

## Blog #15: Goodbye!

🚞 August 4, 2023 🛛 💄 Amy Gilhoi

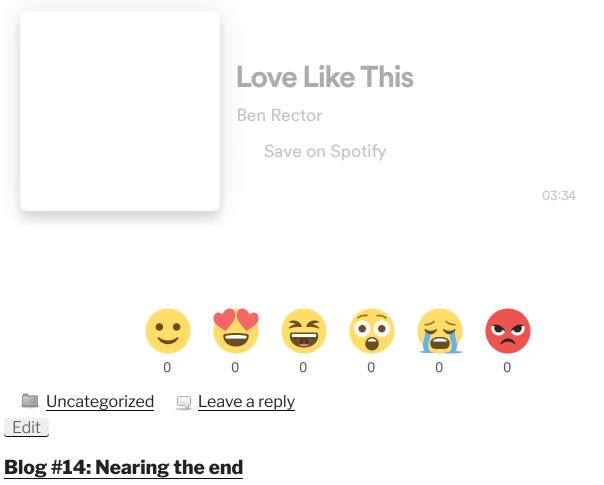
I can't believe it's over.

We still have the goodbye lunch and I have to pack all of my things but effectively it's all over and that's so crazy.

Yesterday we had the media session and the symposium, both of which went well and were a lot of fun. I played piano for the other interns a little bit to calm down before the symposium and it made me so happy.

I've really appreciated this program. I loved making new friendships with people I may not have interacted with otherwise. I gained a ton of experience and I have a clearer path for my future. Most of all, though, I'm just thankful for the time I had here.

I'll see you again, someday.



🚞 August 1, 2023 🛛 🚨 Amy Gilhoi

We're almost done! AHH!

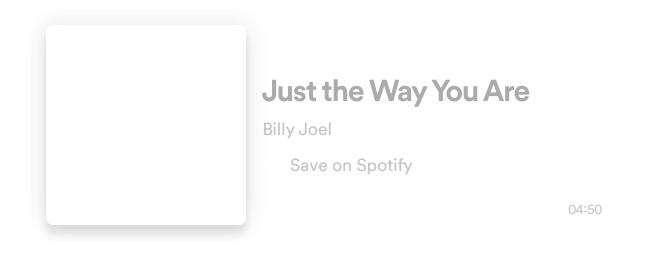
On Friday we got our project to work 30 minutes before our poster was do. It was a very exciting moment. I was so happy to have an actual positive outcome of the project. I was pretty confident that it was possible, but not so confident that we would be able to produce those results in the time allotted to us.

We finished up our poster after that, and I'm happy with the way it looks. The posters I've seen in the VRAC have a lot of crazy designs, but I really wanted to keep ours somewhat neutral and let the research speak for itself. It still looks good-it's just not over the top (perfect)!

Now we're working on the paper. At this point, we're just kind of editing what we've been writing over the past several weeks since we were pretty proactive. I think it's turning out to be a decent paper, although it's certainly not ready for publishing. I'll be excited to see the end product.

The symposium is on Thursday and I'm pretty excited both to do it and to get it over with. I like presenting, but I don't like the idea of having something somewhat stressful looming in the distance.

I've had to start thinking about what food I eat very specifically in order to make sure that I get rid of as much as possible before I go home in 4 days (!!!). This program has gone so quickly.



yet another billy joel song (sorry not sorry)



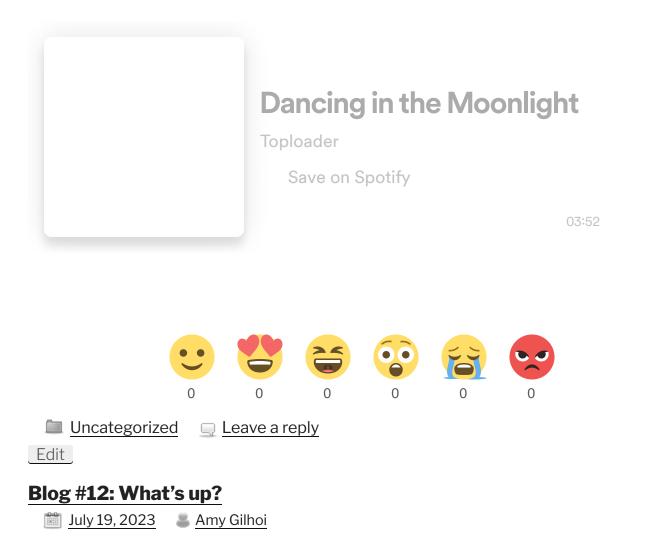
I finally remembered that my blog existed.

