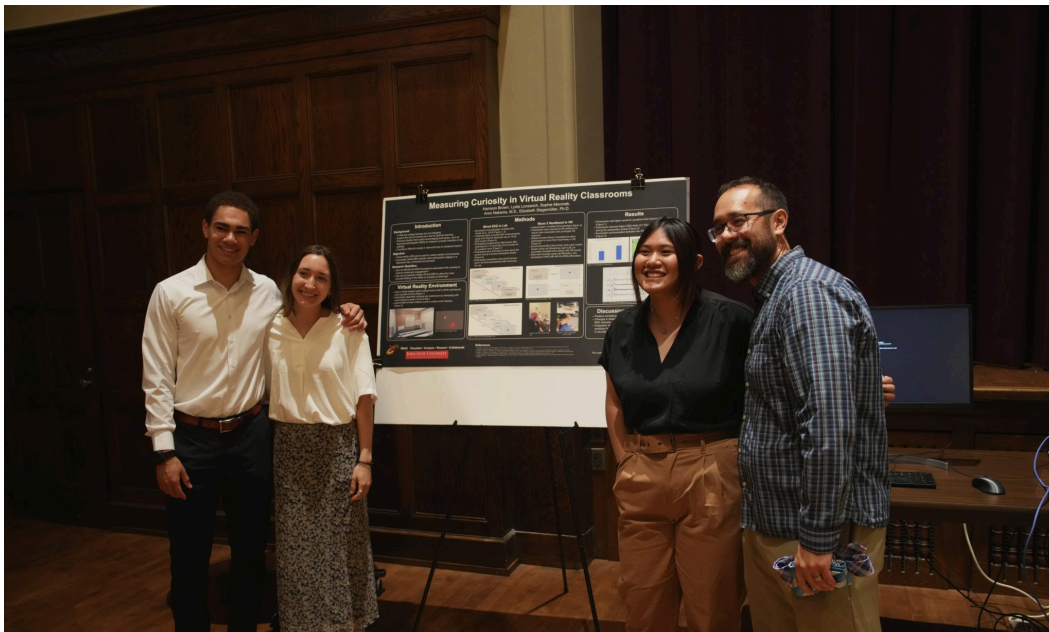
📅 August 2, 2024   👤 Lydia Lonzarich

I'm just gonna separate the past two days from today because I want to do a longer final reflection in a different post.

Wednesday was busy busy. Harrison, Sophie, and I finished our paper. Aron stayed in the lab with us pretty much all day on both Tuesday and Wednesday, and he was a huge help as he wrote our results and discussion sections in particular. It was a lot of work, but I'm content with how it turned out considering this was my first time writing such a technical research paper. After work, Andrea, Alee, Harrison, Sophie, Rodney, and I went to the gym one last time to rock climb. I decided to try a harder run than I had on Monday, and I made it to the top. It was a struggle though. I couldn't untie my harness once I got down. That night, we all got together to watch a movie called *Nope*. We wanted to watch a horror move, but Harrison and Rodney were too scared to do a real horror movie (boo) (lame) (bums), so we watched that. It wasn't bad, but I'm not a huge fan of sci-fi, so my review is probably biased. Also, it wasn't scary in my opinion…you would think I would be totally chillin during the movie then. Nope. Unfortunately, I was sitting between two jumpers and screamers: Andrea and Harrison. Everytime they jumped or screamed I did too. Lol. It was still fun to watch a move together though.

Yesterday was a doubly whammy: exit interviews and the symposium. If I could get away with never being interviewed again, I would be content. It's one thing to talk to someone – my friends or family or whoever – about my experience this summer, but its another to be in a studio, sitting in a chair with 3 cameras on you, and all the other interns watching you in the other room as you're being interviewed. I got through it, although, I'm nervous to see how it turned out. After the interviews, we walked to Memorial Union for the symposium. I was a little nervous for this event just because I had never been in that type of situation – presenting a summary of 10 weeks of work in just a few minutes over and over again. I was worried that I wouldn't be able to explain things clearly or well enough to make all the information make sense. The first few times were a little rough, but with practice, it got easier and I figured out a flow. The two hours went by super fasts too. We were also able to bring a demo over to the symposium thanks to the help of Glen and Alex. This way, we could show viewers what our VR experiment actually looked liked and how it worked. Once the symposium was finished, I showed my parents around the VRAC, and did a demo to show what Harrison, Sophie, and I have been working on over these past few weeks. I pulled up LSL to record the Muse stream and Unity event marker stream, Unity to run the experiment, and EEGLAB to visualize the data that we collected from the demo. After this, my parents got back in the car to head home, and I headed back to Freddy because Dr. S invited the Curiosity EEG team over to her house for swimming and dinner over the campfire. Her two daughters came out to join us during dinner, and it was fun just to chat all together for a bit. At around 8:15, we headed back to Freddy because all the interns and some mentors and faculty had plans to go to a park called Peterson Pits for a campfire. Last night was so fun. I'm glad we had that as kinda a last hurrah of the summer with everyone. Paul brought his flame torch which was so funny. So it was all of us interns, Anjali, her boyfriend, her dog, Hunny, and Mieshko. We made s'more's, chatted, and looked at the stars. They were so amazing last night. When we got back, we just went to bed because that was a long day.

Rock climbing on Wednesday. The two guys in the red are the belayers

The stars. The picture doesn't do it justice

Paul and his blow torch

A picture of our curiosity crew at the symposium

Last night at Peterson Pits

The stars. This picture is better

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Monday, July 29

📅 July 30, 2024   👤 Lydia Lonzarich

I'm back.

Week 10…I'm already sad thinking about leaving this Saturday 🙁

So much has happened since I last blogged.

On Thursday, I kept working on the Unity environment in the morning. After lunch, we had our event with CUNY, and they presented their projects to us. Their projects dealt with VR, so it was interesting to see what they've been up to. After the event, I worked on Unity again. I was able to figure out how to have the poke from the user's hand register as a trigger that would record the value of the cube they poked on. Yay. Once that was done, I put my 6 cubes on the table in front of where the participant will

"sit" in the virtual classroom environment. Now, when the participant pokes the cube, it will highlight to a orange color, the value associated with that cube will be appended to a list (I have separate lists for the question number, the curiosity rating, and the satisfaction rating), and the values in that list will be written to an Excel spreadsheet once the participant has completed all 60 trivia questions. That night, Harrison, Sophie, and I finalized our presentation for the CUNY event, and ran through it to make sure we weren't going to go too short or too long.

When I got into the lab on Friday, I started editing the poster that Harrison had been working on last week, and Harrison and I made some last minute tweaks to the classroom environment – adding labels to the cubes (1-6), changing the size of the cubes, that kinda thing. After lunch, we met with CUNY again, but this time, it was our turn to present. I think our presentation went well. It was honestly kinda fun to present because it felt like a good culmination of what we've been doing – especially because we had just made huge physical progress that we could talk about. After the meeting with CUNY, we talked with Aron about where we're at, and then let him demo the virtual environment. He seemed blown away, which was fun to see. I'm proud of our team for getting the whole VR setup and connection with the Muse headband done within the short time frame we had, because it definitely felt like an ambitious goal at first. Now that our virtual environment was done, we wanted to run an experiment so we could have data from the Muse & VR to put onto our poster. I volunteered to be the test subject, but unfortunately, we didn't actually get any usable data from me. Turns out, there was an error in the way the trivia was being presented, and none of my curiosity and satisfaction ratings were exported to the Excel file because I hadn't gone through the 60 questions prior to exiting VR. Also, I got the worst headache while I was wearing the Muse headband with the VR HMD. I think it must've been the way I had positioned the Muse under the headset, because when Sophie did it later, she didn't have that issue. It's probably good that we didn't use my data, because I was so distracted during the experiment from the headache.

After work, I went out to record my study abroad video application. 289348 tries later, and I finally settled on a video that I was happy with. Spoiler: I ended up retaking that video on Sunday anyways…

On Friday night, Rodney, Harrison, Angy, and I biked to get froyo and culvers with Sophie and Ruby. We were going to go stargazing but the sky was cloudy again. Lately, it's been like hazy-ish during the day and cloudy at night, so we haven't been able to see the stars that well.

Now that the CUNY presentations are done, we need to process and visualize the data from Friday's experiment with Sophie, submit our poster, and finish our paper. The end is in sight.

On Saturday, I worked on my study abroad application, went for a long walk around campus, and Angy, Ruby, and I sat outside in the "courtyard" at Freddy. Angy turned on some music, I made another bracelet, and we just chatted and chilled. It was toasty out though, so we didn't last long. At around 4ish, Angy, Rodney, Harrison, Andrea, Sophie, and I headed down to Ankeny, because the guys wanted to go to the trampoline park and the gals wanted to go shopping. The trampoline park was too packed apparently, so the guys ended up joining us. They had no interest in T.J.Maxx though, so they went off to eat food and keep themselves busy. After a bit, we texted them that we were done at the store, and they replied saying they'll head over to us. Maybe 5 minutes later, they appeared as if they'd come back from building a house. I'm not even joking. A lot of things those two do doesn't surprise me, but that was an exception. Please stop reading and go look at the picture so you see what I mean. They had two planks of wood, like 30 or 60 ft of bubble wrap, 1 construction hat, and a patch of grass the size of a hand. They told me that they were gonna buy me a shelf as a thank you for the driving that I'd been doing, but they decided not to…so inconsiderate…

After shopping, Angy, Rodney, Harrison, and I drove south a little more to get dinner at a Mexican restaurant we found. It was pretty good. I enjoyed my chicken fajitas. On the way back, we all made the last minute decision to take a detour to High Trestle Trail, which is a 25 mile trail that runs through Iowa, known for its LED-lighted bridge. By the time we got to the trail, it was around 10pm, so it was dark, and we had to walk on a trail in the woods with no lights besides our phones for ~10 minutes to get to the bridge. We made it though – just a little scary. The stars were beautiful though. The bridge itself was what you'd expect of a bridge with LED lights, but it was still fun, and I'm glad we went.

Once we got back, we all hung out in our living room, and (somehow) ended up watching Harrison and Rodney play with the wood slabs. I don't really even know how to explain what they were doing in words. We all had to put on our bike helmets and hold pillows over our heads to avoid getting bonked by the wood slabs that they'd drop. Luckily no one was hurt.

On Sunday, I woke up kinda late, and then I met Sophie and Harrison at the VRAC to finish our poster. I'm happy that we were able to get data from the VR experiment onto the poster. After we finished, I finally submitted my study abroad application, and then I watched some of the olympics. Table tennis was on, so I had it playing in the background as I made my dinner and chatted with Ruby and Angy in the kitchen. Our upstairs neighbors were making it sound as if there was a murder taking place, so the three of us went upstairs after a while to see what the commotion was about. For anyone curious, they were just playing Super Smash Bros. We ended up staying to play this one video game board game on the switch, and I actually won for the first time ever. The last time I got close to winning, Chu-Chu sabotaged me by stealing my "points". After a game, Angy, Rodney and I hung out for a little bit and then I went to bed.

Today felt long, but also short at the same time. I feel like I didn't make much physical progress, but I still got a lot out of today's discussions with the team. Aron came in right away in the morning until 4ish to help us with anything that came up as we finalized our poster, and worked on the discussion and results section of our paper. The goal was to get a draft of these two sections done by tonight so we have time for rounds of revision before we submit it on Wednesday afternoon. Dr. S also came into the lab today, so we could share with her what we've accomplished, and give her a demo of the VR classroom we created. We hadn't chatted with her about our progress for a while, so we had a lot of ground to cover with all the LSL and VR stuff.

After work, I went with Andrea, Alee, Rodney, and Sophie to the gym to go rock climbing. There was only 1 guy to billet for the five of us, so I only went once with the harness, and then went on the bouldering wall for the rest of the time. The bouldering wall looks like the rock climbing wall, except you have no harness, so you just climb and try not to fall as you get to the top. I ripped up my hands kinda bad, but it was actually a lot of fun. I'm mad at myself for not going with Andrea and Alee sooner because they normally go twice a week. When I got back to Freddy, I ate dinner, and then Harrison, Sophie, and I continued to work on our paper.

