June Ge

Day 46: 5 AUG 16

Posted on August 5, 2016 by junegAugust 5, 2016

I said a while ago that beginnings are no time to be sentimental. Endings, for some arbitrary reason, are. I'm writing this where I wrote my first blog post ten weeks ago, but the office is empty now. Instead of youthful, undergraduate enthusiasm, all I can hear is the quiet underlying thrum of fluorescent lighting and several different flavors of cooling systems.

I've spent a lot of time recently talking about expectations and the overturning thereof, sometimes in front of a camera and sometimes perched on a stool by the soon-to-be empty kitchen counter at our Freddy apartment. We've been navigating this space for more than two months now, adjusting the sets of heuristics that we carried with us like security blankets. Maybe it's a good thing to pick those apart just a bit, backpropagate some errors on the loose threads that we tug free from their stitches. I think we've learned a lot. I've a learned a lot. Most of what I've learned is stuff that I didn't ever think I'd come to a virtual reality research center in Iowa to learn, but I think it was about time I escalate some cognitive demand with an unexpected event or two. (Too close? Shall I say "Woods & Patterson, 2000"?)

Now we're all heading home, or at least to a place where we have a bed to lay ourselves down in for more than a night in a row. Sometimes I see our little life trajectories like glowing lines on a mental infographic, dipping together in the center of a central state and exploding outwards again not too long afterwards. They'll keep going and before long that tiny intersection will just be a speck on a Pollackian topography. The engineer in me would want to round it off and say that it meant nothing at all in the grand scheme of things, but shockingly engineers are sometimes wrong. Flap a butterfly's wings, round off a few decimal places. Maybe it meant everything. So long, Iowa.

Day 43: 2 AUG 16

Posted on August 2, 2016 by junegAugust 2, 2016

Might as well start calling us Team Blognitive Assistant.

I'm hanging on to consciousness and a cup of warm stimulant at the moment. Briana is proselytizing for the Church of Hamilton. Stanley's at his desk with his customary stack of UDCC bananas in front of his keyboard. We just got back from our meeting with Dorneich and Guliz, trying to tie up all the loose ends we still have over the next couple days.

Day 42: 1 AUG 16

Posted on August 1, 2016 by junegAugust 1, 2016

Day 42. Nerves are fraying. I'm typing this while hiding behind my monitor in case some of the increasingly heated, deadline-driven verbal friendly fire ricochets off nearby teams and takes an eye out. Morale is falling. At least I can safely say there's been no shortage of rations.

Briana just sent our final poster off to Amy. The next time we see it, it'll be 40" x 32", glossy, and beautiful. I

managed to pull myself out of an extraordinarily difficult-to-leave bed this morning at 7 to finish up the work-domain analysis diagrams for it. Now we're just a paper and a presentation away from the planes that'll shuttle us back home. Just wait–I'll be sitting at a window seat, spending the whole flight half-expecting to see a sketchily-rendered conical mass of grey pixels appear in front of me. Maybe I'll print a copy of that diversion checklist for myself before I go.

Happy August.

Day 41: 29 JUL 16

Posted on July 29, 2016 by junegJuly 29, 2016

It's another of those grey days. I think Ames is mourning some great loss.

Biosensors and EEG are both at their respective labs right now, but whatever we're missing in headcount we've definitely made up for in sheer destructive enthusiasm. I played useless bystander while my teammate carried out a midair-interrogation of my roommate over his lost backpack. Stacy poked her head over the highly symbolic dividing wall (that I'm sure most of the grad students want expanded into a full-on room) to remind us of our inside voices: not our first noise complaint but hopefully our last.

I haven't gone for a run in way too many days. First thing on the agenda as soon as we get our last data point (who's sitting a few feet away from me right now discussing government structures with my team). Happy Friday, y'all.

Day 40: 28 JUL 16

Posted on July 28, 2016 by junegJuly 28, 2016

We'll be standing in front of a poster in fancy clothes this time next week. Guess it's crunch time.

Day 39: 27 JUL 16

Posted on July 27, 2016 by junegJuly 27, 2016

Our first pilot trial yesterday afternoon ran about an hour too long. We got some good feedback from Dr. Dorneich before the trial and some good feedback from our first participant (thanks for being a trooper, Brian). We're going to be tinkering with the procedure a bit, so hopefully all the runs from here on out will be a little more streamlined.

