REU|2017

Natalie Blodgett

Roomies Dine at Downtown Deli

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Posted on August 1, 2017 by blodgett

On the evening of June 31st, 2017, the three occupants of room 3216 of Frederikson Court expertly executed a long anticipated excursion to the famous Downtown Deli of historic Ames. One blind, one half asleep and all famished, together they had just enough senses to navigate the city bus system.

They entertained themselves by discussing the weather, travel and driving tests; and also by giving the blind one random eye tests (which she took in stride). After at least 30 minutes of travel, which got them a whopping 2 miles from their apartment, they arrived at the timeworn pair of double glass doors (that, I add, were in desperate need of washing) of Downtown Deli.

Inside, the deli was a straightforward place: retro menu board on the back wall, meat case with gigantic blocks of cheese in plain view, and an adept sandwich artist behind the counter. That didn't mean it was simple for the blind of the group to order a custom veggie sub, but I bet she could do it with her eyes closed if she had to.

No more than 10 minutes, one veggie, one Italian, and one Reuben later, the trio took a seat at one of several Plexiglas covered fabric tables in the window light to eat the best sandwiches in the universe.

Screenshot of a Snapchat, courtesy of Kate's mom:

CHAT

Long twisty necks:

[THE POSTER](#)

Alas, we had to submit our poster without results or analysis sections. But we were still able to put in a lot of good information.

Now we just have to finish the AR feature! Unfortunately the marker doesn't work with iOS 10 or older, so we're trying to get a hold of an Android device for the symposium.

Cyberlearning Environment Design for Engineering Education

The Problem

Engineering students are often tasked with designing and managing multiple concurrent abstract tasks without any decision support tool to effectively guide and track their progress. Additionally, current limitations of natural resources make it necessary that students be taught about sustainable life cycle engineering.

The Question

What is the effect of user interface design and augmented reality on the user experience of pedagogical engineering web applications and students' comprehension of subject material?

The Method:

User Interface Design & Augmented Reality for S-PASS

Our study particularly focused on transforming the current static learning environment of the Sustainable Product Architecture and Supplier Selection (S-PASS) tool into a more dynamic learning environment to promote engineering students' learning for sustainable life cycle engineering. Employing user interface design and augmented reality, we developed two enhanced versions of the S-PASS tool, 1) web-based without augmented reality and 2) web-based with augmented reality. We hypothesize that when the current version and the new versions of the S-PASS tool are evaluated by undergraduate and graduate STEM students using pre- and post-user experience surveys along with eye tracking, that it will become apparent that the more dynamic learning environments have improve students' tasks and learning performance.

Redesigned flowchart

Web development

Redux
Redux-Store
Single source of truth

Data

React
Dynamically renders content on the page
Handles user interaction

Update

Render

A-Frame
Allows for augmented overlay of a marker

Wireframes

Augmented reality demo:
Scan the QR code with your mobile device, then point your camera at the "Hiro" marker. (Not compatible with iOS 10 or older.)

Website

Future work:

User Testing—Perform user tests with System Usability Survey (SUS), pre-evaluation, post-evaluation, and eye tracking

Virtual Reality—Further develop the S-PASS module to implement virtual reality (VR) and examine the effects of VR on higher engineering education.

Areas of application:
In addition to this project's application within the CooL:SLiCE platform, these results are valuable for commercial and government organizations for informing the design of current and future pedagogical tools.

Thrust area:
Visualizing and prototyping

Project type:
Current

Deliverables & benefits
We have delivered a working prototype of the S-PASS tool and a complete information architecture for the CooL:SLiCE website. The user interface design on the S-PASS has been dramatically improved and also makes use of augmented reality as an product manufacturing learning feature.

Current state of research:
Sustainability tools and methods are lacking; moreover, interdisciplinary nature of sustainability makes it complex for single disciplines to cover it.

Percent complete:
20%

Industrial relevance

Promoting undergraduate learning for sustainable life cycle engineering.

This research effort has expanded on the development of the cyberlearning platform Constructionism in Learning: Sustainable Life Cycle Engineering (CooL:SLiCE). Specifically, it has focused on transforming the current static learning environment of the Sustainable Product Architecture and Supplier Selection (S-PASS) tool within CooL:SLiCE into a more dynamic learning environment.

This project:
Informs user interface design for cyberlearning environments
Informs research on augmented reality in higher education
Facilitates sustainable life cycle engineering in higher education

Authors:
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Posted in Uncategorized | Leave a reply

The Last Saturday

Saturday morning was my second and final visit to the Ames Farmers' Market. It was a pleasant surprise to bump into Kate, Sofia and Brittney, and later Alfredo as we both arrived back at Freddy's. Alfredo reminded me of one of the songbooks I bought a few weeks ago and gave me the itch to practice tonight.