Rodney and Harrison walking back to my car with their Home Depot finds

The view from the bridge on the trail. It wasn't actually that light…

The sky when we were out on the High Trestle Trail

Rodney made a massive straw at the Mexican Restaurant

Exhibit A: Saturday night events

Angy and I on the bridge

Dr. S trying out our VR experiment

Exhibit C: Saturday night events
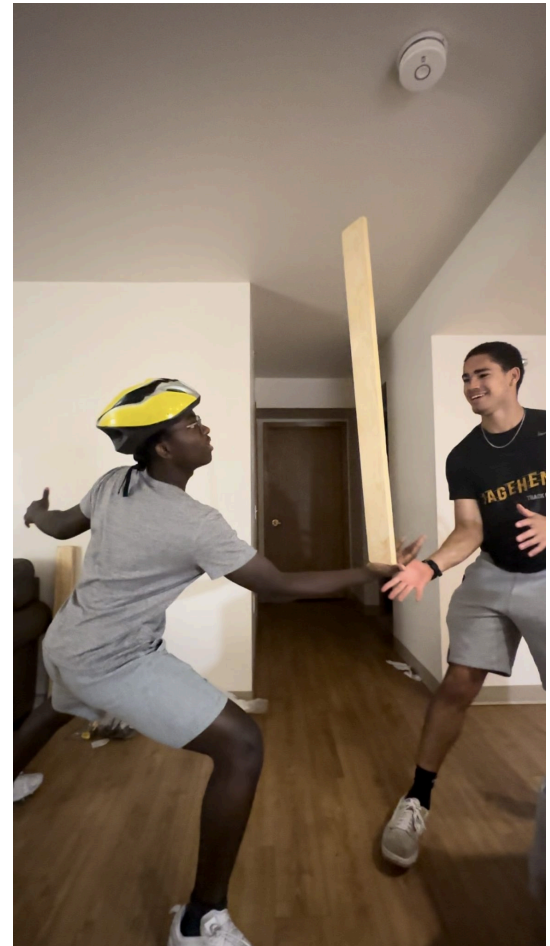
Exhibit B: Saturday night events

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Wednesday, July 24

📅 July 30, 2024   👤 Lydia Lonzarich

Whoops. I meant to post this blog last Wednesday.

Wednesday was a long and tiring day. My focus was pretty much just on the Unity environment. I wanted to figure out the box interactables for participants to use for entering their curiosity and satisfaction ratings during the experiment. I chose to approach this in kind of 2 parts: first I wanted to get it working with the controller (the participant can point the controller, a ray would appear, and they can click the trigger on the controller to make their selection), and then I would get it working without the controller (the participant's hands would be recognized by the headset, so they could to poke the cube corresponding to the rating they wanted to select) The first part was pretty similar to what I did during deeper dives in the hiking simulation, so that helped. The thing that I got stuck on in the afternoon was writing the ratings out to an Excel spreadsheet. It was so frustrating because sometimes the file would be written, and other times it wouldn't, and it took me a while to figure out the issue. Once

I figured that out though, I noticed that, out of the 3 cubes with different ratings that I had in my scene, only 1 rating was being written to the spreadsheet. Anjali was helping me at this point, and she had a brilliant idea that solved this problem. Immediate relief when this worked. After we established the controller interaction bit, we moved on to the hands. The issue I was having was that the cube wasn't registering the poke from the hands. Finally, we were able to figure this out though, and then I called it a night.

At 10am, we also had our last ethics class with Eliot to talk about data falsification. We spent some time on a specific case with a "celebrity" professor who was accused of data falsification, but sued the accusers because the accusations ruined her career and reputation. It was an interesting discussion because there's so much going on behind the scenes that makes it difficult to take one side over another. After class, I kept working on the Unity stuff that I talked about above until lunch, and then worked from 2 to 8ish. That sounds so long, but in the moment, the time went by so fast because I felt so close to getting somewhere, so when I made progress, I didn't want to stop moving.
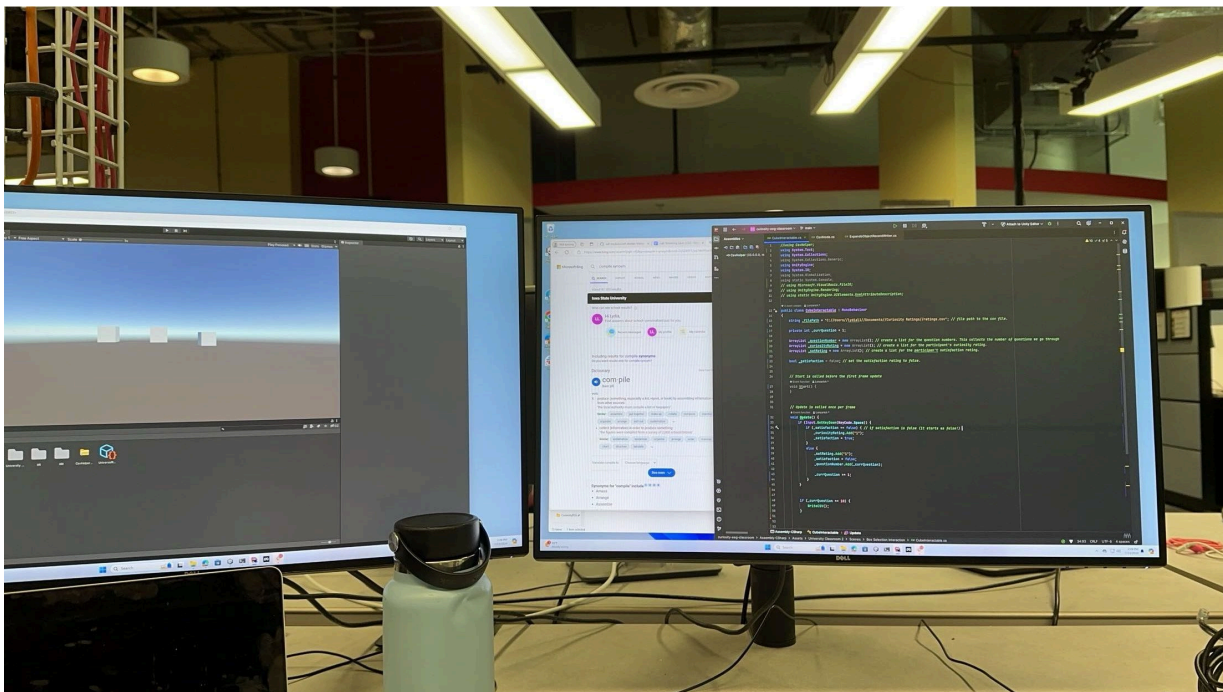
My home base last week. The screen on the left is what appears in VR with the headset. You can see the 3 cubes I have in there for testing purposes. The screen on the right is the C# script that I was making. This script will be attached to each of the 6 cubes, and establish their intended functionality

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Monday, July 22 & Tuesday, July 23

📅 July 23, 2024   👤 Lydia Lonzarich

Lil weekend recap:

Saturday was pretty quiet until 4ish when the guys came downstairs practically begging us to go to the trampoline park 35 minutes away. We all kinda wanted to do something, though, so we settled on mini golf and dinner. Mini golf was fun, and then we stuck around at the same place to play arcade games for

about an hour. Afterwards, we had a really good dinner at a local Mexican restaurant that's been recommended by so many people here. When we got back to Freddy, we just played some mario kart and another game that I don't remember the name of. Sunday was a work day for me. I made some really exciting progress on the LSL stream stuff: I'm able to record the event marker stream from the VR HMD and the EEG data stream from the Muse headband simultaneously, so I can then visualize the EEG data with the event markers on the plot. After I got that figured out, I headed back to Freddy and just relaxed for the rest of the night.

Yesterday was frustrating. I spent the 3 hours in the morning and 2.5 hours in the afternoon split between trying to connect the VR headset to the computer (because it'd been disconnected over the weekend), and trying to figure out how to use a package for writing to a csv file from Unity. I was at a loss with the VR headset for a minute, because I had completed the setup how I had previously, and it seemed like I had tried everything. Rodney came over at one point with a different headset for us to try, which worked, so then I plugged in the other headset I'd been working with, and it decided to start working. It's still a mystery as to why it started working, but it works now. By 7, the package that I'd been tinkering with for Unity still wasn't working. I still don't understand why, so that is today's battle.

We also went to the EEG lab yesterday to conduct our second pilot test. Some of the changes we made to the paradigm and protocol seemed to make the trial go smoother than it had on Friday, so that was good.

Last night, when I got back, I made dinner, and then Harrison and Rodney came down to our room, and we just ended up chatting until 11:30ish. I love those kinds of nights because they're chill but so fun. Ruby also made buckeyes – the chocolate and peanut butter truffles – so those and being around everyone made my night.

Today I had a lot to do. I started working on the Unity environment – I'm trying to finish the box interactions so that the user can select a box to rate their curiosity for the answer to a trivia question, and their satisfaction to the answer to a trivia question during the experiment. The tricky part that I was working on yesterday, and that Sophie and I are working on today, is to figure out how to export the value of the selected box to an excel file. It sounds so simple, but the two packages that we've tried to use for this task are giving us trouble.

Anjali also showed me how to enable hand tracking, so the user doesn't even need to use the controllers for this box interaction. This is really cool because now we can hopefully make the classroom environment and experience more realistic and immersive for the participant.

At 11, Dr. Elena Cotos met with us for the lunch and lecture. About half of her lecture was spent on her own research and background, which focused on linguistics, and the other half was spent giving advice for approaching and handling grad school. It's neat that so many of the people who come in for these lunch and lectures spend time giving advice and insight about grad school, but there's always something new that I take away from them.

After lunch, I kept chugging along with the classroom environment. The interactive boxes are taking me a lot longer than I had hoped, but I'm making some progress. Ideally, we'll finish the whole classroom environment by Thursday morning so we can run a pilot test and collect data from the VR and Muse before we submit our poster on Friday. Ahhgh there's so much to do.

After work today, we had a pasta making session with Eliot. It was a lot of fun to go through the whole process, and the pasta turned out so good and fresh.
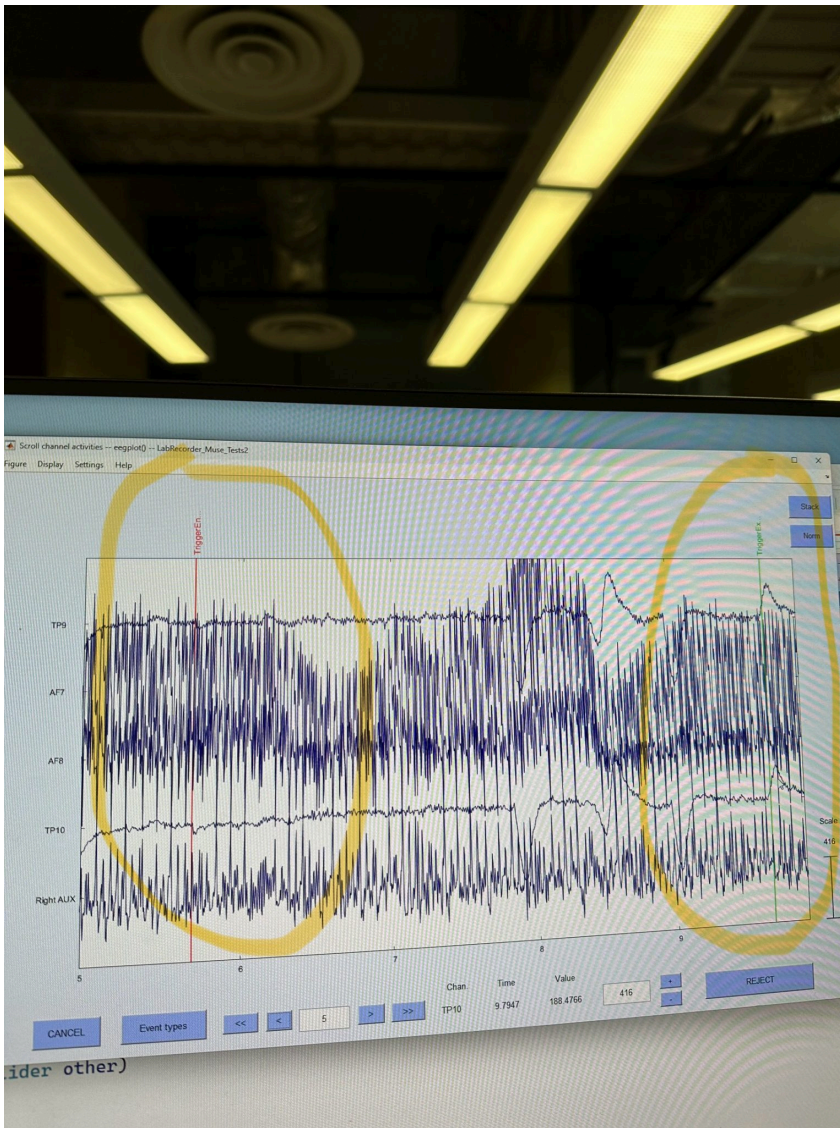
These are the pasta bowties that I shaped tonight

Rodney graciously doing all of our dishes last night… he's welcome down here any time now

This is what we see when we plot the LSL streams. The blue is from the EEG headband (Muse), and the vertical lines labeled 'Trigger enter/exit' are the event markers from Unity

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Saturday, July 20

📅 July 20, 2024   👤 Lydia Lonzarich

Thursday morning, we had HCI class with Amanda. Afterwards, Jack Miller came to talk with us for the lunch and lecture, which I found really insightful. He talked a lot about the potential avenues to take post-grad, highlighting the differences between a master's and a PhD, as well as between industry and research careers. He emphasized the fact that going after a master's or PhD will open so many more opportunities, not just because it'll make you look good on paper, but also because the skills you develop are the skills that employers value, and will help you stand out in hands-on, application settings. Jack also talked about his position at Mayo Clinic as an engineer working with XR. It was really cool to hear about his role and what he does because, like I've said, I have an interest in the medical field, but it was hard for me to see how I could weave this interest and my interest in computer science into a profession.