The sky's hovering over us with one of those threatening, bucket-esque grey expanses again. Let's hope it holds off dumping it down until we manage to get ourselves home.

Day 38: 26 JUL 16

Posted on July 26, 2016 by junegJuly 26, 2016

We're running our first pilot test today. By this time next week we'll have turned in our final poster. By this time next next week I'll be back on the east coast. Time flies. And people, too, all over the world. I've thought about how we'd live differently if space could only be traversed in one direction like time (well, at least as far as we're currently capable), if every step took you farther away from an origin you couldn't turn around and head back towards. Every movement would have to be an investment; we'd look down on mindlessly wasting space by traveling aimlessly. Maybe we'd cling to home like we cling to youth.

We're all leaving these little trails of invisible bread crumbs behind us, those fairy tale pheromones that criss-cross

the places we've been and the people we've been lucky enough to meet. Sometimes we crash into ones who'll mold us like new clay. And the fingerprints they press in don't ever really disappear, something like heat or memory bakes them in even if the endlessly scrolling dimensions tumble us across half a universe. They dig their way to the surface again, randomly, unexpectedly, throwing us into a thousand-yard-stare at the grocery check out line.

But yeah, we're finally collecting some data this week. Thanks to everyone who signed up.

Day 37: 25 JUL 16

Posted on July 25, 2016 by junegJuly 25, 2016

Fun fact, 37 is my favorite number. Hope that bodes well for the presentation we're giving today. That means I'll have to go run through some slides and tuck my shirt in in a few minutes.

Day 36: 22 JUL 16

Posted on July 22, 2016 by junegJuly 22, 2016

Might've missed a couple of these over the past couple of days. I guess they've been keeping us busy. We had a personal statement seminar on the 20th, which got me thinking about next summer. There are a lot of research-based programs out there that still interest me, but I feel like it's about time for me to take a foray into industry if I can snag something there. I wouldn't mind being a code monkey for a summer; at least I'd be able to find out if I could put up with a gig like that in the long term.

We spent blog time yesterday at Guliz's lab going over the experimental booklet. Excuse my lack of faith, but I'm a bit astounded that we're ready to start running experiments. Cue the canned scripts, Qualtrics surveys, and potential shaving shenanigans. Let's get this boat on the road.

They stacked some advice and prep books onto us this morning in our GRE session with Mrs. Polly Gilbert. We were all pretty excited to get back to distilling our net worth as students into our ability to pick the right bubbles when presented with a column of several options. It's been too long. (Cynicism aside, it was a really helpful information session, and I definitely do appreciate how readily this program has provided us with resources for things like this.)

Day 33: 19 JUL 16

Posted on July 19, 2016 by junegJuly 19, 2016

We're back from our impromptu Des Moines trip. It's going to be one of those weeks where every day doesn't feel like the day it's supposed to be, I can already feel it. "Tuesday," sure. (But happy birthday, Wisdom!)

It's raining right now, the slow, consistent patter that I'd grown used to with Providence and was almost starting to miss. Flash summer thunderstorms that bluster in and out in less than a half hour are refreshing and all, but sometimes you just want to draw out your rain at a sweeter pace. In other news, I forgot to bring an umbrella.

Our prototype wireframe should be more or less complete by the end of the day. If we can get it to run smoothly on a tablet and work alongside our flight scenario, then we can start testing. The clock is ticking on the whole having-data-to-present thing.

Day 31: 15 JUL 16

Posted on July 15, 2016 by junegJuly 15, 2016

The word "monster" apparently fell into use around the early fourteenth century, working its way through French

from the Latin word *monstrum.* The latter denotationally just meant "omen," but it gathered enough ill-will in its connotation to get around to where we are now. There's some weird linguistic tendency for emotionally charged words to flip their orientation; some professor somewhere has probably given it a name worth thousands of grant dollars. So I guess nowadays we pop open cans of the energy drink version of it, listen to songs about the hit-record version of it, wander around neighborhoods catching the pocket versions of it.

It's been a long week and Baader-Meinhof is hitting pretty hard, sorry about making even less sense than I usually do.