Things have been pretty crazy with the research we're doing-we finally got silicone and a fingerprint reader and have been trying to create model fingers and match them and everything. It's been quite the process. Our first batch of silicone fingers worked well, but they were printed incorrectly so they were mirrored and unusable. We haven't been able to get a batch to set since, though.

I'm pretty certain that we won't have exciting results by the end of the week. It okay. That's how research goes sometimes. I think, given more time, we would potentially be able to have some interesting outcomes. Dr. Li plans to have Micah continue the research after we leave, so maybe my name will be on a paper someday. We'll see.

I hurt my shoulder Friday evening, so I didn't end up going to the pool with everyone on Saturday, which I felt bad about. I ended up getting a lot done over the weekend though, so that was good.

This week is flying by, even though it's been sweltering. It was cool to see all of the bikers in Ames for RAGBRAI yesterday and today. Just a few more days now! I can't believe the program is almost over.



I forgot to blog yesterday (whoops)!

Things have been simultaneously hectic and not hectic at all. My mom visited over the weekend and so we did a lot of things. We visited the Des Moines Farmer's Market, the

mall, Reiman Gardens, and went out to eat a few times. It was fun but I also needed a long nap afterward.



at reiman gardens

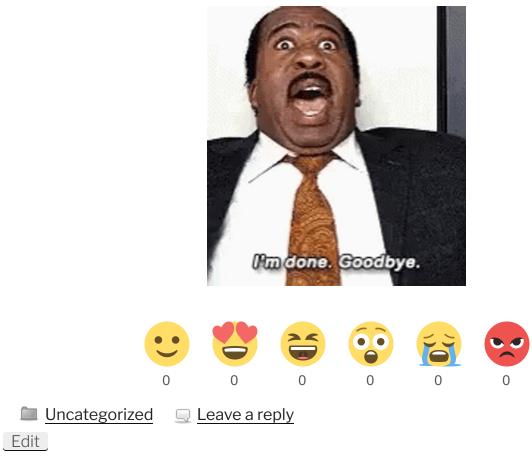
We've been working on our paper a lot, so I think that will help us out in the coming weeks. Our research is kind of at a standstill as we wait for some items to be shipped to us (hopefully they'll come soon?) but we'll stay occupied with writing until then.

This morning we had presentations for the REU group at CUNY. Our group went first and I was glad to get it over with. I don't have a major problem with presenting, but if I have too much time to think about what's going to happen, I can get nervous.

After work today the REU group is planning to go bowling at Memorial Union. I haven't bowled since 2019 so that will be interesting.

In the spirit of whimsical activities such as bowling, I will include a whimsical song:

See you soon!



## Blog #11: The Comforts of Home

🚞 July 14, 2023 🛛 💄 Amy Gilhoi

I'll admit, I've always been attached to home.

Home to me can mean many things-the state I'm from, the house I live in, the place I sleep. Most of all, though, home is a feeling. Home is where I am relaxed and not out of place because I belong there. At home, I am intrinsic.

My love of home may seem as if it would lead to homesickness. I manage fairly well, though. I seek out home in unfamiliar places, and I feel less alone.

When I came to Ames, not much felt like home. The first thing that makes home for me is comfort, but my bed wasn't mine. The next thing that makes home is music, but I couldn't find a piano I liked. Next is being comfortable in the things I do, like doing work that I am good at. I was new to the program, and I didn't know most of the things I needed to know.

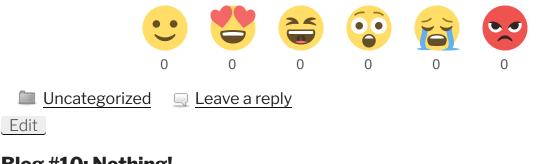
What fixed it? Nature. I am always at home outside because I'm meant to be there. I'm not at home in the heat, but when it cools down in the evening and I can feel the breeze on my face and I can smell *outside*, I know that I am home.

It's become easier in the time I've spent here. I woke up in the middle of the night the other night and had the sense that I was safe and warm and where I was meant to be-a sense I only get from-you guessed it-home. I'm at home in VRAC. My desk is mine and I know the space and I'm not an imposter. I'm supposed to be here.

I will be excited to leave at the end of the summer and get back to where I'm from. I can't wait to see my family and pet my dog and eat barbecue and go to all of the places where everyone knows my name. Even so, I'll miss it here. It's been home.