While he was talking about his job, he brought up a really good point about the difference between industry and research for his role specifically: As a researcher, you're integrated into the hand-on projects, and you can understand what is best for a case, and for those who will use your contributions and ideas. Companies, on the other hand, will more likely offer conceptual ideas that may seem helpful in theory, but are really just an added interference to solving the problem or making improvements.

After the lunch and lecture, Sophie, Harrison, and I each split up to work on separate parts of our project. My job for the afternoon was to figure out the Lab Streaming Layer for the Muse headband side of things. Like I said in my last post, we were able to get an LSL stream of event markers from Unity, but we also needed to get an LSL stream of EEG data from the Muse headband. This was way more complex than I thought it would be because there are so many pieces that need to work together. First, I had to download an app called BlueMuse that allows you to stream EEG data from the Muse headband over LSL. Then, I had to download a program called LabRecorder to capture and record that EEG data stream. LabRecorder will save the recording as a file type that can then be read by a package called EEGLAB on MATLAB, and analyzed to produce a plot. A majority of the headache was just installing, downloading, and managing the packages and apps and programs and…, but it also took me a minute to figure out how to get them to communicate with each other. I ended my day with a success though because I could finally see the LabRecorder and BlueMuse windows on my screen. I didn't have time to connect and record my own data with the Muse though. Sorry that was a lot of detail lol.

At 5, we all headed to the food science building to make baklava with Heliya and Yvonne. Heliya shared her amazing recipe and baklava-making-strategies, and it ended up being a lot of fun. I've only ever had the Greek version of baklava, so it was interesting to see how else they're made – like these had a lot of saffron and cardamom which gave them a really unique and yummy flavor.

Later that night, Andrea, Ruby, Harrison, and I finallyy finished season 1 of game of thrones. It's funny that we thought we would be able to finish all 8 seasons by the end of the summer at one point. Oh well. I don't think I'll keep watching the rest of the show, but it was fun to watch it together this summer.

Yesterday, we had all day to work on our projects. I started working with the LSL again, and I was able to record and plot EEG data from the Muse while I was wearing it. WOO. After I got that figured out, Anjali and I spent a good amount of time trying to connect the VR headset to the unity environment…turns out we were using the wrong cord all along…ugh. The next step is to finalize our unity environment so we can start using it for testing purposes. After lunch, Harrison, Sophie, and I went over to the EEG lab to run our first pilot test. Unfortunately, the data we collected doesn't look usable, but we have 3 more pilots to run next week, so hopefully those go smoother.

Making baklava

Two
Bambi's I
saw on
my bike
ride
yesterday

The final product

HCI Assignment: Decision Making

📅 July 18, 2024   👤 Lydia Lonzarich

Heuristic: Familiarity: when people make decisions based on things, people, and places that are more familiar to them

Design principle: Design a study involving components that the intended participants can either relate to or feel familiar with.

Design in the curiosity EEG project: Formulate trivia questions to be about topics that the participant enjoys and is familiar with. However, this doesn't mean that each individual question should be about something that the participant is familiar with, because that would affect our data. Instead, some of the general topics that a question falls into should be something that is familiar. For example, if the participant is familiar and interested in animals, we'd give participants some questions about animals.

Heuristic: Affect: when people make decisions based on their emotions

Design principle: Use stimuli that will elicit a neutral response

Design in the curiosity EEG project: Develop a testing environment that is engaging but not overstimulating, promotes positive moods, and reduces stress and anxiety. We could also ensure that the trivia questions are inclusive and respectful of participant's beliefs.

Heuristic: fluency: when people make decisions or judgements based on how well the information or idea is conveyed.

Design principle: Ensure the study is in a consistent and easily readable format, and the flow of the experiment is logical and consistent.

Design in the curiosity EEG project: Formulate trivia questions that are easy to read and don't include too many obscure words or phrases. Also, present the trivia questions with a very readable font and large enough text size.

📁 **Blog Posts**   💬 **1 Reply**

Wednesday, July 17

📅 **July 17, 2024**   👤 Lydia Lonzarich

This is going to be a really long post…there's a lot to catch up on

On Friday, not much happened. Harrison, Sophie and I worked on our abstract and literature review. I was hoping to accomplish more for our project, but it's okay. We're still learning how to collaborate efficiently on this research project. We've quickly come to realize that working on a team to do research for the summer is much different than working on a team to make a presentation for a week because there's no right way to do things and the end can seem so far away at some points. After work, I went for a bike ride around campus and a nearby trail to get outside. I forgot how much I enjoy going on bike rides, and how peaceful they can be.

Friday is when I really started to feel stressed from all the things we need to get done in a few weeks. That night, I think Rodney picked up on my flustered/stressed vibe, so he and Angy sat down with me in our kitchen to talk about my project and just think about ways to keep things moving. It's so interesting, and also funny, to see the different types of workers here. You have the people who stress out about things that maybe don't need to be stressed about, and then you have other people who bring you back to reality.

On Saturday, we all went to Des Moines for the day. We made it into town around 10, and went straight to the farmers market. I found some sourdough (yay!), a really good cinnamon roll, and some more tomatoes. After the market, we went to Gray's lake to lay out in the sun. Angy and I went swimming, which felt so good because Des Moines was under a heat warning. I feel content now that I've had a beach day. Back home, beach days were a staple during the summer, so I've been deprived. After the beach, (sorry, "beach", according to the people from the coasts…), we went to get ice cream. I got a mango sorbet and coconut, and it hit the spot. Very refreshing. When we got back to Freddy, we all showered, Harrison and I made caprese salad with some of the tomatoes that I picked up at the market, and then we walked to a park nearby to have a grill out dinner. We grilled corn and hotdogs, and then had a random lineup of sides. The night would have been more enjoyable if the mosquitoes weren't

there with the intention to absolutely kill us. I can't even tell you how many bites I have on my legs and back. Oh, also, I caught my first firefly :0. Harrison tried to take a picture of me holding it, but he was always too slow, so I kept trying until I finally gave up on his camera skills after 4 fireflies. So we'll blame Harrison for not documenting the big moment. That night, we also decided to finish watching the movie that Harrsion, Ruby, and Andrea had started the night before called Pulp Fiction. I was so tired by the time we sat down though so I was snoozing through most of it.

On Sunday, most of us just did work for our projects. I made some progress on the communication between the EEG headset stream and the VR stream from Unity. For context, the plan was to use something called Lab Streaming Layer (LSL) to sync the EEG data stream from the Muse 2 headset and the event markers stream from Unity because LSL comes with packages that can collect and analyze those streams. The question was then, how can we get that stream from Unity. So, I found a package called LSL4Unity that allows you to create an LSL stream from an event that occurs in the Unity scene. More specifically, I was able to output event markers every time a sphere collided with, or entered a cube and every time the sphere exited the cube. The LSL stream from Unity could then be synced with the LSL stream from the EEG headset using something called LabRecorder, the default program for recording and syncing streams in Matlab. That night, Harrison and I also got a good start to our methods section for our research paper. Overall, I'd say it was a pretty productive day. It felt good to make some physical progress on the VR-EEG headset communication.

On Monday morning, we worked on our presentation for the event with CUNY next week. Then we switched gears to work on the stream from Unity. We ran into some difficulties, though, because I wanted the event markers from Unity to show up on MATLAB instead of just the terminal, but the version of MATLAB wasn't compatible with the version of python we were using. At around 10:30, Aron came so that we could touch base on everything that happened this weekend and discuss future directions. This was a really productive meeting because we came up with a new way to line up the EEG data stream with the event marker stream that seems more feasible to complete in our time frame. Something I've had to learn this summer is that my contributions don't have to be groundbreaking to matter; that it's okay to start small and build from there if that's what gets you moving. In our situation, we just don't have enough time to make everything work perfectly and efficiently, but if we can get some results, even if it's manually lining up the two streams, for example, that's progress in the right direction. Also, something cool: we were finally able to take a look at the data we collected from the Muse, and we saw that there are blink and jaw events recorded at certain times. Woah. This changed the game. We immediately pulled out the Muse headband again so we could test to see if the time at which the participant clenched their jaw was delayed from the time at which it was marked as an event in the output file. Turns out it's not! From here, we think we can have the participant clench their jaw at certain times during the experiment to help us line up the two streams correctly and ensure they stay lined up. After lunch, Stephan gave a talk on how to apply to grad school. This was really helpful because, while I knew it's different from college, I didn't really understand how. He also gave some advice on what to look for and how to look for those things. That night, a few of us went bowling because it was only $1/game, and we'd been meaning to go for a while.

Yesterday morning, we met all together with Yvonne and Heliya from 9-11 to practice our presentations for the CUNY event next week. They gave some really great advice to help make our presentation stronger. Afterwards, Alex spoke with us during the lunch and lecture. He shared his life, starting from undergrad, to what he's up to now. After lunch, we met with Aron to chat more about our plans for these next few weeks. Last night, Harrison, Ruby, and I finished watching The Inventor: Out for Blood in

Silicon Valley, a documentary we were asked to watch for our ethics class. It was really interesting, but also scary to see how far manipulation and lies can get you in Silicon valley specifically.

This morning, we had ethics class with Eliot. I honestly really wish we had more time in this class, because I'm really enjoying the conversations we've been having. The rest of the day was spent working on the functionalities that we want to implement into our Unity scene, and more work with the streams. A few setbacks and roadblocks today, but we did get some things done, so it was an overall good day.

I just thought this picture was pretty. I took this during my bike ride last Friday

At the beach

Gray's Lake in Des Moines

The ice cream shop. I love all the plants

The grill out at the park near Freddy

At the farmers market

Just for context, this is what the event marker stream from Unity looks like

Bowling on Monday night

Thursday, July 11

📅 July 11, 2024   👤 Lydia Lonzarich

This morning, we started with an HCI class with Yvonne. The focus of today's class was decision making, and how things like heuristics and biases can influence our decisions. After class, Dr. Adarsh Krishnamurthy talked about his research and interests during the lunch and lecture. His background is architecture and engineering, so while some of what he was talking about was unfamiliar, I could pick up on things and found his work with neural networks and 3D printing really interesting.

After the lunch and lecture, Aron came to the VRAC for a bit. The first thing on the to-do list for today was to get back to figuring out how to analyze the EEG data that we collected from the 64-electrode cap. I think EEGLab is the way to go for this situation because it's much easier to use for our purposes than the scripts from the GitHub repository, and we think we might have found a way to plot decent looking graphs. Next, we wanted Aron's guidance for writing the abstract of our paper because we realized we need to have it done by tomorrow night at the latest. After hashing out some of the writing details, we headed over to the EEG lab to test the trigger system. The trigger system is how we will send event markers to the file that is collecting and recording the brain waves, and these event markers will be at specific points in the experiment. Getting this to work was the last bit we needed before we could start collecting real pilot data, and it's been causing us grief this whole summer, but it works now!!!! Hooray!!

I think tonight will be a chill night. Quieter nights have been more common this week because the workload is definitely picking up for all of the groups. These past few nights, by the time I get back from the gym and shower, I'm ready to pass out.

lol. documenting my perfectly un-bubbled squeegees of gel 😌

Aron's brain waves the moment we found out the trigger worked (context: normally, at rest, the whole screen would look like the bottom bit of signals)

📁 **Blog Posts**   💬 **Leave a reply**

Wednesday, July 10

📅 July 10, 2024   👤 Lydia Lonzarich

Last night, Sophie, Harrison, and I started our literature review draft. Writing this paper is starting to feel like one of the harder things we've had to do this summer as a team because we all have different writing styles. At first we tried to just talk all together, and I would write the ideas down, but we quickly realized that wasn't going to work when we spent about half an hour on 2 sentences. Instead, we decided to divide and conquer, so each of us took responsibility for writing 2 sections from the outline, and then we'd come back together later and make adjustments as needed.

Today we spent our morning working on our literature review, going over what each of us wrote. I think this worked well, and we were able to compose a rough draft. It needs work, of course, but it's

something. I feel like this experience, especially this past 24 hours, has highlighted things that we need to work on as a team. I know little hiccups are bound to happen during team projects in a faster paced environment, but what matters is that we all want to figure out how to work together better and communicate more efficiently.

After lunch, we went to the EEG lab with Andrea today because she was willing to get hooked up to the machines for our experiment. We saw the cleanest looking signals since we started this process, so that was pretty cool. We're still having some IT trouble though, so we're not yet at a point where we can start collecting pilot data (as opposed to test run data). Time is becoming more of a concern now, because we need to keep rolling on other things, like analyzing the EEG data and working with the Muse headset and the virtual environment.