Day 30: 14 JUL 16

Posted on July 14, 2016 by junegJuly 14, 2016

I just held a cup up to my face and tipped it back and held it there for like 30 seconds before I realized it was empty. That just about sums up how well I'm functioning today.

Just got back from a meeting with Guliz at Black. We congratulated Eui on her successful defense this morning and had a nice heart-to-heart about how unpleasant grad school can be but how we should totally do it anyway. The assistant mock-up is in the works. So are the FlightGear scenarios. We have an Ethics course today. That'll be an adventure.

Day 29: 13 JUL 16

Posted on July 13, 2016 by junegJuly 13, 2016

I've been spending the day on my laptop moving boxes slightly closer to or away from other boxes. Gotta love wireframing. I hope the intense focus with which I created the blue-green gradient background will calm our subjects in their time of dire need. I'm about to go participate in a study, so I'll use that as a convenient excuse to leave this at four sentences. Actually my kindergarten teacher told me that five sentences was a solid paragraph, so I think I'm good now.

Day 28: 12 JUL 16

Posted on July 12, 2016 by junegJuly 12, 2016

Stephen touched on that engineering student's problem of taking the road less traveled by that leads you away from those consulting firms and into basement offices without windows grinding out grant proposals. The humble beginnings of the noble ivory tower.

It's been a very strange summer.

Day 27: 11 JUL 16

Posted on July 11, 2016 by junegJuly 11, 2016

A nice solid cube today. And two primes that rhyme. It's a good day.

We just had our Etiquette Lunch. I'm always surprised by how many different pieces of silverware I'll never bother to remember. It's funny how consistently our culturally-specific, arbitrarily complex sets of social protocol get handed down over the generations. In a sense, they're the embedded prior expectations that make efficient interactions even a vague possibility, the muddy human version of how much faster it is to insert into a previously sorted list (depending on the algorithm you're using yada yada it's a metaphor). When we held our Journal Club discussion, I floated a question about the things that computers are good at versus the things that humans are good at.

The simple things are always the most deceptively complicated; ask a robot to walk or a computer to tell you whether a picture has a bird in it and you start to cross over into the realm of artificial stupidity. How we should even try to establish some underlying contextual database of background knowledge has always been a bit of a point of contention, but a lot of work has been going into developmental robotics recently (and not so recently, too). There's a lab here at ISU dedicated to it, led by Alexander Stoytchev. One of their posters is tacked up on the wall above my head, green and orange and just flowcharty enough to please a roboticist. You wonder how many of the science writer's favorite references to Frankenstein and Pygmalion have to be leveled at a field before they start sticking around in the backs of its researchers' minds.

In other news, Pokemon Go and the people walking around Lake LaVerne at 3 am in the morning with their phones out have been restoring my faith in humanity.

Day 26: 8 JUL 16

Posted on July 8, 2016 by junegJuly 8, 2016

I was reading an article the other day about how pre-washed and pre-cut vegetables are becoming more popular, particularly among the 18-35 crowd. It came to mind because I'm sipping on a cup of coffee that I just punched out of a Keurig machine. There's the classic engineer's dilemma, how to minimize costs when you have to quantify them differently for money lost or time used.

We held our Journal Club meeting today on Onken's 2001 paper about CAMA. It was interesting to hear everyone's perspectives on our project topic; sometimes it pays off to take a handful of steps back and look again.

Dr. Dorneich is back. We met with him today and caught him up. He said he stepped off the plane to 95 degree weather with a healthy serving of humidity. Glad to be home. Don't you think we should have something more efficient than modern airplanes by now? Whenever we stumble on something really good it's a blessing and a curse. You get that really good thing, sure, but you also get this dangerous sense of accomplishment and you settle back onto your heels with a complacency that only comes from the feeling of having done an hour's worth of work in the first ten minutes of your shift. Except scale that up and you have a century's worth of foot-dragging and back-patting. Or maybe it's the inadvertent blinders we throw up around our innovative vision when we choose some particular path down the tree of technological determinism. The actual way of things is the best of way of things because it won over all the others, right? The universe is that neat and pretty and clean, right? How do we climb out of the generational tunnel vision that we've spent our developing years cultivating in the name of education?

Apparently there are bobcats on campus. Iowa, man, it keeps you on your toes.