## Blog #10: Nothing!

🛗 July 10, 2023 🛛 🚨 Amy Gilhoi

There's no way you're reading this, right?

I've noticed that the blog has received a lot less interaction lately. I get it–I'm pretty boring. I don't feel like I have as much to write about anymore because the experiences I'm having are less novel.

We finished up our MCAs last week (YAY)! I'm happy that I was able to complete most of what I expected to in that time frame and I felt pretty happy with my project.

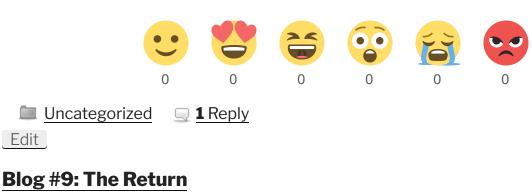


I look weird when I talk!

Now the rest of the time will be spent working on our actual project. We took some more scans today and once they're prepared Dr. Li will send them to a professor somewhere else who has a printer that prints in very fine detail in material similar to human skin. Hopefully we will be able to use these fingers to fool a fingerprint reader. In the meantime, I suggested that we could try to print a negative mold of a fingerprint, then cast it in a material similar to human skin-maybe some type of silicone? I think this would be pretty easy to do and it would also give us something to work on while we wait for the fingers to come back.

I don't have much else to say! Here's a song I like by one of my favorite artists, Lizzy McAlpine:

Bye!



🚞 July 5, 2023 🛛 👗 Amy Gilhoi

l'm back.

I had a great Fourth of July weekend. I spent it with my boyfriend's family in northern Illinois/Iowa and absolutely enjoyed having some time off. I did spend it doing some physical labor, but it was a nice change. This week we are finishing up the MCAs. I like my project and wish I had infinite time to keep expanding the scope of my research, but this is not the case. I'm very happy with what I will have been able to accomplish by the end of the project, though.

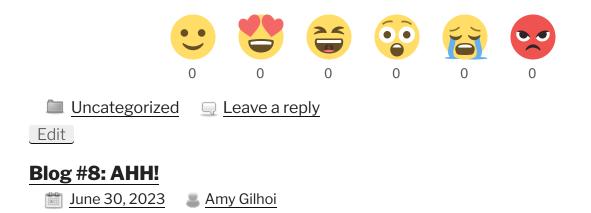
Since my last blog, my second jamblock and ocarina have finished printing. I had a moment of pure joy the first time I tried to play this new ocarina (with 100% infill) because it sounds fantastic. I have no idea how it would compare to an actual good ocarina, but I really like the way it sounds and it's infinitely better than the first one, which barely spoke.

Today I am focused on figuring out how to have a quantitative measure of the sound quality of these instruments that I have printed. While the difference is wildly noticeable to the untrained ear, I still need to have a way of proving that it exists. I'm going to try to analyze the data in Audacity. Apparently, I may go to the SICTR and use the podcast equipment so I have a good mic to do it with. We'll see! I know a little about recording, but I know next to zero about analyzing it.

Here's my song for today:

Joni Mitchell, put your music back on Spotify

Bye!



That's me, realizing how much have to do.

It's actually pretty manageable, it's just the most I've had to do so far in the program, so I've been kicking it into gear. I've started work on my MCA–I'm looking at how different infill settings affect resonance in musical instruments.

I started by printing an ocarina, but the sound quality was not good. I had printed it at 20% infill, which seems to have made the material too flexible (or something), so some of the notes won't speak how I want them to. To test this theory, I modeled a mini jam block (like a wood block but plastic) and printed it at 20% infill and 100% infill. The one with 100% infill sounds way better, so we're going to print out another ocarina with 99% infill and see if that sounds better.

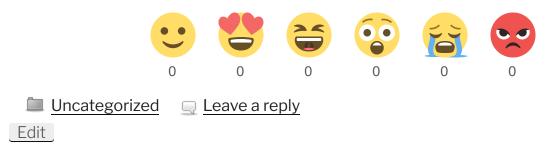
an ocarina

We discovered that printing with 99% infill rather than 100% infill takes a significantly shorter time—like four hours!-so that's why we chose that. Hopefully it turns out well!

Between that and the other research, I have a lot to get done today before the long weekend. I'll be spending it in northern Illinois and Iowa with my boyfriend's family. Tomorrow morning there is a 5k at 8am, so that will be interesting. I'm anticipating a good time, though.