When we got out for the day, I headed to the gym for a little bit, and then later tonight we're going to go get froyo because it's $5 fill your cup day!!

📁 **Blog Posts**   🗨 **Leave a reply**

Tuesday, July 9

📅 **July 9, 2024**   👤 **Lydia Lonzarich**

We're back in the lab.

Quick little recap of the long weekend:

On Friday, we didn't do much until night time. Harrison taught Rodney, Ruby, and I had to play a card game called spades. I enjoyed it. You had to play in teams, but it's not really playing in teams because you sit across from them and you're not allowed to talk. You just need really suggestive facial expressions?

On Saturday, Angelic had to deal with something at a bank near Des Moines, so we decided to just make a trip out of it and go to the Des Moines farmers market. Unfortunately, by the time we got downtown, the market was about to close. On the bright side, I was able to find some tomatoes and zucchini, so I'm looking forward to using them for my dinners. After the market, we walked to check out the state capital. The colors and architecture of the building was so pretty. Later in the day, Kate and Anjali took Chu-Chu, Andrea, Alee, and me out to dinner as a celebration for finishing deeper dives. It was fun to hang out with everyone outside of the lab and eat some good food.

I spent my Sunday morning outside – I went for a long walk around campus, and then sat outside in the sun and made some more beaded bracelets. I superglued the knots this time so they don't break like the last two have :(. In the afternoon, Sophie, Harrison, and I tried to tightening our literature review outline. We haven't had time to write the draft yet because of everything going on, and just being pooped, but I feel a lot better about it now. Aron invited us over to his house for dinner Sunday night, which was a lot of fun. His family was so nice and welcoming, and the food was amazing. After eating, we played some basketball and volleyball inside and then went inside to play MarioKart for a while. I think I'm finally getting the hang of playing on the switch, so watch out.

Yesterday was our first day not having class outside of the normal craft of research session. At 9, we met with Yvonne to talk about poster presentations, and start thinking about what kinds of things we want to put onto our research poster. We had 15 minutes to create a 3 minute "elevator pitch" about our research title, methods, results, discussion, and future work. This process of putting together everything

we've learned so far, and verbalizing our thoughts was really helpful because it helped me understand our project better, and also made me realize how many questions I had. After the class, Aron came to the lab to talk with us about a lot of stuff. Each of us had a lot of questions for him regarding our lit review, the goals that we can achieve by the end of the summer, programming, etc.. I feel like the research goal is much clearer after meeting with Aron because I understand how our study for the summer adds to what other researchers have been working on and why the communication between the VR HMD and the Muse 2 EEG device will offer significant differences from what we've been doing in the EEG lab. In the afternoon, Harrison and I spent a few hours working on MatLab to analyze the data we collected in the EEG lab…we weren't having much luck and just getting a little loopy, so we had to call it a night.

Today, Harrison and I got right back into working on MatLab. We asked Eliot for a little help, and he was able to guide our approach to solving our problem. Turns out, the scripts we were using could not process the file type that we had because, while they both came from .edf files, the scripts were for 32-bit files, but the file type we have is 24-bit (strange). We found a different method to analyze the data though, and Aron says the output we got looks promising. At 10, we had a really engaging ethics class with Eliot, and then Merate Brakat came to talk with us about her research for the lunch and lecture.

After lunch, Harrison, Sophie, and I went to the EEG lab to run another trivia experiment with the 64-electrode cap, and tonight, we're going to start our lit review draft.

Questions for other groups about their mini poster presentations from yesterday:

- Comm heat: How do you plan to analyze how effective the app will be in different populations?
- Stem XR: Do you expect some students to have a hard time learning the information on top of learning how to use and maneuver in VR, and how would you handle this?

Pretty flowers at the farmers market

Inside the capital

On my Sunday morning walk

So locked into the MarioKart game at Aron's house

📁 Blog Posts   💬 1 Reply

Friday, July 5

📅 July 5, 2024   👤 Lydia Lonzarich

So deeper dives are officially over. Wednesday was a whirlwind. Right when we got into the lab, Andrea, Chu-Chu and I all got to work. We had some last minute things to finish up for our virtual environment, and then we worked on our presentation. We were able to do a full runthrough at 11ish so that Kate and Anjali could give us some feedback. I'm really glad we practiced because we found quite a few things that we wanted to change or add. Then it was really crunch time because we had to make these changes and additions and then practice more with those changes all before 2. I don't think we finalized our presentation until like 12 minutes before we presented. In the midst of all of this, of course we were all arguing about who was going first, but we settled on a game of rock paper scissors between one person from each of the deeper dive groups. Our team rep, Anjali, took one for the team and WON. woo. So we got to go first.

Even with all of this busyness, I'd say our team did well. It felt like a good end to our deeper dive project. We presented for most of the 30 minutes, gave a quick demo, and then had a few minutes for questions. I also really enjoyed hearing about what others have been up to over this past week and a half. It's really cool to see how far we've all come in such a short time. Like for me, just thinking about how much I've learned, especially about XR, and how I can speak all these new languages, give a presentation on a specific topic, and have something to show for it. It's a really cool feeling.

The presentations wrapped up by 4, and then most of us were let out for the day. I headed to the gym for a bit, and then Ruby, Harrison, and I decided to go to the rec pool to meet up with Rodney, Chu-Chu, and Micah and Rim who are two other interns from another REU here at ISU. We ended up playing water basketball. I swear everytime we play it just gets more and more intense. Harrison walked away with red scratch marks all over and I inhaled so much water. Rim had a good technique though: just splash Chu-Chu and Harrison so they would either retreat or miss the ball. It's what they get for being too tall and playing over us.

On Wednesday night, we went to the firework show here in Ames. I still don't really understand why they're on the 3rd of July, but it was still fun. We walked there from Freddy, set up camp on the grass, ooh-ed and ah-ed for 20 minutes, and then took a long detour walk back to Freddy. We also met a guy named Max on our way to the show. He's another REU intern here, but his group apparently doesn't hang out, so he came along with us for the night and he was really chill. After the fireworks, we just played some games – the usual –and then went to bed.

Yesterday, Ruby, Rodney, Harrison, Angelica, and I went on a hunt for food. We weren't really thinking because we tried to go out at 12, so every place was either closed for the 4th, busy, or no longer served breakfast. But we found a place. After eating, we went to pick up some fireworks for the night because I feel like you have to at least do have sparklers, and Rodney wanted something fun. A little bit later, we all went out to watch Inside Out 2 at the theater. I thought it was fine. I definitely liked the first one better because it seemed like it had more to it; like it was more complex. After the show, we went to get food from a sushi place and then went back to Freddy to eat. We did the fireworks a bit later when it got dark, and then played some games to end the night.

Rainbow after the movie

Sparklers 😮

Pool

Fireworks on Wednesday night

📁 **Blog Posts** 💬 **1 Reply**

Tuesday, July 2

📅 July 2, 2024 👤 Lydia Lonzarich

How is it already July already. This summer needs to slow down

This weekend was chill, but also productive. On Friday night, we all got together to play some games.

On Saturday, I went to the library to finish my HCI assignment, and then met up with Andrea and Chu-Chu in the lab to figure out what we wanted to talk about in our presentation for our deeper dive, and how we would distribute slides. Andrea and I stayed a bit later to figure out how to make each of the

placeholder cubes in the VR environment have the same functionality as the original cube (turn color when the user hovers over the object and have a pop-up window appear when the user selects the object and disappear when they click the exit button on the window). It was a tedious process, but now that it's done, I just need to import the unity assets for the flowers, plants, and animals, and replace the placeholder cubes with those assets. After I finished for the day, Rodney and I walked to a grocery store to get some ingredients for dinner. The plan was to go out to grill burgers and hot dogs, and then build a fire and make s'mores at a beach or park somewhere. It was a little late by the time we got back though, so we ended up just cooking dinner in the apartment, eating outside, and then going to a park nearby to cook the s'mores.

On Sunday, I went into the lab again to finish my slides for the presentation, and then we spent our night just sitting on the couch talking for a few hours.

Yesterday was a long day spent working on our VR environment. Chu-Chu and I spent the whole morning importing assets into the environment…it was not as easy as it seems. And then in the afternoon Chu-Chu continued importing animal assets while Andrea and I worked on the presentation flow with Kate. It was tricky at first to figure out how to tell the story of our project from what we learned in the articles. I was probably overthinking it, but I was having a hard time distinguishing between the information that should go in the intro versus the background. After working on the presentation for a bit, we kept working on the Unity scene. The hovering feature that was working on the cube didn't work on the plants and animals, so instead, we're adding a box that will light up above each object so the user can see where interactables are better. I think we're seeing the end though, there's still so many things we could improve or add, but time is proving to be a constraint. Those things might be a project for after this deeper dive.

Today we had another HCI class with Stephen, and then talked with Kimberly Zarecor. Kimberly shared a lot about her research, which involved small towns in Iowa. Her architecture and art history background made her talk really interesting to listen to. Later today, we'll meet with Aron, and then hopefully finish our VR environment and do a lot of practicing for tomorrow's presentation.
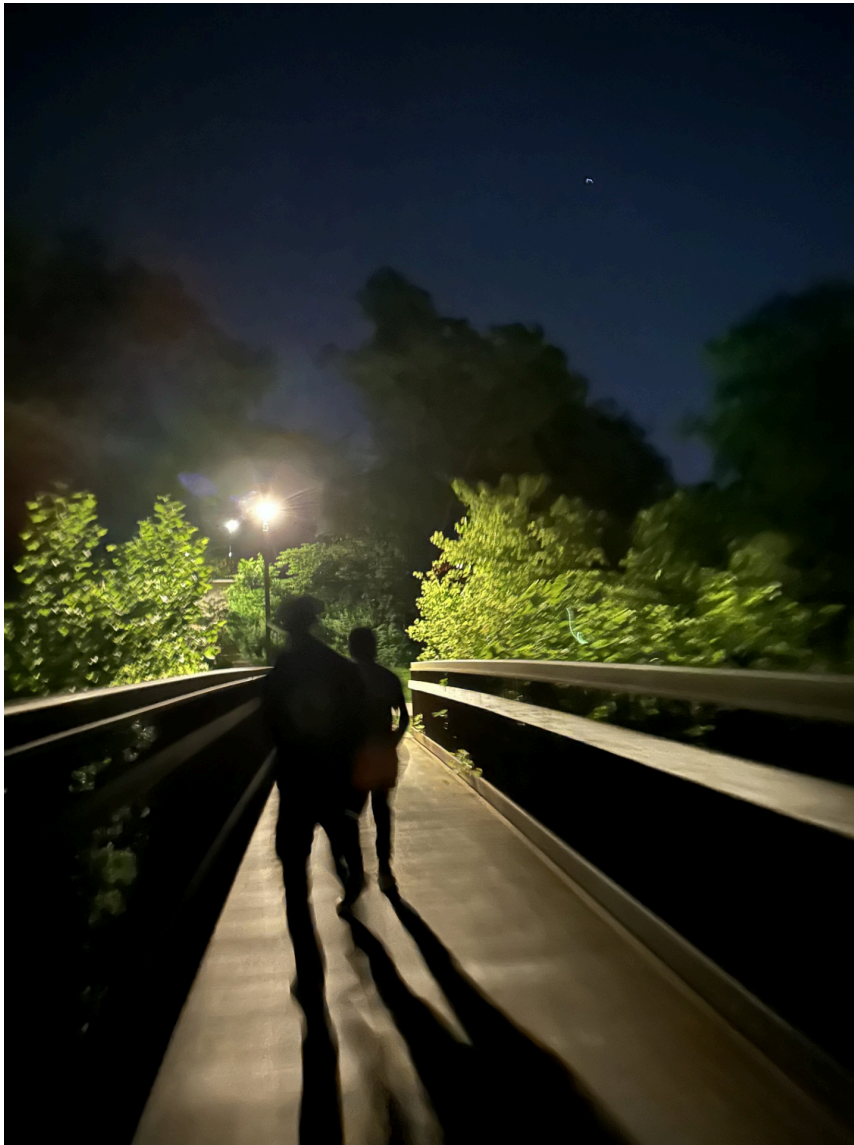
At the park for s'mores

Our "campfire"

HCI assignment: Study on smartphones and driving safety

📅 June 29, 2024   👤 Lydia Lonzarich

Title: The effect of music familiarity on drivers attention.

Most drivers listen to music in their car, often from a smartphone that is connected to the car via Bluetooth or a cable. My own observations suggest that when drivers listen to music that is unfamiliar, they tend to either look down at their phone or the central display in the car to skip or like the song. Both of these options divert the drivers' attention away from the road. This study is intended to understand the relationship between the familiarity of music being played in the car and the drivers' attention and behavior on the road.

Research question: How does the familiarity of the music playing in the car affects drivers' attention to the road.

Variables:

- Independent variable: The familiarity of the music playing in the car via the drivers' phone (unfamiliar vs. familiar)
- Dependent variable: Drivers' attention to the road

Hypothesis: When drivers listen to unfamiliar music, they are more likely to become distracted and behave recklessly while driving.