I've never seen so many marbles in one place as at The Pumpkin Patch. They actually had *six* sizes. And then at the front counter they had even more that were hand-made. Those were a little pricey, but very pretty. The rest of the store was a mix of modern games and classic toys that looked like they belonged in the 1950s.

It's sinking in that the internship is over, but I'm also looking forward to this back in Idaho!

Sunday has been a workday for CSS styling, written documents and the poster!

Posted in Uncategorized | Leave a reply

Real Life Tetris

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Posted on July 27, 2017 by blodgett

REAL LIFE TETRIS
I broke down and got a box (well, had Kate get me a box.. Thank you!) for 50 some cents in case I have to mail some stuff home. I left space in my suitcases specifically so I wouldn't have to, but then I received a couple of delightful packages from family. I start playing suitcase Tetris tonight!

CooL:SLiCE
We've made great headway on both website and paper this week. With only 9 days left, I'd actually be relieved if we don't get IRB approval… Although we would have to restructure our paper and poster. If we do get it, we'll be scrambling to perform the experiment, and analyze and interpret the data… Either way, we'll make it work!

TODAY
Today I redirected my efforts from the paper in favor of knocking out a poster draft. We found out Friday about a template that we're supposed to follow. It will probably end up getting styled like the CooL:SLiCE website, just with specific sections and school logos.

Posted in Uncategorized | **3 Replies**

Neophytes on Kayaks and the Emoji Revolution

Posted on July 26, 2017 by blodgett

Today I'm just going to sponge some photos from our kayaking trip. Jameel and Sushi are making progress on the website and I've been whittling away at the paper! Ten more days!

Still waiting on that IRB…

On second thought, here's an [entertaining article](#) I came across on the emoji revolution. I still remember when I started using emoticons on Facebook chat. Right now, the most interesting aspect to me is that written communication began with text as image and is again moving that direction. Something that the article doesn't point out is that some languages like Chinese are still very much image-based. Each symbol within a Chinese character visually represents an object, sort of like an icon or emoji. Also, as someone interested in typography, it's been fun to watch the emergence of "emoji ligatures."

Wayfinding—Through Grad School to Industry

Posted on July 25, 2017 by blodgett

Chase Meusel, UX Researcher at Microsoft as of December, gave the luncheon lecture of the day. He emphasized volunteering, interning/working in your field of interest, and finding a mentor. He also recommended attending open houses, seminars, conferences, and taking on leadership roles. Basically, don't sit around a wait for good stuff to happen.

One interesting thing he pointed out that I hadn't considered was that market research was not a part of his grad school and was something that he had to learn for his current position in industry. He also talked about PhD. prelim and final defenses. I hadn't realized there was a difference.

Below is a recap of his slides.

Stage 3 – Industry

01 Absorb knowledge

02 Take on responsibility

03 Manage identity

Readjustment & Subtleties

SUBTLETIES

Sub-tle-ties. Seriously, that has to be one of the strangest words in the English language. Suttleties. Sutteltees. Sutle… And I just got unreasonable annoyed at not being able to spell this on my first try. But moving on…

It just struck me today how many similar but different terms I have run across over the summer. I've blogged about some, but the last couple days have more than quadrupled that number. For instance, there are about a million terms relating to technology and teaching methods, with *subtle* differences, no differences, or differences that vary depending on who's talking.

e-learning — electronic media learning, typically on the internet

m-learning — mobile-learning

Technology Enhanced Learning (TEL)

Distance education or Remote learning — education of students not physically present at school

Digital learning — instruction that effectively uses technology

Adaptive learning — an educational method using computers as interactive teaching devices

Blended education — combines online digital media with traditional classroom methods

Flipped learning — lecture and homework elements of a course are reversed (lectures viewed at home, exercises, projects, discussions done in class)

Personal learning environment (PLE) — either a concept or technology for creating custom learning environments

Constructionism or **Constructivism** — As far as I can tell, these are *exactly* the same thing. A bit inconvenient when you're trying to search databases for articles.

Augmented reality or **Augmenting reality** or **Mixed reality** — Again, these terms are basically interchangeable, making searching for information tedious. Augmented reality is definitely becoming the norm, though.

Side note: Three or four articles I found this weekend via Web of Science were written completely in Spanish. Fortunately, I can read them, but it got me thinking. What if the most relevant research in your area has been done in another language?

READJUSTMENT

Aside from teasing apart definitions for my research, I've started to think about what readjustments I'll need to make when I move back home. For example, not being able to walk straight down the center of the major state rivers. We were all old hands at the portage of kayaks after a day trip on the Des Moines river this weekend.