Since I have a short blog today, I'll insert one of my all-time favorite songs and make sure not to forget like last week. Oops.



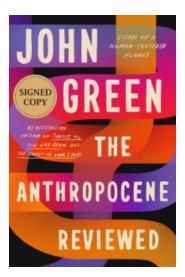


## **Blog #7: Libraries and the Wienermobile**

🛅 June 27, 2023 🛛 🚨 Amy Gilhoi

I have lots to do today, so I'm starting early.

On Saturday morning, we were supposed to go to the farmer's market in Ames, but there was a pretty intense thunderstorm, so that didn't work out so well. We ended up going to the library instead, where I picked up and read some of The Anthropocene Reviewed by John Green. I've been wanting to read this for a while, and I will probably end up procuring a copy for myself so I can finish it.



I love libraries. I read way too often as a kid, so they were always like heaven to me. My dad would take me to the library at least once a week, and when I got older my brother and I would walk the mile to the library ourselves. I would pick up approximately 10 books and they would all be finished before I went back the next week. As I got into high school, I had less and less time to read books for fun, so I didn't go to the library as much. Every time I've stopped in in the last few years, the librarians have gotten so excited and said things like, "You still read!!" Yes, yes I do.

\*\*\*SIDE NOTE: You might say that it's not possible for a kid to read to much. This is not true. My parents took my books away from me on more than one occasion. They would tell me to go outside and I would take my book outside. My mom would say, "NO, I meant ride your bike." I would then attempt to read while riding my bike (this did not go well). I read too much.



me, age 8

After that, I drove all of the way home so I could do some post-kidney stone incident testing. I was so happy to be able to see my family. Update from the last post: I did have to give my dog a bath, but now he's all fluffy and clean :).

As I returned to Ames on 35, I saw the Weinermobile (apparently it has been renamed the Beef Frank Mobile). This was the highlight of my day.



photo evidence

I got back to Ames around 2pm yesterday and came to work. I was immediately hit with how much I have to do. We've started our Deeper Dives and are thinking about our MCAs, which feels like a huge project compared to how much time there is allotted. I'm in the 3D printing group and thinking of doing something related to music, but the details are still fuzzy. I'm going to look into a few things today and see if I can get a clearer picture.

Things are starting to get somewhere in our research, so I'm excited for our meeting with Dr. Li on Thursday. I'm hoping we can get a clearer picture of what the next steps are and if we've been on the right track.

That's all for now!



Uncategorized Edit

## Blog #6: \*INSERT NAME HERE\*

🛗 June 23, 2023 🛛 👗 Amy Gilhoi

I've lost all my creativity.

It seems like every creative bone in my body disappeared the second I arrived in Ames. I would generally describe myself as a creative person, so I'm not sure what's happening.

It started with creating the scenes in Blender and Unity–I didn't have any good ideas about what to make. Now, I don't know what I should be doing for my MCA. I know I don't have to decide anything yet, but my brain is seriously empty.

I'm going home this weekend, so hopefully I will be able to regain some of my creative abilities. It won't be a fun visit (just doctor's appointments for testing), but I will get to pet my dog, so it'll be fantastic no matter what. Here's some pictures of Murphy in our yard that my mom sent me the other night:



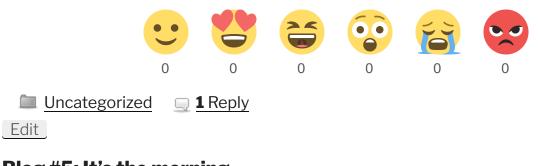
I'm definitely going to be forced to give him a bath when I go home (he's usually much whiter).

For our first activity this week, we went to a park. There wasn't much to do, but I happened to have a frisbee, so we threw a little. It was an interesting experience.

Yesterday, we watched Coco in the conference room because the auditorium wasn't working. I always love that movie.

Here's a great John Mayer song for your day (again, not creative. I'll save the Chumbawamba for next week).

### TTYL.



## Blog #5: It's the morning

🚞 June 20, 2023 🛛 👗 Amy Gilhoi

Good morning!

I very rarely describe mornings as good, but I'm trying my best to be optimistic.

I've done quite a few fun things since Friday!