My study will be designed in the following ways:

- Methods:
  - I will recruit about 20 participants from diverse backgrounds and of different ages.
  - I will start with 20 participants, but may increase this number as needed in order to achieve statistically meaningful results.
- Equipment
  - A driving simulator to model a controlled driving environment.
  - An eye tracking device to record the number of times the driver looks away from the road to change or like a song
  - 2 Music playlists:
    - The drivers' liked songs
    - A playlist with songs from a mix of different genres and time periods
- Procedure:
  - Record baseline data
    - The driver will drive in the car in silence to establish a baseline attention level.
  - Experimental method for measuring data
    - I will randomly assign participants to 2 different test groups. Each participant in the first group will drive while listening to a playlist of their liked songs. Each participant in the second group will drive while listening to a playlist that has been created with songs from a mix of different genres and time periods.
    - Drivers in both groups will drive in the same conditions: on the interstate with stop-and-go traffic for 5 minutes, on the interstate with no traffic for another 5 minutes, in a quiet neighborhood, and through a city.

Limitations:

- Some driver participants in group 2 may still recognize some of the songs that play in the playlist of songs of different genres and time periods. This may interfere with the results.
- The driving simulator may not depict completely realistic conditions.
  - 🗂 Blog Posts   💬 **2 Replies**

Friday, June 28
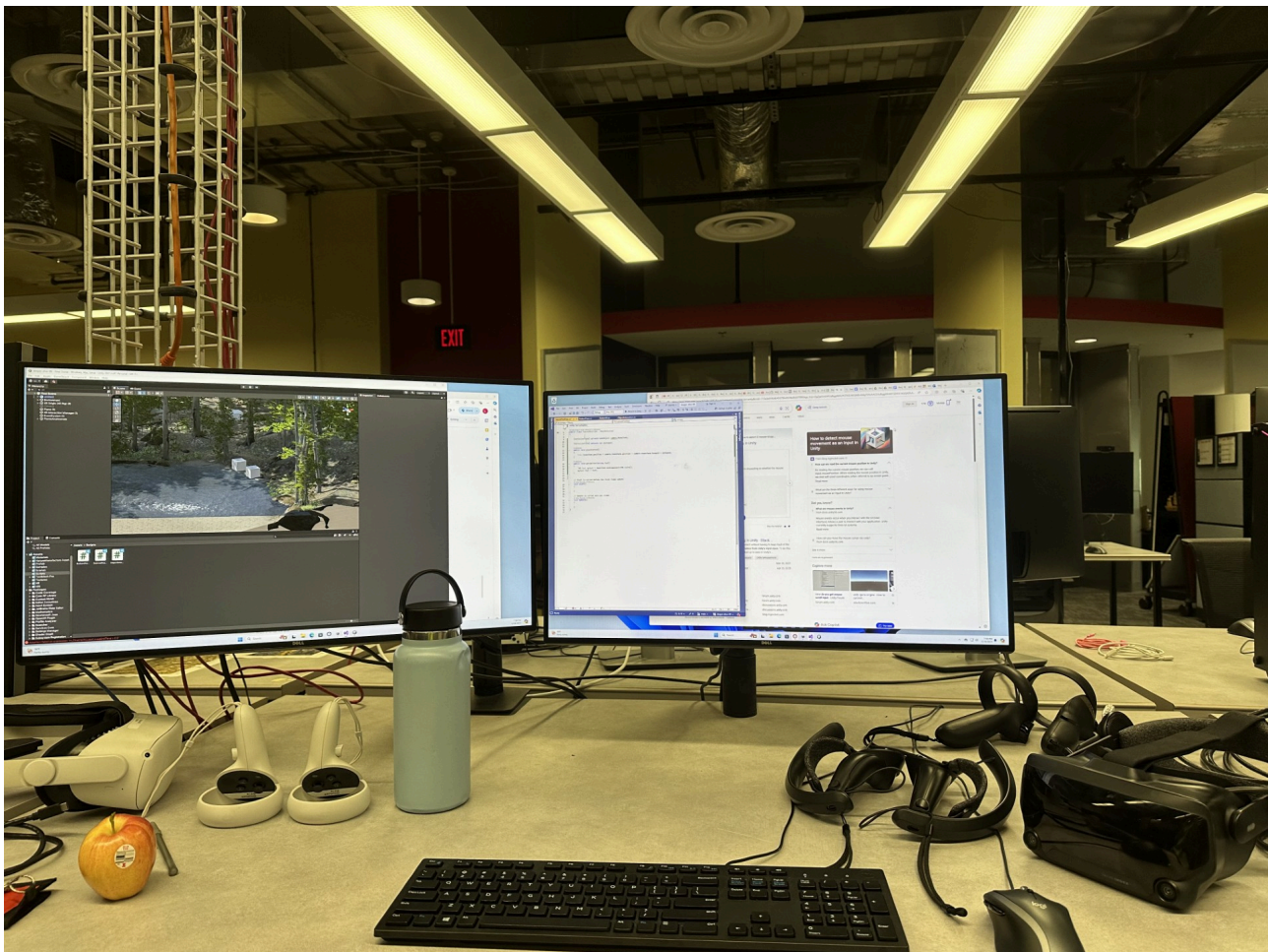
📅 **June 28, 2024**   👤 **Lydia Lonzarich**

This morning I had a big whoops: I woke up at 10:43am. You know those mornings when you wake up and freak out that you have to be somewhere only to realize that it's Saturday, and then you can breathe again…that's how I felt, except worse because it wasn't actually Saturday, and I was already almost 2 hours late to the lab. I made it to the lab by 11ish and had a chance to talk with everyone about the situation. Everyone was so kind about it, but I still felt so bad for the inconvenience I caused.

Aron came to talk with us for an hour at 11 to tie up some loose ends and answer any of our questions. We talked about how we can improve the trivia question experiment, and decided to add a slider during the question and answer phase for the user to enter how confident they feel about their answer to the

question. This data will help with data analysis, because there's a lot of data showing that people are more curious if they feel like they are closer to knowing the answer to a question.

After meeting with Aron, I started working on the VR project until about 6:30, and now I'm just writing this blog post before I head back to Freddy to shower and eat dinner. We made so much progress on our environment today. Andrea was able to figure out the teleportation and locomotion so that a ring appears on the ground to identify where you will teleport to. We can also now move around with the joystick smoothly. This way is less appealing for most users, however, because it can make them feel more motion sick. Chu-Chu worked on the environment and terrain. The $60 asset that was kindly bought for our use is so so beautiful and realistic. For now, there are just blocks around the environment, which are acting as placeholders for the plants and animals that will be put in later on (probably on Monday). My job was to then finish setting up the interaction element. I made a panel that will pop up whenever the user selects an object, and then the user can press the exit button on the panel for the popup window to go away. I got it working on a cube, so now I just need to duplicate this functionality to each of the placeholder blocks that Chu-Chu added and change the blocks to the plants and animals. Overall, I'm really proud of everyone in our group. A lot of this unity XR stuff isn't easy to learn, but we're figuring it out little by little. I need to give a huge shoutout to Kate and Anjali though because we wouldn't have been able to do a lot of this without their help. They're both so patient and supportive of our ideas, which has made this whole process more exciting and enjoyable.

Working on the VR project

📁 Blog Posts   💬 1 Reply

Thursday, June 27

📅 June 28, 2024 👤 Lydia Lonzarich

Yesterday morning we had HCI class with Stephen. He talked about the scientific methods involved in designing a study. This was an interesting lecture because he went really in-depth into the things to consider when designing a study, such as the different methods for measuring data and what their pros and cons are, and how to effectively evaluate the data you collect. He gave us a lot to think about, like how you could manipulate a study in order to measure and collect data differently. Our homework is to come up with an experiment that will test some relationship between iphones and driving, so stay tuned.

After class, Stephen stayed with us to talk during the lunch and lecture. The first thing we covered was his current research projects. It was interesting to hear about how he applies his HCI background into the various real-world applications. There was one project that modeled a school shooting – yeah I feel like that would have been tough to work on – but also the interventions during that study were really interesting. In particular, the experiment tested two different ways to instruct students out of the building safely during an active shooting based on the location of the shooter. One option was to instruct via visual directions, and the other was via auditory instructions. I would personally have guessed that the auditory would be more effective because I would guess the environment would be so visually stimulating that students would have a harder time focusing on reading a text. Their study showed that the auditory directions were more effective. I wonder if the results differ depending on the grade of the students though – I just think about the fact that so many school shootings are in elementary schools, so what if the students are not yet at a point where they can read quickly. I was also surprised by how many projects Stephen is working on currently. It seems fun to have the opportunity to apply your skills and what you love to so many different avenues.

After lunch, the curiosity team went to the lab again. We met Michael, a fourth year student at ISU, who is also working with Aron in the EEG lab. He's going to work with us a bit throughout the rest of the summer so that there's another person to keep momentum going once Sophie, Harrison, and I leave. Today he was our test subject, but I think we're also going to help him understand the Python script that we're using for the trivia question experiment sometime soon.

Last night, Rodney, Sophie, Harrison, and I drove down to Des Moines because the guys needed a haircut, and there was nowhere in Ames they trusted with their hair.

Once they both got out, Sophie and I made sure to give them a hard time for their new looks. No, I'm joking, they both looked good. Rodney was supposed to take us to a Southern or Cajun restaurant for dinner because he can't stop talking about seafood boils and how nothing here compares to his food back home, but we ended up going to a decent sandwich shop instead. We also stopped to get ice cream before the drive back. I got a brown butter cookie dough flavor – it was okay. I wanted to try some other flavors, but they had a 1 taste-test limit – criminal.

The ice cream shop in Des Moines

Wednesday, June 26

📅 June 26, 2024   👤 Lydia Lonzarich

Today I'm writing from outside again. It's not so humid out today and there's a breeze, so it actually feels good to sit in the sun.

This morning we met in our deeper dive groups. We had to finish watching the last bit of a tutorial on how to connect the VR headset to Unity and establish basic controls. The hardest parts were getting locomotion, and setting up the trigger controls so that we can pick items up in the VR environment. The video failed us for the trigger control part though because we spent maybe an hour outside of the video trying to get it to work properly. Regardless, I'm enjoying the class and the problem solving aspect of it so far. After class, we laid out the tasks that we need to get done for our nature environment. I think it's doable and I feel better now that we have a more solid understanding of how unity works in conjunction with the VR headset.

At 2, we'll have another 2 hour class for our deeper dives. My task is to add the flowers and plants to the scene and write code to have text pop up with information when the user selects the flower or plant.

Later tonight, some of us are going to the rec pool to swim for a little bit, and then maybe hanging out later tonight or just chill.

🗂 **Blog Posts**   🗨 **1 Reply**

Tuesday, June 25

📅 **June 25, 2024**   👤 **Lydia Lonzarich**

This morning we had our last craft of research session with Yvonne. We pretty much just talked about the different forms of plagiarism and how to avoid them. I think the information I learned today will be very useful when it comes to writing the final research paper considering all the papers we're planning to use and reference.

After that class, Holly Oberbroeckling spoke with us for the lunch and lecture. I really enjoyed listening to her because she was in our position 10 years ago as an intern here at ISU, so she had a unique and relatable perspective. She began by talking through the actual slides that she and her teammates used for their final presentation. This was helpful because it served as an example of how we can lay out the research we do this summer in a presentation format.

At one point during the presentation, Holly said that while we're here, it's important to learn how to recognize constraints and adapt to them. Her point in saying this was that 10 weeks is not a lot of time at all, so it's okay if you don't present groundbreaking results by the end of the program. What really matters is that you still *did* research (even if you didn't meet every project goal), you learned, and you had fun. This was really cool to hear because recently I've been starting to stress a bit about project goals, and comparing where I'm at to where other people are at in their research. I know this isn't something I should worry about, but it has been on my mind recently. It just feels like there's so much to do with the deeper dive projects, the main project, writing the final paper, wanting to spend time with the other interns, and also wanting to go out to explore and learn about more things beyond the assigned projects. Holly's point definitely is helping me see past this challenge though, because I know that I'm having so much fun, learning so much, and meeting so many amazing people here. I think I just need to focus more on the process; soaking everything in, and abstaining from the comparison.

Anyways, after the lunch and lecture, Sophie, Harrison, and I met with Aron to go over project milestones. Prior to our meeting today, we put together our drafted problem statement, and outlined our literature review so that we could share our thoughts with Aron today. He's planning to look over our work more in depth to offer suggestions on how to go about including meaningful and enough information to support our research in such a short literature review. We also found MATLAB scripts

that we can use to downsample, re-reference, and find the average reference of data, conduct independent component analysis for eye blinking, establish epoch's, conduct artifact rejection, and run wavelet analysis for the data that we collect via the EEG device. Now that we have a way to interpret the data, we can really get rolling – Aron said we could start working with the VR headset + Muse headband starting next week ! woo ! Exciting !