(Below) Heading to the water!

TESSELLATION

I also found this photo that got buried but was supposed to end up in a blog somewhere. Behold, a printed video. This is three frames of my Photoshop tessellation animation, exported as PNG, extruded in Maya and combined in Rhino 3D. This still makes me very happy.

[New Tech Evaluation and Intelligent Tutoring Systems](#)

Posted on <u>July 20, 2017</u> by <u>blodgett</u>

Such small things can change the course of people's lives so dramatically.

> ..The little boy who says he's going to such and such high school because that's where the smart people go…

> …The aunt who knew a faculty member of a prestigious school who then arranged a meeting…

> …The reception where the student didn't go talk to the professor after an interview and didn't get hired as a result…

Stephen Gilbert gave our luncheon lecture today and spoke of his academic career, projects, and networking.

SKI SLOPES FOR VR
Most recently, Stephen attended a multi-disciplinary conference to discuss visual motion standards. One of the main drawbacks of VR is it's tendency to cause sickness. Conference attendees—including companies like Google, Sony, Apple, Oculus, and NVIDIA—are considering a labeling system much like ski slopes. How fun would that be?

Apps that are most likely to cause sickness would be labeled as black diamond, and apps that are least likely to cause sickness would be blue. This way, individuals could judge for themselves whether they want to subject themselves to the VR experience.

Would people start to take on the black diamonds as a competition?

Will increased exposure to VR have an effect on susceptibility to motion sickness? In other words, would people find their sea legs?

AR ASSEMBLY—BOEING

As for projects, Stephen has dipped his fingers in many areas of research. One of his specialties is the evaluation of emerging technology. In a particular study for Boeing, he asked "Does AR Help with Assembly?"

Three versions of an assembly instruction app were tested—one on PC, one on an iPad, and another on an iPad with AR.

This is quite similar to our CooL:SLiCE project, in that they were testing the existing interface against two new interfaces, one of which included AR.

Participants were asked to assemble a simplified, physical wing. The AR app had the best results for all three measures of time, number of errors (specifically uncorrected errors), and Mean Net Promoter Score. By tracking participants' movements and what direction they were facing, the study was also able to measure efficiency. The simple mapping and simulation of this type of tracking data is always fun to watch.

The study's results led to a second study to determine what AR directions are best in what situations. Comparing tunnel and occlusion methods, the study found that results varied by task. Some discussion in our group during the lecture was spurred by questions of how the visualization of each task differed aside from the direction method, and how that might have affected the results.

For example, could a simple animation of a secondary piece moving into place reverse the results?

COMBINE SIMULATION—DEERE

There is an entire combine simulation at VRAC—seat, screens, wheel and all. In one of Stephen's studies, he evaluated two apps that wheat and corn farmers would potentially use while driving combines. After modifying the combine to simulate varying degrees of moisture in fields (no easy feat!), they used Empatica E4s and electrodermal activity sensors to gather physiological and biofeedback data.

The data showed an increase in trust over time of one of the apps. The survey results of the study also revealed that the app was more relevant to corn farmers, presumably because moisture is not as much of an issue for wheat.

INTELLIGENT TUTORING SYSTEMS

How do you make the jump from observing people to knowing what people are thinking? This is a core question to Stephen's multiple intelligent tutoring systems projects.

There have been many ways that attempt to understand what people are thinking, such as sentiment analytics, predictive analytics, and standardized tests (by the way, for an interesting history on testing, the eugenics movement and the term "Asian-American," consider *The Big Test*).

Stephen showed several examples of tutoring systems that he has created. There was one for Paint.net, one for natural language responses (which I thought was the most interesting of all), and more recently one for teams for the military.

The future holds possibilities for games, medical apps, and who knows what else?

NETWORKING IN ACADEMIA

In conclusion, Stephen gave anecdotes mixed with charts of how he got into his field and grew his network.

If you apply to grad school, make sure to stop and talk to the professors after your interview! This lesson was learned by a less fortunate applicant.

More good advice in the form of books:

Networking on the Network
How to Succeed in Graduate School
Getting What You Came For

FASHION UPDATE

Crimson, gold, and corn are making a comeback! Soon Iowa will witness this new trend, starting somewhere around the VRAC area on ISU campus.

Creating this took long enough… but it's finally sent to print!