Day 25: 7 JUL 16

Posted on July 7, 2016 by junegJuly 7, 2016

Karen looked over at us today during the Luncheon Lecture and said that we looked tired. I guess it's been a bit of a long-short-week. Sleep schedules have been pretty questionable all round for the group, I think. The Deeper Dive projects stacking onto our actual research might've done it, but it was neat to hear everyone give their presentations yesterday.

Our paper prototypes are taped up onto the whiteboard. I can see them if I glance over my monitor. Using the rest of the REU as guinea pigs has kind of started to become standard operating procedure, so we're jumping on that bandwagon.

Trampolines and undead-themed burgers tomorrow. Then the weekend.

Day 24: 6 JUL 16

Posted on July 6, 2016 by junegJuly 6, 2016

Maybe it's just because we're in the middle of a program designed to make us want to go to grad school, but the whole "if you don't go to a grad program straight out of undergrad then life will take over and you'll never go back" thing has been hanging over our heads since we got here. Someone asked about gap years during the How to Apply to Grad School seminar and got that stock answer. Sometimes I feel like I'm walking a random chaotic walk that'll circle right back into academia. Some deterministic but unpredictable pull that'll tug me right out of any lucrative cubicle I sit myself into. Ah whatever, I can still call myself a freshman for a month or so.

Day 23: 5 JUL 16

Posted on July 5, 2016 by junegJuly 5, 2016

One month from today we'll be done with the program. I don't particularly have anything to say. Do you think you could plot life trajectories? Like for a ton of people, a country or something. Where you start and where you go and where you end up. I bet you'd find little whirlwind patterns of motion, little attractors that don't show up until you have enough data to sweep over a whole map like a long exposure of people waving cellphones. Maybe we'd see that we all have a bit of rhinoceros in us, or salmon swimming upstream back home.

Day 22: 30 JUN 16

Posted on June 30, 2016 by junegJune 30, 2016

I was the only one at the yoga class this morning. It's been a consistent shade of grey outside. Great for running before sunset but not so much for the general campus energy, maybe. Listened to the newest episode of *This American Life* yesterday on my run; they did a piece on making mistakes–purposefully, not out of ignorance. Actively choosing the wrong decision. We had a speaker today whose work in apparel spans design and sustainability and function. Something something, society making the wrong decisions in favor of small-scale benefits, blah blah tragedy of the commons, you know how I write spiels now.

Day 21: 29 JUN 16

Posted on June 29, 2016 by junegJune 29, 2016

Just got back from a pilot test with Guliz for another experiment that she's running.

Fourth of July weekend is coming up. Five-ish more weeks.

Meeting with Guliz again this afternoon to submit the IRB. Then we'll be back on track with milestones.

Day 20: 28 JUN 16

Posted on June 28, 2016 by junegJune 28, 2016

It's funny how every field develops a certain culture; you walk into a department building and it's like crossing into foreign territory. The jargon changes enough that phrasebooks might come in handy. The whiteboards/chalkboards (another cultural difference in and of itself) are scrawled with diagrams that might well be (and sometimes occasionally are, speaking for Brown, at least) hieroglyphics. Down to the way people dress, the decibel level and prosody of conversations, it's uncanny how finely the dividing lines are drawn.

As an engineering major, I'd always felt just a little on edge in my school's CS building, just a little more comfortable

in rooms where duct tape and WD-40 were always readily at hand. I think as I'm writing this though, I'm realizing how different the VRAC feels. At first glance, it feels a little steeped in cs culture, but HCI really does pull people in from all over the place. I wonder to what extent people keep their individualized backgrounds, or whether they just come together to create a new flavor of homogeneity. Mostly I wonder if there's a perpetual on-edge-ness that hangs around, that side effect of all speaking different languages and wondering whether anyone is understanding you.

Day 19: 27 JUN 16

Posted on June 27, 2016 by junegJune 27, 2016

It's Monday. Happy Monday. 27 is a nice cube, not divisible by 6 though which is a bummer. At least they share a common factor. But in a weird way that makes it even more uncomfortable, you know? Like how experimental physicists tear into theoretical physicists more than they would a sociologist or something. We have a lot of things due on Friday. I would list them but then I'd have to open a new tab and check the milestones so I'm just going to leave it at that. Guliz is running pilot tests, we got CUDA running on our machines for the deeper dive session this afternoon, and I'm running out of things to say.