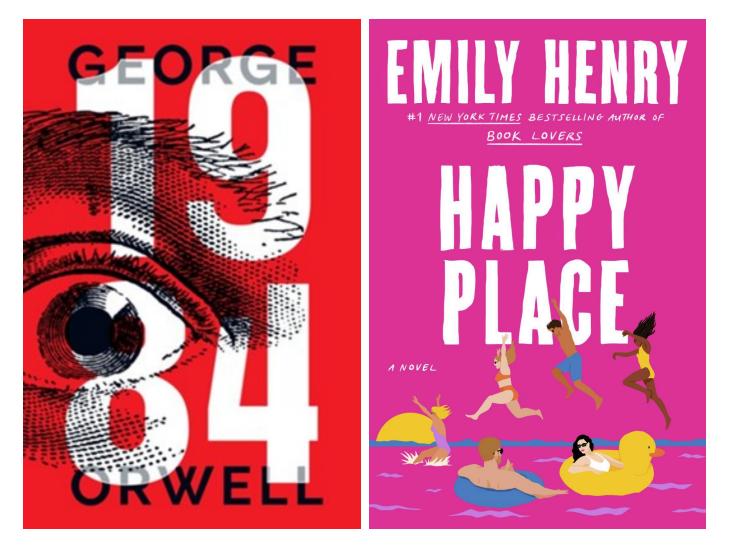
### First: Ledges!

We visited Ledges state park Saturday morning at 9am (oof). It hurts me physically to wake up before 10am on a weekend, but I'm honestly glad that I did. The weather was gorgeous and I had a great time hiking. My family visited a lot of state and national parks when I was young, so I always have an appreciation for a fun little adventure.



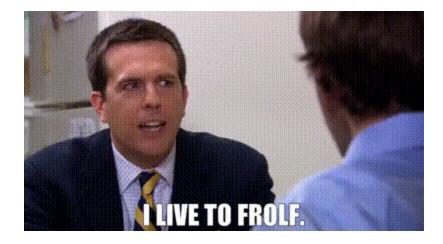
### **Next: Barnes and Noble!**

I took the afternoon to visit Barnes and Noble in Des Moines. I love reading and I've been needing a new book. I haven't read 1984 since I was in middle school, so I wanted to reread it. I also picked up Emily Henry's new book–she's my favorite romance author. I'm already done with 1984 because I have no ability to do things in moderation.



### Next again: Sunday insanity!

Sunday, I chose to go on a way longer run than I ever normally go on. I was tired afterward, but rallied myself to go to the store. While I was at the store, my boyfriend texted me and asked if I wanted to disc golf with him at Gateway Hills Park. As an enjoyer of Frisbeerelated sports, I of course had to say yes to this. I had a very good time, but by the end of the day I was absolutely wiped out.



### Finally: Monday.

Yesterday, it was back to work in the VRAC! I spent the whole day looking forward to my nap (a common theme of this blog, I know). Upon the conclusion of my day, however, I decided to spend my evening a little differently. How might a 21-year-old in a college town spend an evening? Any guesses?

Whatever you said, you're wrong. I took an LSAT for fun. I've always loved taking tests, and every once in a while, I will take a random standardized test just to see how I do. In case you think I'm lying, here's a text I received from my mom when I was dreading going to the escape room:

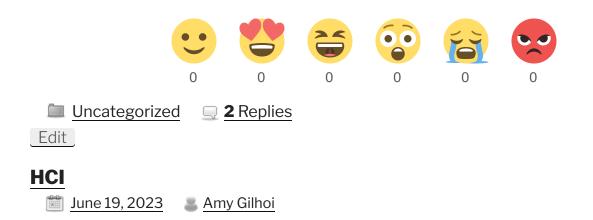
Btw, I love you dearly and hope you enjoy your day. Even the escape room. Think of it as the ACT—a test of your knowledge. You might really enjoy it. When

I can't explain it.

Anyway, here's your song:

I'm keeping with the dystopian theme I started with 1984.

## Hope your day is good! See ya!

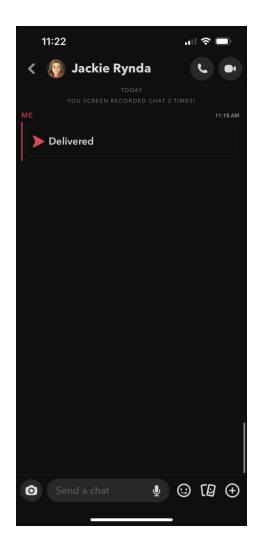


An easy example of something that's not working is the front door to the VRAC.



Anytime a door has to have a label, that's generally a sign it's not good. This door looks like you should have to turn the handle to open it, when you actually should just pull. If the door's handle were a bar (like the one on the JB conference room), this would indicate to the user that you should pull on the door and the task would be clearer.