*Pending IRB approval

COOL:SLICE

NATALIE BLODGETT
MASASHI SCHAFER
JAMEEL KELLEY

NAV

DEVI ACHARYA
EMANUEL BUSTAMANTE
ALFREDO VELASCO II

TIMELI

KATE ATWELL
CHRIS KAWELL
SOFIA LOYA

AR/VR

BRITTNEY HILL
EMMA R. DODOO
AUSTIN GARCIA

Posted in Uncategorized | 3 Replies

CONTRAST CHECKER

Kate was kind enough to send me a color theory article she found today. Through the references section, I found this sweet WCAG 2.0 Contrast Ratio Tool by Lea Verou. I can now test all of the color combinations in our UI, including opacity! Whoop! (Also see Web Content Accessibility Guidelines, aka WCAG.)

COBLIS

Also, while we are not focusing on accessibility for color blind students for the first iteration of our design, this Coblis online color blindness simulator is a good tool for checking overall contrast. Whereas the Contrast Ratio above gives precise analysis for two colors, Coblis lets you view an image of your entire page under various lenses (see render of Red-Weak/Protanomaly mode below).

WITH THE MIND IN MIND

Out of all the UI documents I've found so far, I'm enjoying *Designing with the Mind in Mind*, by Jeff Johnson the most. His concise, simple explanations encompass cognitive psychology, accessibility implications of language and color, Gestalt principles of visual perception, data structure, visual hierarchy, error messages and more—*each* with background research and specific implications for website user interface design. Jackpot. This book led me to create a Task Analysis and Conceptual Model for our project, which has helped me think about it in more user-centered terms.

FOR THE FUTURE

As for tools that I want to look into in the future, I was talking to Alex last night and he informed me of some tools the VRAC uses regularly, namely cmake.org, www.qt.io, and openscenegraph.org. Good stuff to look into as a designer.

Posted in Uncategorized | 1 Reply

Minutes in Between

Posted on July 19, 2017 by blodgett

OLD BUILDING STRUGGLES

The library is beautiful and perfectly at quiet at 7:30am. But those factors are irrelevant when there's no place to plug in your computer and the internet is not connecting. So my early morning work plan failed, but I got to see more of campus.

IMPROVISATION AT IT'S BEST

Today I finally took a minute to walk up this staircase that someone randomly turned into a greenhouse (in Hoover Hall). It's very warm! A sad, yet humorous note was taped on one of the plants imploring people to stop stealing them.

Waiting on that IRB…

ASSUMING IT'S APPROVED…
Journals/conferences to consider for publishing:
DCC — Design, Computing and Cognition (The best information I can find on this is an out of date website…?)
CHI — Computer-Human Interaction

Dr. Kremer suggested trying our best to finish the prototype this week in order to start testing next week. We also need to get more familiar with Tobii and write our Methods section to work out any experiment kinks. She will make a call about our pending IRB approval and have a couple people do a pilot test of our surveys.

3D VIDEO TESSELATION
This weekend I revisited my MCA project. Alex had taken a look at my STL and recommended I use Rhino to combine my video layers. It worked, but because of how I created my model, the edges from each video frame layer don't transition smoothly.

YouTube videos I found helpful for Rhino:
Object Snapping with Move Tool
Layers in Rhino

ADA HAYDEN

I rode over to Ada Hayden to run this morning and was rewarded with a sunset on the water and a doe and her fawns having breakfast by the path…

ADA HAYDEN

I rode over to Ada Hayden to run this morning and was rewarded with a sunset on the water and a doe and her fawns having breakfast by the path…

GitHub and Forest Trails

STEPS TOWARD STYLING

Yesterday afternoon I worked on setting up GitHub so that I can help with the styling of the S-PASS website. Currently the command line is giving me one fatal warning after another…

But that should get fixed today!

In the meantime I'm reviewing CSS3 and looking at React-Bootstrap.

TRAILS ON TRAILS

This morning I explored the Skunk River green belt, Peterson Pit Recreation Area, McFarland Park and Ada Hayden (I think the trails within Peterson Pit and McFarland are considered part of the green belt?).

I'm pretty sure I saw two of these dashing fellows:Indigo Bunting

And I definitely saw a pair of these less reputable characters:Turkey Vulture

Here are photos and a video in the thick of the Peterson Pit trails

Peterson Pit Trail Video

Next time I'll probably skip the Peterson area. There were a few too many bugs, mud patches and sandy strips.

And even though not all of the trails at McFarland are open to bikes, they were really fun!

Ethics, Cognitive Load, and Trust

"Stories are just data with soul"

— Brown 2010

I liked this quote from our last HCI class.

I also appreciate how Jamiahus and Kaitlyn talk about design in general terms, relating the fundamental principles to both physical and digital/virtual products. When talking about measures, one thing that surprised me was that UX metrics (such as error rate, time on task, efficiency, and abandonment) are considered fairly qualitative.