Day 18: 24 JUN 16

Posted on June 24, 2016 by junegJune 24, 2016

Happy Friday. I only have a couple minutes before we have to go to a meeting (maybe?) and I've just been staring at a blinking cursor, so I guess that's that. There goes week four. We're a month into the program now. June is almost over. Our IRB is basically done, our procedures are being finalized, we're "diving deeply" into things now.

Day 17: 23 JUN 16

Posted on June 23, 2016 by junegJune 23, 2016

To be completely honest there are just too many things in my head right now and they're all connected to each other in vague passing ways and it would be so pretty if I could put it all down into words but I just don't have the patience today to follow a thread through like that. That's what writers do, and I can only pretend to be one of those sometimes. It's ironic because one of the things rattling around in here is parallel processing (we just had a speaker whose work deals primarily in the GPGPU flavor of parallel computing), and wouldn't it be nice if language supported parallelism? There's a camp in the artificial intelligence field that believes the future of AI lies in massively parallel systems, that the undeniably un-serial nature of the only "truly" intelligent systems known to us (i.e. human brains, but hah "who's telling you that?" says the old neuroscience joke) points at parallel computing as a step towards the emergent consciousness that so many researchers are striving towards. But then again yesterday I was listening to a machine learning podcast as I cooked dinner and one speaker brought up an accusation for the entire AI/ML community, that they have a tendency towards "Silver Bullet"-ism, that every new approach (neural networks, deep learning, etc. etc. etc.) sweeps the whole field up in the belief that they've finally found The One Thing that'll give us…what, sentience? One speaker called it physics envy, the desire to find out that deep down your field can be distilled to beautiful simplicity. But things don't just *do* that, he said, just look at biology. I'm reading this novel by Neal Stephenson about cryptography and war and sushi (and a lot of other things actually) and at one point he described a character's life as "fractally weird. That is you could take any small piece of it and examine it in detail and it, in and of itself, would turn out to be just as complicated and weird as the whole thing in its entirety." And if we wanted to make something that lived and breathed and thought just like our own fractally weird neurons do, would we have to build it just like we're built? If we threw together all the pieces and pressed play would we have a "Hello, world" convincing enough to throw Turing for a loop? Or just be stuck on the wrong side of the Chinese room? I don't know. Of course I don't. All I can do is keep passing these little characters out one at a time when it would be so

much faster to toss everything out like thought confetti. *Confetti* is one of those things that we only say in the plural. Once I pointed out that we never really talk about a "confetto" and my friend said, "That's because it would be a hell of a sad party." And one cell with its one Dale-ian neurotransmitter firing one spike every once in a while would be a hell of a sad party. So maybe, yeah, just run those scripts all at once all a little differently and cross your fingers for a beating heart. Or just use them to model a dyssynchronous one.

Don't Sue Me:

Talking Machines: Human Conversation About Machine Learning hosted by Katherine Gorman and Ryan Adams

Cryptonomicon, by Neal Stephenson

Day 16: 22 JUN 16

Posted on June 22, 2016 by junegJune 22, 2016

Shout-out to Briana for the great work she's put in to our IRB application. We're finalizing that up for Friday: adding the necessary attached documents, clearing up technicalities regarding funding, and Guliz is meeting with some people from the IRB to discuss…things? Most of that should be done by the end of the day so that Dr. Dorneich can take a look at the application before Friday.

More Unity today, some Craft of Research tomorrow, Journal Club on Friday. And then another week is over. The next milestone is our Research Question/Lit Review, which should come pretty naturally from the Problem Area Paragraph; the Methods should fall very easily out of the IRB framework.

Day 15: 21 JUN 16

Posted on June 21, 2016 by junegJune 21, 2016

Dragged myself out of bed at 6am this morning to go to a yoga class. Who even am I, jeez. It was nice, though. I might make it into a habit.

It's officially summer now. Every day from now until December 21st is just going to get shorter. I'll have to start moving my sunset runs up by a couple minutes every few days. I kind of wonder what I'll be doing at that solstice, or how I'll be doing. I'll have finished this REU. I'll have another semester under my belt, midway through sophomore year. Exactly six months from now, I'll probably be on a bus, dead asleep, driving my way down the East coast back towards the place where I was born and raised. And then the days will start getting longer again. Will I still be carrying anything with me from this summer?