Tonight we might play some cards, or just chill, or something. We'll see.

🗂 **Blog Posts**   💬 **1 Reply**

Monday, June 24

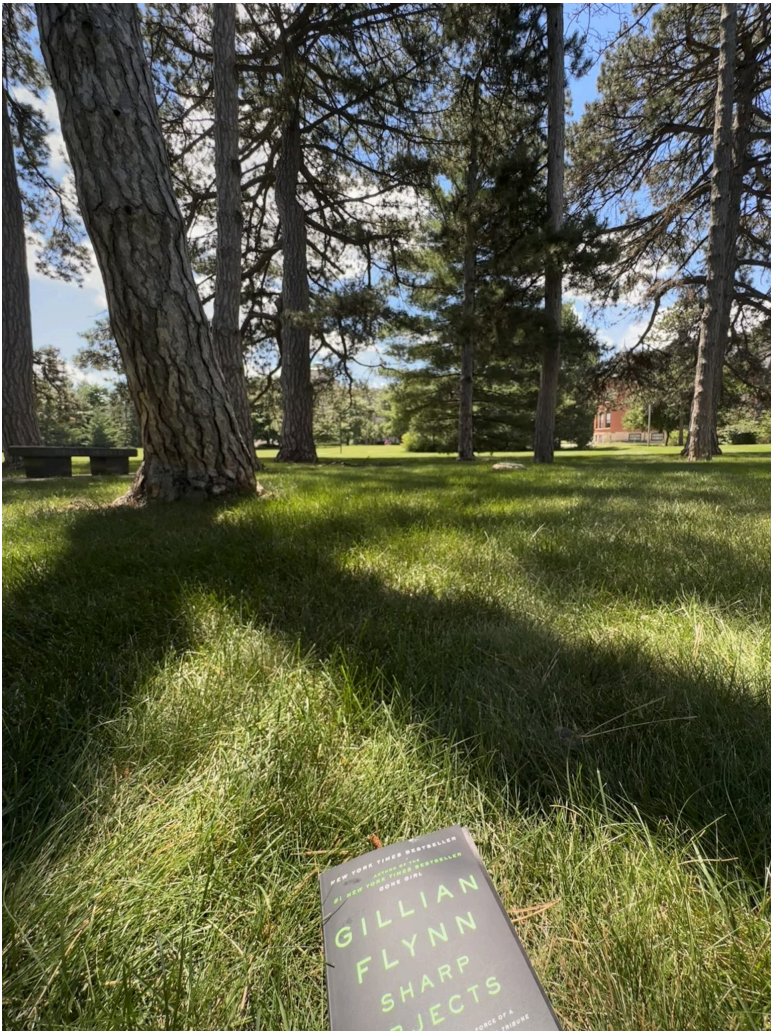📅 **June 24, 2024**   👤 **Lydia Lonzarich**

Hi hi

Today we spent a couple hours working in our deeper dive groups. Andrea, Chu-Chu and I were able to narrow down our focus for our project so it's more feasible to complete in just a little over a week. We also spent a little bit playing some games with the VR headsets. I played one that had such cool and realistic graphics. The game also helped me see what kinds of features we can implement in our own project in terms of locomotion and user-controlled interaction.

On Saturday we all went thrifting for a few hours after breakfast, and then spent a few hours at a mini outdoor waterpark near campus. That night some of us went out to get froyo, and then when we got back to Freddy, we ended up hanging out in the parking lot for like 2 hours because Angelica was teaching us the Cumbia dance and some others. The feet-hips coordination is what I struggle with, but it was fun to hang out with everyone and learn something new.

On Sunday, I decided to walk to campus to lay out in the shade and read. It was so peaceful and quiet. I just started a new book that Angie lent me. It's called Sharp Objects, and so far so good. Then Harrison, Ruby, and I laid out in the sun for a few hours outside our apartment. I made another beaded bracelet – I'm addicted to making them now :0

Harrison, Sophie, and I also finalized which articles we're going to include in our literature review for our final paper yesterday. The goal is to start writing it as soon as possible to avoid being overwhelmed with work during the second half of the summer.

Reading

📁 **Blog Posts**   💬 **1** Reply

Saturday, June 22

📅 **June 22, 2024**   👤 **Lydia Lonzarich**

On Thursday, we had a movie night and watched Spirited Away. I feel like I belong here now that I've watched a studio Ghibli movie. It was pretty good though, I liked it.

Dr. S came in to chat with us yesterday. Her area of research is so different from what we do in the VRAC, but it was still really cool to hear about the impact that her research has on individuals with Parkinson's disease. There has also been a trend in the speakers that come to talk – most of them don't end up where they thought they would when they were undergrads. To me, that thought is somewhat intimidating but also exciting at the same time

Yesterday all of the interns split into our deeper dive groups to meet with our teachers. My group spent the first session covering the basics of XR, and the second half brainstorming project ideas, and discussing the articles we found relating to our project. Our team has decided to do a group project involving hiking. The goal is to develop a VR environment with interactive elements that will increase the user's well-being, their confidence in hiking scenarios, and their knowledge about how to react during life-threatening hiking scenarios. In doing so, we hope to motivate the user to go out into real-life nature, feeling confident in their hiking capabilities, and reap the benefits to their health. Our motivation for this idea is that the #1 cause of deaths among hikers is falling, particularly during descents and by the hikers who are considered "good" hikers. Additionally, humans are becoming increasingly distant from nature, which has huge negative repercussions to mental health. By giving the user an immersive nature experience, we hope they become motivated to enter real-life nature environments so they can feel a connection to nature and improve their overall well-being.

The curiosity crew met with Aron yesterday as well. We were able to test out the Muse headband for the first time, which I enjoyed. This headband is just a device that lays on your forehead to measure the user's brain waves. After we collected data for a few minutes on Sophie, we used a MatLab script to analyze that data. Now, we have to figure out how to analyze the data we collected using the BioSemi in the EEG lab from the 64-electrode cap.

After class, a few of us interns, Anjali, and Alex walked to the boba shop near campus. Some people are becoming regulars there, and it made me laugh how the woman taking orders already knew what some people were getting.

Then we had a girls night. We picked up some beads from Walmart, took over the guys' room while they were out (we wanted their projector), put on Challengers, and just hung out. I never ended up making a bracelet last night because the movie was too good. I have a vision though, so I'm excited to make them some other time.

The plan for this morning was to hike at Ledges park, but the weather forecast said rain, so we're going out to breakfast instead and then maybe the waterpark later today.

Rodney bet Harrison $20 that he could do a 1-handed pull up…he lost

Another pretty sky during the bike ride to hot yoga yesterday morning

On my bike back from the VRAC. I just thought the sky was pretty

A posing squirrel

📁 Blog Posts   💬 1 Reply

Wednesday, June 19

📅 June 19, 2024   👤 Lydia Lonzarich

Today we had our last class spent working with Unity. I actually really enjoyed working with Blender and Unity with Kate and Anjali this week because of the creative freedom that we had to explore the platforms, and to learn about what you can do on each of them. It's crazy to think about how much I've already learned here. Before this week, the process of designing, creating, and navigating a 3D virtual environment was so foreign to me.

After lunch, we had some blog/work time, and then all sat and listened to Alex, Adam, and Kate pitch the deeper dive topics that they'll be teaching over the next two weeks. The options were 3D printing, machine learning, and XR. I ended up getting XR! All of them had aspects that I would've enjoyed, but I was most excited for XR. Anjali and Kate are both amazing teachers as well, so I'm really excited to work with them.

After we got out for the day, Harrison and I hit the gym again for another arm day. The pull up circuit was humbling. I'll leave it at that.

Tonight a few of us are watching Game of Thrones. The past few nights have been quieter here because the work is starting to pick up, but we're still finding ways to make time to hang out – especially when it comes to grocery store runs…we really need to coordinate what we need at the store better. It's to the point where Harrison picked up brioche hamburger buns instead of sliced bread when Rodney asked for brioche bread for sandwiches.

The
strawberry
patch

The
penguin

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Tuesday, June 18:

📅 **June 18, 2024**   👤 **Lydia Lonzarich**

Today we started our day with another craft of research session with Yvonne. She walked us through the discussion section and how to present our results.

Then, Harrison and I worked on getting the trivia question system running on the builder component in Psychopy. A bit ago, Sophie was able to fix some of the issues we were having in the coder component, but Harrision and I wanted to get it running in a layout that was more readable for Aron and others who aren't as familiar with Python code. Today was a semi-success though because we were finally able to get it running all the way through, but we still have some things to fix.

At 11, Eliot came in as the guest speaker for the lunch and lecture. Something that I thought was really interesting to hear about was his medical imaging research, because I'm enticed by the medical field. He told us about the app that he helped create called Bodyviz that allows various forms of interaction while looking at scans of parts of the body. He pulled it up on his iPad and then passed it around so we could all play around with it. You can cut into the tissue, set colors by density, move up and down through the slices, etc. He said that he had it pulled up in the C6 at one point, and I can't even imagine how cool that would be to feel like you were actually in the body looking through the tissue and bones. I also started a

bit of medical imaging research back at Gonzaga towards the end of this past semester, so I enjoyed hearing about new things that are being done in that area.

During the second half of the lecture, we spent some time going around to share where we imagine ourselves down the road. The dreaded question – buttt such an important question to start thinking about now – especially while we're here this summer because there are so many people who are experts in so many areas. I definitely want to reach out to someone this summer to learn more about how I could apply my math and computer science interests into the medical field, because right now I don't have much of an idea about what a future in that field would look like.

Eliot also made a comment about being a swiss army knife. This phrase has stuck with me throughout the day because it's similar to what Wesley Lefforts touched on during his lecture about how there is no such thing as a wasted experience. The more you learn, and the more time you put into learning how to learn, the better you will become at applying yourself to other things that come up.

Overall I feel like I took a lot from Eliot's presentation. He made me think more about what I want to end up doing – do I want to be working in industry, where I could be working on the same problem for years? Do I want more flexibility in my schedule and to have more freedom to explore whatever interests me more? So much to consider.

After lunch, Harrison, Sophie, and I headed over to the EEG lab to meet Aron. I'm definitely starting to see and feel the complications that arise with doing research. We hooked Aron up to the cap today, and were still having some issues with the signals being outputted onto the computer.

Tonight, we had a zumba-type dance class. Maybe 50% of the time it was me missing the steps, 40% laughing, and then 10% kinda getting the moves. It was fun to get up and moving though.

On our walk back from the EEG lab this afternoon

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Monday, June 17:

📅 June 17, 2024   👤 Lydia Lonzarich

Hey again, today we started working with Unity. We pretty much learned how to use the platform by importing the scenes we made in Blender last week, and playing around with textures and lighting. We also connected Unity to Virtual Studios so that we could use C# code to control how we moved in Unity. For example, one of our tasks was to find a way to move forwards, backwards, left, right, and turn (by rotation) using the W, A, S, D keys on the keyboard. I was able to get the basics working, but I still have some adjusting that I want to do because I don't want to be able to go down under my scene when I move forward.

Right after we got off today at 5, Angelica, Harrison and I went to the gym for an arm and ab workout. My arms feel like jello now.

This past Friday night, Ruby, Harrison and I tried to go out stargazing, but by the time we got out, we realized that the clouds were covering all the stars. We can blame Harrison for not checking the cloud cover report though…so anyways, we drove back to Freddie, and just layed out in the grass kinda behind our building. The weather was nice, and the stars did end up coming out a bit so it was still fun.

On Saturday, all of us interns went to the farmers market in downtown Ames. It did sprinkle the whole time we were there, but it wasn't too bad. I ended up gravitating towards the table covered in all sorts of tomatoes. The woman working the table had to point out the good ones because there were too many to choose from. They've all been yummy though. Harrison and I also ended up each getting a chocolate called the 'strawberry popper' from a chocolate vendor. I honestly can't even remember what was in it besides the jalapeno pepper. Woo. I have absolutely no spice tolerance lol so the spice kinda ruined the flavor for me.

Sunday was pretty much spent studying. I finished up my blender scene and spent a good amount of time understanding the BioSemi USB Trigger Interface system that we'll be using to send triggers from Psychopy to the external device for data collection during the trivia game. I definitely understand how to use the device better, and also how to write and interpret the MatLab code that we'll use to work with the collected data.