Another example of UX that I personally don't like is Snapchat's new placement of the back button. I feel like the arrow is facing the wrong direction. Snapchat chose to implement this back button to get the user from an individual chat back to the home screen, but the direction the arrow is facing conflicts with the way the swipe animation works, and disorients the user. Snapchat could fix this by changing the direction the arrow is facing and possibly placing it on the other side. This goes against our traditional conventions of what direction a back arrow should be, but I'm not sure what a better solution would be. This matters mostly because of the directional aspect of the user interface of Snapchat, since it is different than a website.



I tried to insert a video, but it didn't work. Basically it looks like this arrow should lead to a new page animated to the left of the current page, but it actually navigates back to the right.



💷 Uncategorized 🛛 🗔 🛽 Reply

Edit

# Blog #4: Fri-YAY

🛗 June 16, 2023 🛛 👗 Amy Gilhoi

#### my apologies

Today's been good! I'm going to be honest, I don't have a ton to say.

We've been learning modeling software this week and I'm not particularly enjoying it. Just when I was starting to understand SolidWorks, we switched to Blender and I was intensely confused again. Where SolidWorks demands precision and accuracy, Blender makes it nearly impossible. We're supposed to create a scene for our Unity classes next week, and I fear mine may not be fantastic.

Our group got 3D printer training in the SICTR, so I printed out this little worm! I may or may not have accidentally broken him five minutes later (oops). Also I found out they refuse to call it the SIC because that spells sick. That's a fantastic acronym. Who wouldn't want to go there? I'm honestly more embarrassed to be caught in a building with such a lame acronym.



For activities this week, we took a walk around Ada Hayden Park and did light painting. Both were nice little quick activities and I appreciated that they didn't take up too much time.

I'm so excited to go take a nap after work today. I also have to disconnect my car battery to try and reset the electronics in my car, so I'm just hoping that nobody watches me do that in the parking lot of Freddy.



what i will look like, probably

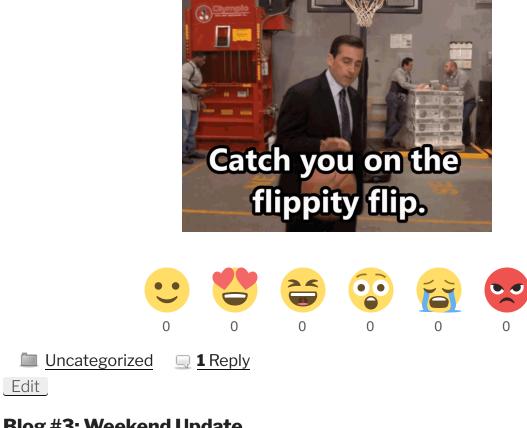
Since my post today is not special, I will use this moment to admit a deep, dark secret of mine that I tell everyone: I am an Owl City fan. Here is the track list for a CD I created when I was 11:

Amy 11 9 songs + 32 minutes	
Hot Air Balloon	Owl City
The Bird and the Worm	Owl City
Alligator Sky (feat. Shawn Chrystopher)	Owl City
Fireflies	Owl City
Galaxies	Owl City
The Real World	Owl City
Hello Seattle	Owl City
Vanilla Twilight	Owl City
Root Beer Rag	Billy Joel

one billy joel song, for balance

I'm not proud, but to honor this, here's an Owl City song.

Okay, I'm busy.



# Blog #3: Weekend Update

🚞 June 13, 2023 🛛 🛎 Amy Gilhoi

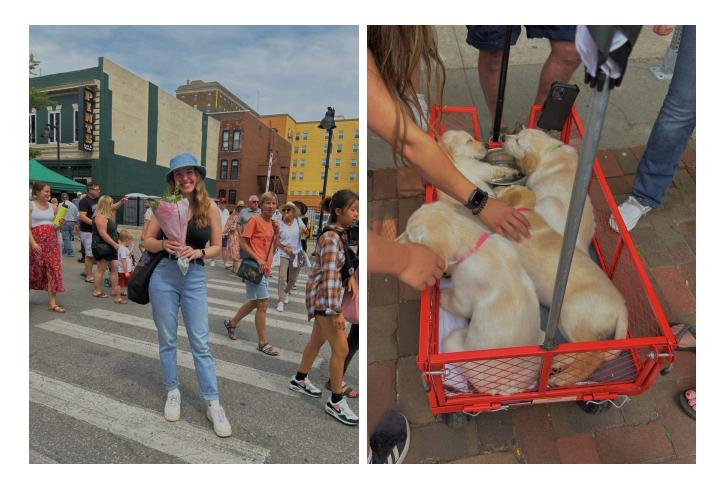
Unfortunately, this one will not be as funny as SNL.