A lot of talk about experimental design this week. We had a meeting with Guliz and Dr. Dorneich in our usual conference room in Black Engineering. "I kind of feel like we're going in circles," says Briana as we scramble into the world's slowest elevator with the world's fastest closing doors, to paraphrase the woman we'd ridden with on the way up. It's a bit like this summer, actually. Each forward-snapping deadline traps you onto a single track motion that can feel horribly sluggish. But that's where faith comes in: without any useful little windows, all you can do is hold onto the hope that you're actually moving up.

Day 14: 20 JUN 16

Posted on June 20, 2016 by junegJune 20, 2016

We started learning Unity today, a game engine that has gained an immense amount of ground in recent years. By tearing down some of the financial and technical barriers to entry that previously closed game dev off to established corporations, Unity opened the frontier for indie developers and drew its fair share of praise and criticism. It uses the

PhysX physics engine (I recently fell down the rabbit hole of physics engines while looking into the robotics simulator Gazebo, which pulls from four different ones, including the Open Dynamics Engine. Most robotics simulators seem to run ODE, which is an open-source engine authored primarily by this one guy from New Zealand. One simulator that does use PhysX is Microsoft Robotics Studio, but it's already essentially fallen out of favor among researchers).

Other than that, this week is going to be IRB week. We'll have to decide on our methodology so we can get it approved and avoid lawsuits from our human subjects. Fingers crossed on that front, I guess.

Day 13: 17 JUN 16

Posted on June 17, 2016 by junegJuly 29, 2016

During Journal Club today we talked about an article on head-mounted displays and the use of avatars to make users more comfortable with their own spatial orientation in the virtual world. The discussion moved to potential applications of VR, whether it would more often be a medium of isolation or one of connection. Proponents of VR tend to focus on the latter, with visions of a future that would allow paralyzed users to walk again in their own virtual world, or give someone the means to spend time with a person they love regardless of how many oceans are in the way. Sounds nice.
But then again, you could argue that we might as well spend the time and funding on brain-computer paralysis intervention or on creating faster, cheaper, safer international transportation. Assuming as we do that there's a real world, why not just work on fixing that before we try to run off to one we create? Maybe there's a certain irresponsibility in research that some might consider escapism, but oftentimes there's merit in pursuing the irresponsible.

Day 12: 16 JUN 16

Posted on June 16, 2016 by junegJune 16, 2016

We had a brainstorming session this morning with Dr. Dorneich and Guliz. We essentially decided on a decision-making model and are now working on the specifics of the task and metrics. IRB application due next Friday, so we're grinding down the track of experimental design now.

When I first got here, I remember thinking that the tap water tasted different, and not necessarily in a good way. I don't know if it's just that I've gotten used to it (probably), but it just tastes like water now. Habituation is a powerful thing; there ain't much in this world that a person can't eventually get used to.

Dr. Veronica Dark from the Psychology Department came in to speak with us today. She opened her talk with an underlying assumption that was almost luxurious in its comfort. It's one we make every day, that the world we can experience only through our imperfect perceptions actually does exist, independent of our observations. It's one we *have* to make, or risk losing ourselves in the complete, absurd meaninglessness of it all.

But yeah anyway, frisbee golf today after work. That should be fun.

Day 11: 15 JUN 16

Posted on June 15, 2016 by junegJune 15, 2016

We waved our phones around in the dark yesterday afternoon in front of a camera. Then this morning we filled the little shapes that we drew on our computer screens with different colors. We met with our grad student to talk about starting an application that she's essentially already completed.

Tomorrow we'll have another meeting with Guliz and Dr. Dorneich to brainstorm about experimental design before

our Luncheon Lecture. We'll put the finishing touches on the edited Problem Area Paragraph and submit that on Friday.