Stargazing
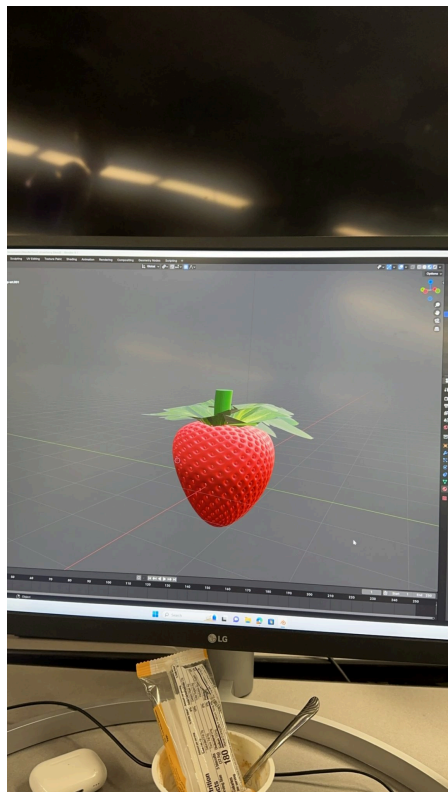
On my walk back from the lab on Friday

At a cafe after the market

The strawberry I modeled in Blender

HCI Assignment: Frustrating Interfaces

📅 June 15, 2024   👤 Lydia Lonzarich

Our task for our HCI course with Adam is to brainstorm two interfaces that are frustrating for the user. This took me some time to think of things because so many of the niche problems I thought of already have solutions to – like how they now make inserts that sit on top of car cup holders to hold water bottles that normally are too wide to fit, and they have wristlets that you can wear while you wash your face to avoid water from dripping down your arms and onto your sleeves. I was able to come up with a few though.

My first idea is bathroom stalls…why is it so common for public bathrooms to have such big gaps between the door and the wall? One solution to this problem could be to make the doors flush to the wall. However, doors that are like this may be more susceptible to getting stuck closed if they are poorly constructed or made out of a cheap material. Another solution is that there could be a panel, or "flap" that sits along the door and gets pulled out to cover the gap when the user slides the latch. I do like the simplicity of just sliding a latch to shut the door that most stalls implement, so with my second solution, the way the user closes the bathroom stalls would not be any more complicated than it was. However, it would require more material, so this solution also has some cons to it. I drew a picture to explain my vision more clearly.

My second problematic interface is Lastpass, which is a password manager application that my family uses. In practice, having a secure system to store passwords and other private information is a great idea, but Lastpass in particular has its flaws. Every so often, when you open the app, you are prompted for your master password before you can see your passwords. So basically, you have to have this super important password memorized or in some other secure location in order to use this app. This almost seems counterintuitive to the goal of the app. In the past, this extra step to remember my master password and login has turned me away from putting my passwords in the app as opposed to apple passwords or in a locked note on my notes app (pretend you didn't read that Dad). My solution is that, instead of being prompted for another password, there could be some other way to login securely. This could involve face ID recognition, being asked the answers to questions that you answered when you set up your account (i.e., "what is the name of your childhood pet"), a two-factor authentication app, etc. I've added a screen shot of the screen that frequently shows up when I try to use the app.

⚙️

LastPass •••|

Enter your email address

lydlonz@icloud.com

Master Password 👁

Trouble logging in?

Log in

Not using LastPass yet? **Create an account**

📁 **Blog Posts**   💬 **Leave a reply**

Friday, June 14

📅 **June 14, 2024**   👤 **Lydia Lonzarich**

Hey blog. Today I'm writing from outside. The sun felt so good on our way back from lunch so we all just decided to bask. This morning we spent about 3 hours working on our blender projects. I was able to get the grass, basket, and bushes done. The strawberry is a work in progress, but it's getting there. I've been able to find a lot of tutorials on YouTube, and Angelie and Heela have been really great at helping.

So far, I'm honestly really enjoying blender – more so than SolidWorks. To me, it's more fun to use because I feel like I have more creative freedom.

After lunch we'll get another 2 hours to work on our projects.

Oh and yesterday I was able to have the EEG cap put on me. The brain signals and the eye tracker responses still weren't showing up on the computer, so we have some work to do still to get that running. I still had fun though !

Last night we also had a game night with all the interns and Yvonne for one of our extracurricular activities of this week. We played Scattergories, Telestrations, and Poetry for Neanderthals. For Poetry for Neanderthals, you had to have your teammates guess the word on the card using only single syllable words, and if you broke the rules the person to your left would hit you with a bat.

The basking	Chu-Chu ready to hit me with the bat during Poetry for Neanderthals		In the EEG cap

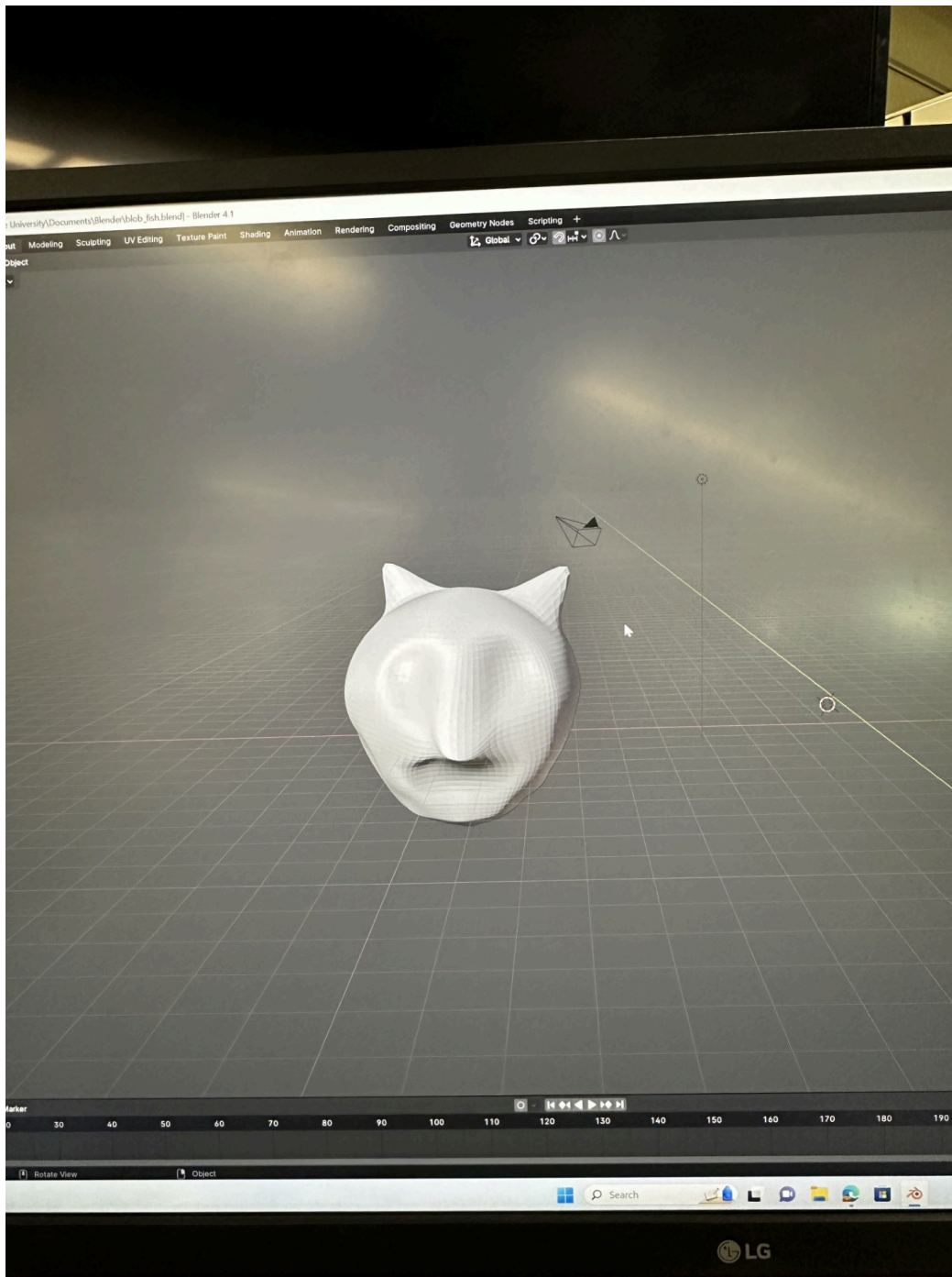📁 **Blog Posts**   💬 **Leave a reply**

Thursday, June 13

📅 **June 13, 2024**   👤 **Lydia Lonzarich**

Today we spent an hour with Adam to discuss conferences. He gave us some good advice and knowledge about what they're like and how we could get involved. Directly after, Dr. Carmen Gomes, an associate professor in the department of mechanical engineering came to talk to us about her research. After lunch, we'll go back to the EEG lab with Aron to run another experiment using the trivia question system. Hopefully we'll put the gel on correctly today so that we can pick up the brain signals better.

Last night was very chill. We all agreed to kinda just do nothing for the night, and then a few of us got together to watch another episode of Game of Thrones before we went to bed.

Here is a picture of the cat I modeled yesterday in blender. It's a bit wonky though, so I guess it could be up to interpretation about what it is.

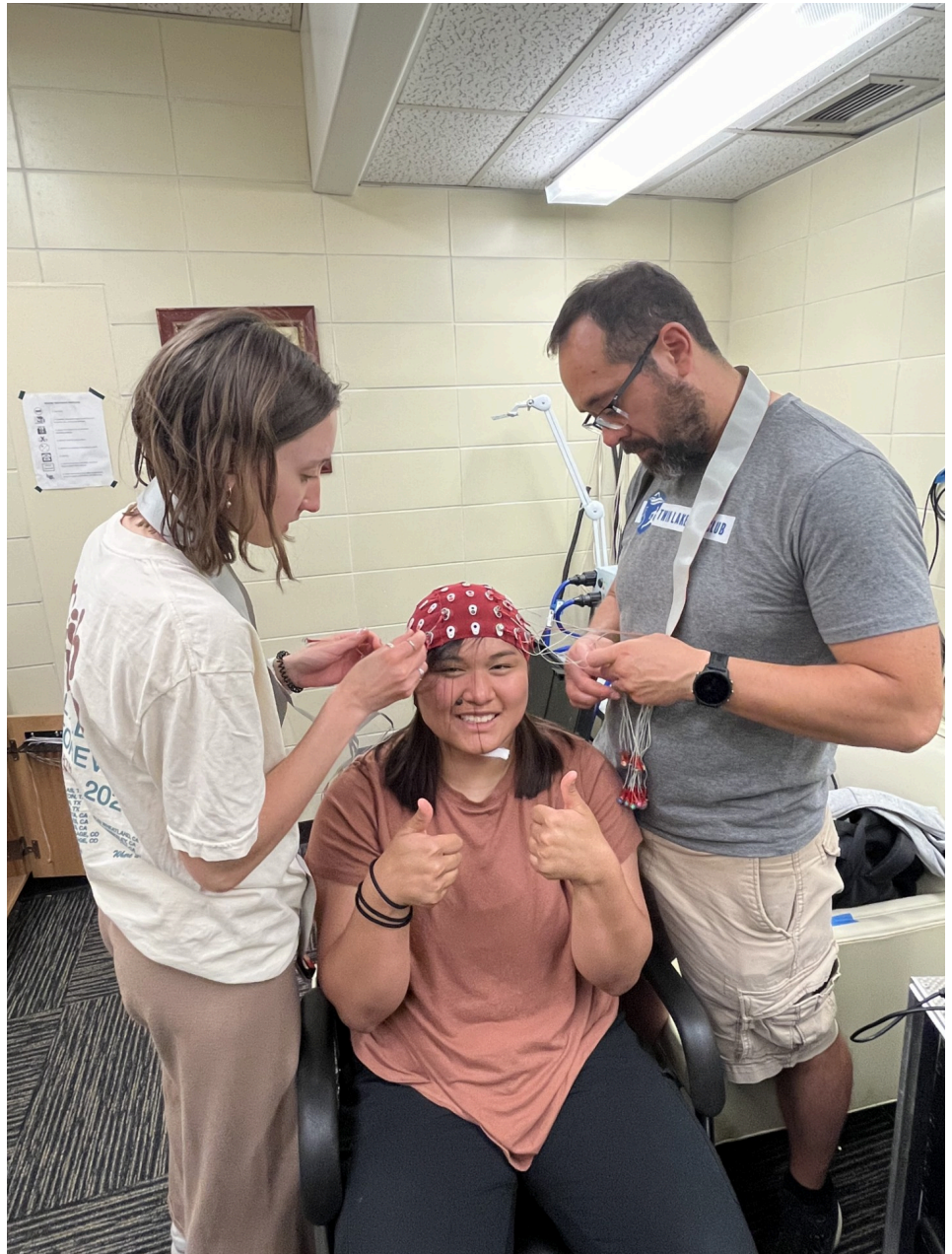# Wednesday, June 12

📅 June 12, 2024   👤 Lydia Lonzarich

I'm feeling very drained today. I keep meaning to go to bed earlier and then end up staying up late to chat with people lol.

Today we had our final class of SolidWorks. We spent the class assembling all of the parts that our team made. It was cool to see how everything gets joined together.

After class, we went to lunch at the dining hall, and then we went back to the VRAC to have a t-shirt brainstorm session. We're working on a design that we'll all get to wear as a reminder of this REU. We want to incorporate our team projects and the cool things we get to do in the VRAC, but also the things we do outside of the lab because those things are such a big part of this summer experience for all of us too. Then we started working with blender, which is a 3D modeling software that is used to create objects. The objects and scenes that we create will then get coded into Unity (the VR world). My idea is to build a strawberry patch and then have the user be able to pick the strawberries off the tree and put them into a wooden basket in VR. I'm hoping to do this by building a strawberry, copying and pasting it to make more strawberries, building a bush, and placing the strawberries into the basket that I build.