# **PUPPY PARADISE**

This weekend an unsuspecting REU intern was saved by a wagonful of puppies (pictured below).

Saturday we went to the farmer's market in Des Moines. I expected busy, but I didn't expect state fair busy. What was I to do?

Out of nowhere, four puppies appeared. It felt as if I was experiencing divine intervention. One of them had fallen asleep in the water bowl. I nearly cried. I was cured of all ills. A true miracle.



# **TRAGEDY STRIKES FREDDY COURT**

The hearts of the VRAC community have been shattered after a tragedy rocked Freddy Court this weekend.

REU intern Amy Gilhoi, a renowned baker (some people like my cookies), was feeling especially generous after a day of relaxing and recharging and decided to bake oatmeal

raisin cookies for the other REU interns as several of them had expressed that this was their favorite type of cookie.

\*\*\*Okay, side note here. Never before have I met someone who claimed oatmeal raisin as their favorite cookie. Oatmeal raisin is fine. It's a classic, and I will eat it if handed to me. Given the whole wide world of cookies, however, I cannot imagine choosing such a mundane cookie as my very favorite.

Here comes the weird part: Four separate REU interns told me this was their favorite cookie, and I am led to question the sanity of this group. \*\*\*

Okay, I'm switching to first person. Third person is a little too weird, even for me.

I had not yet baked in these ovens, so I was a little wary, but I'm an experienced baker, right? I figured my first batch might be a little off, but I knew the recipe would make at least three batches, so I'd definitely have cookies and all would be well.

No.

The ovens are set with a dial, which is frustrating for baking, but I figured I just might have to adjust a little more. I set the dial to 350, waited for it to preheat, then placed my cookies in the oven.

I smell a lovely smell.

Then a not-so-lovely smell.

I frantically opened the oven to find that my parchment paper had been scorched, the bottoms of the cookies were black, and the tops were entirely raw.

I was horrified.

This obviously meant that the oven was way too hot, so I turned it down 25 degrees (if you bake, you know this is an insane amount). I tried again. Same thing.

I turned it down even more and moved the rack way higher than I ever would normally. Still, the cookies were inedible.

So, no cookies. Sorry everyone.



Here is a random photo from the internet. The actual cookies were much, much worse.

# **SOLIDWORKS PANIC**

Here's a final short story: I don't get it.

Why are there so many menus????

My bother says it shouldn't be hard and he's usually correct (**NEVER** tell him I said that), so hopefully I figure it out soon.

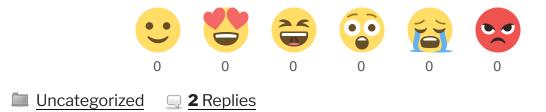


Weekend Update!!

Here's my song for this post:

I have no explanation for this one other than I love Billy Joel.

Enjoy.



Edit

## Blog #3: Hello There!

🛗 June 9, 2023 🛛 💄 Amy Gilhoi



I'm sure you missed me.

### What's happened since last time:

• We watched Star Wars in the auditorium (can you tell I picked the movie?)



# SIDE RANT-----

The prequels have a place in the Star Wars world, as much as \*certain people\* would like to say that they do not. Without them we would not have some of the best Star Wars quotes (see title). AND pod racing.



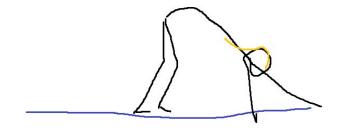
Why are we hating on this!? Don't answer, I'm listening to Across the Stars too loud to hear you.

All-time love themes contender.

# RANT CONCLUDED

Moving on.

- We learned to take scans! Look at Tim's blog from the other day to see some evidence. It's pretty cool.
- We did yoga. I normally only do yoga in private because I am very inflexible and this is embarrassing! So I just chilled in the back of the class and tried to tell myself no one was watching even though I am a notorious people watcher and know that everyone is always watching. It was cool though. I like yoga.



microsoft paint depiction of me trying to do yoga

• Finally, I went and found the piano in Memorial Union today. Some dude sat and watched me play and I got embarrassed.



my performance (please don't judge i can't handle criticism)

Three more hours until I can nap! See you on Monday.