Day 10: 14 JUN 16

Posted on June 14, 2016 by junegJune 14, 2016

The longer you hold your breath, the easier it is to notice the little fist-sized pump sitting in the left side of your chest cavity. Well, not always the left. It's like the mindless muscle is trying to remind you that it's still there, it still needs something. We watched 30 frames of a heart on repeat today as Dr. Hsu presented his work to us. He'd always wanted to do bio work, he said, but there was the issue of funding. He'd taken on the military-funded arresting gear water twister project that he spent most of his time today speaking about for that purpose, funding. It's a lot of pressure to answer to people who don't know just how painstaking research can be, a lot of stress to squeeze money from those who don't want to give it up. Could you measure that stress with a simulation? Optimize the design of a student so he won't fall apart when the twister starts spinning? Maybe we don't even have the equipment to machine something like that.

Dr. Hsu's wife has been at UT Austin pursuing her Ph.D. in East Asian literature for the past decade. It sounds tough to be a family of academics with hundreds of miles and thousands of irregular work hours between them. Anything to carve that frontier of human knowledge.

We're meeting with Dr. Dorneich today to go over the draft of the Problem Area Paragraph that we sent him yesterday. He left some comments on a document that he emailed back to us this morning, and I'll be glad to hear his feedback in person.

Day 9: 13 JUN 16

Posted on June 13, 2016 by junegJune 13, 2016

We went to the Ames farmer's market on Saturday. Our team should have a problem area paragraph draft to send off to Dr. Dorneich by the end of the day. We started our course on Maya this morning, and we're having the second session this afternoon. Tomorrow we're meeting with Dr. Dorneich to discuss the problem area and where to go from there. Here's to a good week.

Day 8: 10 JUN 16

Posted on June 10, 2016 by junegJune 10, 2016

I almost forgot to write this today. It's been a long week. I'm kind of tired. First of all big thanks to Angelica (I think?) for the colorful desk that I returned to after lunch. I hope it wasn't too much hassle; you already do so much for us! If you're reading this, I hope you know how much I (and the rest of the REU participants) appreciate the work you put in for this program.

We're finishing up our C++ lessons today. Next week we'll be moving into some 3D modeling. I haven't done much with modeling outside of CAD and Solidworks, so it'll be interesting to see what capabilities Maya will open up. Our project team is looking to finalize the Project Area Paragraph over the weekend so we can send it to Dr. Dorneich on Monday. Guliz gave us some pointers today (obligatory C++ joke), so we'll have the weekend to patch it up. I guess that's about it.

Day 7: 9 JUN 16

Posted on June 9, 2016 by junegJune 9, 2016

We had our second Luncheon Lecture today from James Oliver, director of the VRAC. We received a lot of information about grad school, from both a logistical perspective and a more personal one. I keep finding myself being shaken from that supposedly sturdy decision I'd made at the start of my undergrad degree to head into industry before I returned to academia (if at all).

We also saw Guliz this morning and presented our initial draft of the Problem Area Paragraph that we'd pieced together over the past couple of days.The internal deadline that we'd established earlier this summer will be coming up on Monday. I've never been too great at establishing an accurate temporal orientation, but it shocks me to think that we've only been here for a little over a week.

Now I'm going to go put some caffeine into my system.

Day 6: 8 JUN 16

Posted on June 8, 2016 by junegJune 8, 2016

As with most ideas in mathematics, there are countless ways to implement the Fibonacci sequence in code. Most of them will fall into certain paradigms. You can start from scratch each time, looping through every number in the sequence by creating it from a couple of ones until you've reached the number you want. You update the values in your hand each time you iterate, moving forward from where you were before.

Or you can start waist-deep in the sequence, murky from where you're looking. If you dig down deep enough things get clear; you just have to make it that far and then carry it all the way back.

There isn't a best way to approach everything. Sometimes a naturally recursive idea flows more intuitively into a recursive approach, but other times it's purely a matter of preference. Some days you might need to inch along, rinsing and repeating and piecing yourself together in little measurable steps. Other days you flip yourself inside out and keep swimming deeper until you hit something solid, find something to bring back to the surface. Unless you don't, and the floor drops out from beneath you and you just keep tumbling. Where's your Ctrl-C when you need it, then?

In other news, it's 8:31 in Switzerland.

We met with Guliz again this morning. The current plan is to get our draft of the Problem Area Paragraph to her by tomorrow so she can look it over before sending it to Dr. Dorneich. We've settled into a comfortable niche in the literature, I think, and we should be able to carve out a project that covers some missing bases in the current research. The sooner we start thinking about experimental design, the sooner we'll be able to crank out an IRB application and get this rolling.