Yesterday, the Curiosity Crew went into the lab, and Sophie was able to put on the 64-electrode cap so that we could run the experiment using the trivia question system. It was a lot of fun to be in that research scene and see the experiment in real life as opposed to a procedure written on paper.

Tuesday, June 11:

📅 June 12, 2024 👤 Lydia Lonzarich

Yesterday we started working with SolidWorks, which is a platform that can be used to construct models of objects. I had never done anything like this, so those 4 hours of lecture and work time were rough. Alex and Spencer were both really great at walking us through the tutorials and answering any questions, so that definitely helped.

This past weekend was busy. On Saturday we went to a ropes course where we did some team building activities and then walked on cables and wood planks in the air. The experience wasn't exactly what I was expecting, but I think we all made the most of it. Right after the ropes course, I made the drive up to Minneapolis to go to a Noah Kahan concert, and it was definitely a peak night of my life. If you don't listen to Noah Kahan, you should.

When I got back to Ames on Sunday night, we went to a picnic at a nearby park with the other interns at Iowa State University. Later in the night, a few of us went out to get froyo. I got pineapple flavor. If you're sensing a theme with the pineapple it's because there is one. Then we randomly decided to drive out to the middle of nowhere to go stargazing, and the sky was amazing – another perk about quieter midwest cities: you can see the stars. AND all of us (except Rodney) saw a crazy shooting star – definitely the longest and brightest I've ever seen in my life. Unfortunately, my one blanket and towel did not keep us warm, so it was a very chilly outing for sure. Now we know to be better prepared for next time though.

Today was a longer day. We started off in the class we have every Tuesday that covers various topics regarding research. The topic of today's class was literature reviews. Yvonne set up an outline for us to use to construct our literature reviews and organize the information we've collected from past readings. Then, Jonathan Kelly came to speak with us about his research. After lunch, Aron, Harrison, Sophie, and I walked over to the EEG lab on campus. We spent about 2 hours running through the procedure and setup of the experiment with Sophie as the participant for today. The computer was having trouble picking up on the brain signals properly, though. Aron said that it may have been from putting too much gel under the cap. I had fun though, and It was cool to see how the data from experiments is being collected.

Later in the night, all of us interns went to do light painting, which is basically just creating cool shapes and words out of light using a longer camera exposure.

On our walk back after the picnic

NOAH KAHAN
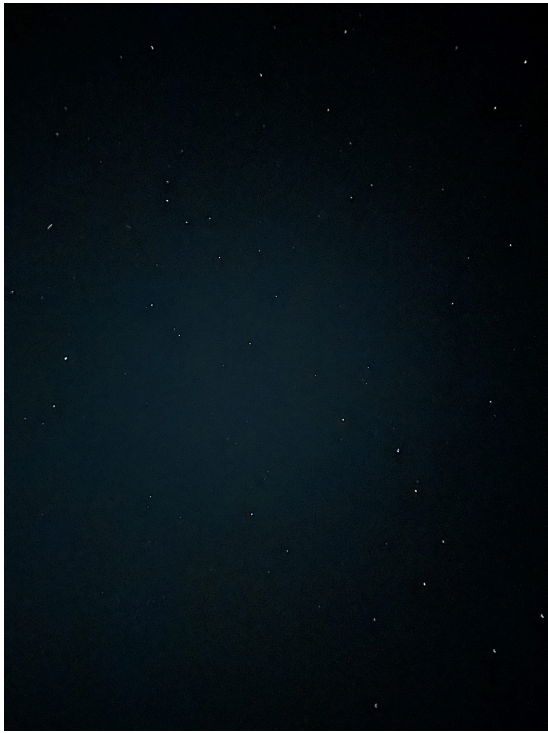
The sky

Friday, June 7

📅 **June 11, 2024**   👤 **Lydia Lonzarich**

Hi, I forgot to post my blog on Friday, so just ignore the fact that it's actually Tuesday.

Yesterday we had our final C++ classes. Nick was a really great teacher this week. Although I had already known most of the concepts that came up, I still took some things away from his explanations.

The art market on Thursday was fun. We spent about 2 hours walking around main street, perusing the shops, and ended up finding a local ice cream shop that served pineapple ice cream. 10/10. By the time the market was over, we were all hungry, so we decided to go to Buffalo Wild Wings for dinner. It was fun until some people completely attacked me for getting the naked chicken strips…clearly they don't have taste :/

During a break between lunch and class, Harrison, Sophie, and I were able to make a bit of progress on Psychopy, which is the open source software package that we'll use to conduct behavioral experiments in the lab. None of us had any experience with this package, so we had to spend some time watching some tutorials and messing around with it before we got it working on our machines. This code that we ran on Psychopy is the trivia game that each participant will play while they are wearing the 64-electrode cap to measure their EEG signals during curious states.

Our meeting with Aron on Thursday went really well. Aron isn't as familiar with programming as Harrison, Sophie, and I are, so the three of us are tasked with finding ways to utilize python to do what we need to do efficiently.

Last night, we all got together to watch Memento (the movie that Chu Chu has been wanting us to watch since last week). I thought it was pretty good. If you're looking for a mind game thriller type movie, I'd recommend.

📁 **Blog Posts**   💬 **Leave a reply**

Thursday, June 6

📅 June 7, 2024   👤 Lydia Lonzarich

Today we spent our morning taking group pictures in our matching Iowa State shirts around campus. Then we sat down with Wesley Lefforts, a cardiovascular exercise physiologist, who spoke with us about his research. He was so fun to listen to. What I found really interesting was his discussion about menopause as it relates to his research on brain health. Put simply, the estrogen that women produce acts as a type of protection for the arteries. When women stop producing estrogen, they lose that barrier, which can then accelerate damage to the brain. This is a contributing factor to why women are about twice as likely to develop Alzheimer's as men.

Wes also gave us some valuable life advice. The first piece that stuck with me is that no experience is a waste. Bad professor, good professor, bad outcome, good outcome, you can always learn something and grow from any experience. The second piece of advice is to follow your passions and opportunities. Going along these lines, the last piece of advice I loved is to infuse what you love into what you do. As a professor, Wes has found ways to infuse his love for animation and comedy into his career. His animations on the slides looked like they could be in textbooks, and, what seems like his comedic nature, is what got us all fooled during his lecture…basically what happened is that he introduced himself in this strong New Zealand accent, saying that he was from a city near Auckland, and then proceeded to talk for the next hour with that accent. At the end of the lecture, he said, "so, do you all think I'm really from New Zealand?" and we all just look at him like um yeah what do you mean. Then, all of a sudden, he starts speaking English and says that he's actually from Oregon.

Later today, my team has a meeting with Aron to go over some things that will prepare us for starting work in the lab next Tuesday. Then, we are going to an art market in downtown Ames.

Last night, a few of us interns decided to head to the rec pool on campus that had a hot tub, diving well, whirlpool (which btw is a hazard to get in and out of when it's at max speed) I'd be trying to pull myself out of the circle, but then get swept away by the current and have to go around the circle again. Repeat that like 3 or 4 times. We also played some water basketball. Ruby was on my team and definitely carried us. She could shoot, and I could hold onto the ball (or at least put up a good fight to). On the way back from the pool we saw a double rainbow so we had to document it. The sky after a storm is always so pretty. After that, we ended the night with another Game of Thrones episode. The goal is to finish all 8 seasons by the end of the summer, but that seems ambitious, so we'll see.

The picture on the right is just of the horses I pass on my walk to and from the VRAC.
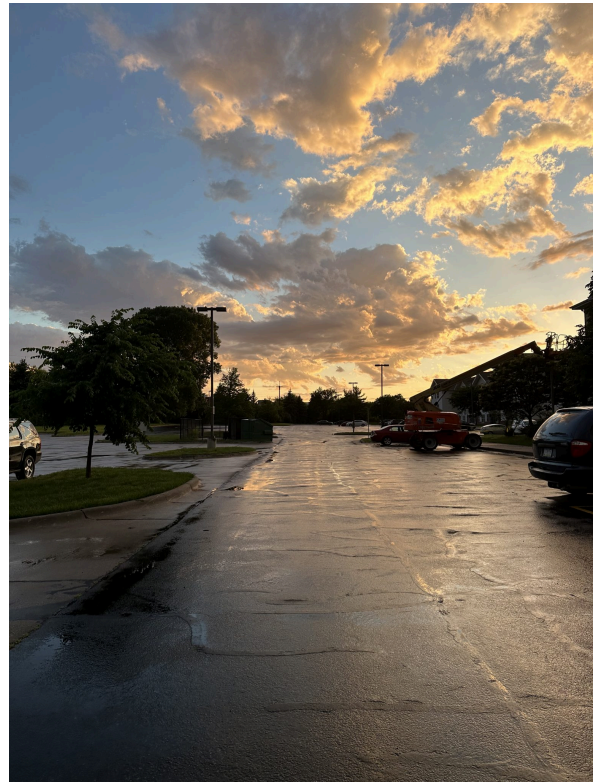
Wednesday June 5

📅 June 5, 2024   👤 Lydia Lonzarich

Today we started the day with more C++ coding. Then we had an hour break between class and lunch, so I finished my craft of research assignment for next Tuesday and then played some fire boy and water

girl with Harrison on the computers. Harrison definitely could use some improvement. Because yikes.

The dining hall had grapes again finally, so I got my grape fix in today at lunch. They were crunchy. We also decided to check out the Beyer pool after lunch because it's only open from 12-2 M-F, so that was good to see inside.

Update on my last post: Yvonne offered to sit down with Harrison, Sophie, and me later today to go through the 84 page article we've been assigned to read.

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Tuesday, June 4

📅 June 4, 2024   👤 Lydia Lonzarich

Today we attended a lecture with Dr. James Oliver who shared the ups and downs of his career, as well as some advice for grad school and future endeavors in industry or research. He encouraged us to be confident and proactive in social settings, revealed the power in fostering connections with people we meet, and so much more. For me, his story helped bring light to the fact that we're all on our own journey, and it's never too late to try new things or explore different directions in order to find what makes you happy.

Later today, we'll meet with Aron, the graduate mentor for the Curiosity EEG team, to chat about the articles he gave us, and to ask any questions that we have about the work we'll be doing this summer. I found the articles to be really helpful for giving some background into curiosity, how it can be measured using EEG brain signals, and explaining some of the factors that influence curiosity and learning outcomes. It's funny because in high school and university, some of the research articles and papers I'd be assigned to read could put me to sleep, but these were so different; I found myself with so many new questions and wanting to read more. I'm definitely looking forward to diving deeper into this topic with my team.

One thing I have noticed is that I am a slow reader when it comes to research articles and papers. Hopefully by the end of this summer I can pick up some tools that will help me learn how to read more efficiently while still grasping the main ideas and concepts.

The allergies have been getting me this week – my eyes have been so itchy. It's also crazy humid here right now. Angelica and I have been walking to the VRAC in the mornings these past two days which has its pros and cons – the walking is nice, but I always end up with frizzy hair and feeling sticky by the time we get to the lab.

🗁 Blog Posts   🗨 1 Reply

Monday, June 3

📅 June 3, 2024   👤 Lydia Lonzarich

Hi blog! First week in Iowa has been so much fun. This week was pretty chill in terms of workload, which gave us more time to get adjusted to the campus and the people. Going into this experience, I didn't want to put any expectations on how well I would get along with the other interns because we all come from such different backgrounds, but I will say that I wasn't expecting to find myself in a group of such amazing people who all get along so well so fast. We've been keeping busy with some intense game

nights, volleyball games outside, bike rides, group dinners, an escape room, and a (questionable) show. Today we started covering C++ material. I've spent a couple semesters working with C++ back at my university, so this was a good review of some things. As for Iowa, it could be worse. I don't think it deserves so much hate (hot take maybe), but I'm also from the Midwest, so I guess I'm used to the flat fields, the cows, and the quietness. Last week, we were able to get some bikes to use for the summer in exchange for working at the bike shop. It's been fun to roam around Ames on them. Yesterday, a few of us went out for a ride and somehow ended up walking through twigs and water in the middle of the woods…we did end up finding a nice trail that went around a lake though, so that was good redemption for our navigator. I'll insert some pictures. I might as well use this space to document the Curiosity EEG team's beautiful and incredible invention for Tre. Our task during this team building activity was to come up with a solution to help Tre manage his difficulty focusing in class. We decided to make glasses that track your eye movement so that every time your eyes drift from the board, your vision is blocked for a second to reset your focus. Yeah maybe the wire was a bit pokey and the glasses only fit his head if we held them up, but it was the effort that matters in my opinion. I've added some pictures of the live demonstration of our prototype on Tre.