Uncategorized Edit

## Blog #2: Mission Sleep Eight Hours

🚞 June 5, 2023 🛛 🚨 Amy Gilhoi

I am so tired.

Seriously, who let me regulate my own sleep schedule? Waking up at 7:30 every day means that I wake up at 7:30 EVERY DAY, but somehow I still think it's acceptable to not get into bed until 12:30 or 1. This could be used as evidence as to why I was on JV math team in high school and not varsity.

A massive contributor to my sleepiness is the amount of physical activity I have been doing lately. I keep tripling my move goal on my Apple Watch which I'm totally enjoying but it is **intense**.



An example of the insanity!

Saturday was my 21st birthday and also the escape room activity. We did, in fact, escape, so I was able to get dinner at Texas Roadhouse with my boyfriend later that night which was a fun present.

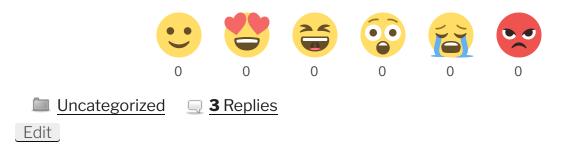
Nothing much is happening with research yet, so my goal has been to try and appreciate some of the pretty nature on campus. Here are some pictures I took on my walk today:



On this walk, I attempted to find a piano in the music building, but was disappointed to learn that all of the good pianos were locked up. I want to play jazz, not steal a grand!

Speaking of, here's some jazz for your day:

Okay, back to the C++ grind for me. Peace.



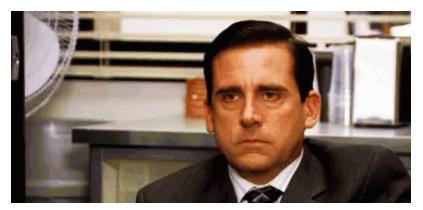
## Blog #1: A Metaphorical Alley Cat

🛗 June 1, 2023 🛛 👗 Amy Gilhoi

Hello and welcome to my first blog of the REU! I'm not counting my other one. Fresh start?

I can't decide how I feel about the blogging requirement yet. In high school we had a couple of blog assignments which I liked, but they were a lot more structured and I really knew what I would be writing about each time. Here, I feel a little lost.

Today is day 3 of the REU and day 2 of being in VRAC. Yesterday was a really intense dayso much walking around in the heat! There were so many pictures being taken and I looked so sweaty and I wasn't super into that, honestly. When I got back to my room after the day was done I just stared at the wall while I ate my food. I had zero energy left.



POV: you're my wall at the end of the day yesterday

Today's been a lot better for me. We started later (yay!) and then learned about our projects and met our profs and grad student mentors. I'm actually really excited about my project. I was concerned when I read the paper we were given beforehand because there are a ton of physics/engineering concepts in there and I know very little about either of those.

In short (because I literally don't know in long), we're working with 3D scanners and their biometric applications, specifically fingerprints. We know that scanning can be done at a very fine scale, but we don't yet know the accuracy of the scanners. In order to test this, we're going to work out how to scan a finger, create a 3D model, and then print out a finger in skin-like material and see if we can get it to unlock a phone. So that's sick.

This winter, I was able to visit the Mayo Clinic 3-D printing lab, where they print surgical cutting guides. I had approximately zero interest in anything to do with additive manufacturing before that, but my horizons have been widened now. I wouldn't say the project is right up my alley, but it's like another connected alley with a really cute cat in it that I couldn't help but stop and pet. Maybe this is a sign that I should not spend my time in alleys. Moving on.



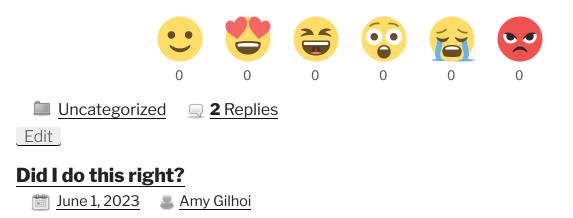
A cat, for reference

I like all my blogs to have a theme or a thing that I do every time, but I'm not sure what that will be for this one. Something I'm going to include right now is the song I'm listening to:

Wide Open Spaces!

Fantastic song. Makes me want to run around in a field, which is convenient because, like, lowa.

Anyway, I've written too much and now you're bored. See you next time!



l'm not sure.

Anyway, I think that AI is ~fine~. I like that it makes it easier for me to code and I just try to ignore all of the scary things it could potentially do for me in the future.