Day 5: 7 JUN 16

Posted on June 7, 2016 by junegJune 7, 2016

I walked out of the local Walmart yesterday evening and realized that the next CyRide wasn't coming for another 71 minutes. I figured I could get to Freddy in less than an hour, so I put my groceries in my backpack and started walking.

Ames suburbs are nothing like Northern Virginian suburbs. After I wove my way through a surprisingly large number of signs advertising tacos, past the first Starbucks I've seen with a drive-thru, and over some train tracks at a crossing that I'm not entirely sure I was supposed to use, I found myself standing in the middle of a neighborhood that defied the cookie-cutter-suburbia stereotype with a fury. Every single house was an entirely different patch of personality; I never felt like I could turn a corner and realistically ask myself, "Was this not the block I just walked past a second ago?"

Sometimes I manage to convince myself that I'll settle down inside the white picket fence of adulthood and fizzle out quietly. I'll take a high paying industry job and drive back and forth between two boxes for the rest of my life. For some strange reason it gave me a lot of comfort to see how dramatically different each family in that neighborhood could make their home, how dramatically different each day of work could be for Eliot as he described his life in research to us for our first luncheon lecture today. He emphasized the freedom allowed by his career to take on projects that span medical imaging, military training, general-purpose GPUs, emerging interfaces. I might end up leaving this REU with a heading towards academia, in part because a guy who studies PSO on GPGPUs convinced me that I can be more than another particle in the swarm.

Day 4: 6 JUN 16

Posted on June 6, 2016 by junegJune 6, 2016

After a morning of Hello-Worlds, we met our graduate student mentor Guliz. She flew back to Iowa over the weekend from a conference in Seattle, so we talked briefly about how to move forward and got a chance to visit her lab in Black Engineering. It's a surprisingly well lit room in the basement beside the courtyard, with desks and boxes pushed right up to the colorful window. It has that casual disarray characteristic of so many spaces occupied by academics, and I saw almost as many coffee makers as I saw displays.

An array of screens, angled towards a set of controls at its center, sat in the corner. Guliz introduced it as the FlightGear flight simulator that we'd be using during testing; we'll put subjects through virtual versions of "off-nominal flight events." It's cheaper to crash a plane with XML, I guess.

Tomorrow we're meeting with Dr. Dorneich again. Hopefully with the team all together we'll be able to get the project started in earnest. In the meantime I'm sure we have plenty more syntax to go over.

Day 3: 3 JUN 16

Posted on June 3, 2016 by junegJune 3, 2016

As I'm writing this, we're clustered in our brochure-diverse, interdisciplinary project teams, desks Tetris-stacked together in a slightly more open echo of the cubicle life that the grad students behind us are living. We've flown in from across the country, carrying backgrounds as different as the items in our baggage. But in the end we're all just college kids trying to fill big shoes and ten weeks. I guess this marks the end of week one.

This morning we took two tests. One tried to tell us what we know. About visualization, spatial orientation, hardware, software, the gamut. The other tried to tell us who we are. As is the problem with tests in general, neither of them, I bet, did exactly what they were trying to do. This REU is attempting to teach us about the life of a researcher, and we'll quickly learn how much of that life consists of settling on the next best option. Each day from here on out will do a better a job of telling us what we know and who we are, and maybe even a bit about who we can be. But this is a post about beginnings, and beginnings are no time to be sentimental. (Or maybe that's just my personality type talking, to put that Myers-Briggs to use.)

I'm looking forward to jumping into the deep end. From the meeting with our research mentor yesterday to the tour of VRAC facilities today, I've been thinking about how much there is to do and how little time we actually have. The wall above my monitor is plastered with research posters, a quality shared by many of the walls in this space. I wonder what our poster will look like, whether it will hang somewhere in this office or if its title will travel any further than the end of this program. A "Cognitive Assistant for Aerospace Missions" conjures up references to HAL, Jarvis, elements of science fiction that seem to wrap themselves around everything in this facility. Today we found ourselves standing in holodecks and peeking under replicators. If Clarke was right about the future of technology, then I'm looking forward to making a little magic this summer.

Here's to a good ten weeks.