ETHICS

We've had two ethics classes with Eliot Winer. I found the second day to be more constructive because we were talking about scenarios that we might actually experience in our careers. The topic of contracts was particularly interesting. My classes thus far have recommended outlining contracts in great detail to avoid miscommunication, so I had just assumed that this was best practice. However, I can see the benefit of not promising too much in the contract, and just delivering what you can, taking into consideration the expectations that you believe your client to have.

In regards to the first day, I think this is a very compelling article Marginalism and the Morality of Pricing Human Lives

LUNCHEON LECTURE

Jared Danielson spoke about his research in veterinary education.

The three types of cognitive load that he outlined apply to design in general:

- Intrinsic load — Irreducible cognitive requirements of a task
  - Bad
  - Dependent on the person
  - Can't do anything about it
- Extraneous load — static/interfering information or processes
  - Bad
  - Should be minimized
- Germane/Relative load — designed/intentional, for the purpose of learning
  - Good
  - Should be maximized

He recommended looking up *Deliberate Practice*, by Ericsson.

JOURNAL CLUB

Today we covered effect size and signal detection theory. TIMELI chose a good article! The various influences on trust of an automated system will be on my mind, and might spark further reading for my own projects.

And lastly, because I don't believe in blogging without photos… Here's a picture from the etiquette lunch (with Austin mysteriously missing…)

The Hunt for Trees

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Depending on where you're from, Iowa may or may not live up to your expectations in the tree department.

REU student Emanuel from Arizona was in some amount of awe upon arrival (he explains that they film moon scenes for the movies in his state. Talk about barren.). Our project mentor for CooL:SLiCE is on the other end of the spectrum. Since moving here from the east coast, she's been slightly depressed about the tree situation. BUT, she recently found Ledges State Park and feasted her eyes on the forestry for the first time in the corn state.

At our last meeting, upon seeing a stock image of trees in one of our UI mock ups, she got very excited. Insisting that we go see the miracle of Ledges State Park for ourselves, she said we should take and use authentic Iowa tree photos in our project. I never argue when someone asks me to go on a hike and take pictures.

Thus, equipped with the knowledge of the whereabouts of a thriving tree population, the three of us set out with two DSLRs and eyes peeled.

It was hot.

And you won't believe what we saw…

(Photos by Jameel and myself)

Trees!

And rocks.

And birds…

So if you're on the same side of the spectrum as our mentor, I suggest a jaunt in Ledges Park.

Posted in Uncategorized | **9 Replies**

Iso-surface vs. Volume Rendering

(Updated)

The sunrise, in case you missed it… Spectacular.

And other photos from my morning ride. …Why does Iowa have so many gravel roads?

Here's one with a nice view:

MCA PRESENTATION

The Deeper Dives and MCA projects/presentations were probably my favorite part of the summer. Diving into 3D printing and choosing a project was even more fun than I expected. Although I wasn't able to finish both of the prints that I wanted, my first one turned out quite well and I might still be able to finish the other.

Recap: Both projects were based on the idea of layers in additive manufacturing and that a 3D model can be made by simply combining 2D images.

Here's a slide I stole from Alex that explains layers:

Side note: It was interesting how the sprites that the Unity Immersive team used actually relate to what I was attempting in 3D printing.

I should point out that one of the slides for my presentation was incorrect. "Iso-surface" and "volume rendering" are two different things. My confusion came in part because they are closely related and in part because of this paper (which is correct).

Volume rendering is the 3D digital preview of medical data using voxels. It has to estimate curved contours because voxels are cubes and for that reason is currently not as precise as 3D printers. When converting an iso-surface to voxels, you lose information. (See Slic3r screen shots below…)

Next up, hunting for trees with Sushi and Jameel as part of our research project!

Saving to look at later:

http://www.loughborough.co.uk/about/

https://research.utwente.nl/en/

Getting to Know Axure

Posted on <u>July 6, 2017</u> by <u>blodgett</u>

Masashi and Jameel have been hard at work on the platform while I design the UI in Axure. Today I went from this…

SLiCE

Comp. X — Drone Design   SAVE

Tools > S-PASS > Phases

S-PASS

Phase 1

Phase 1 ∨
- Input
- Output

Phase 2 >

Phase 3 >

Short description of phase 1 here... "Requirement
Satisfaction by Existing Products."

Steps in phase one outlined here...

1. Enter product details
2. Function contribution estimation
3.

Enter Functions

Please enter all functions... (i.e. ___)

Enter function 1...

Enter function 2...

⊕ Add a function

❗ This is an example of an error...

Enter Requirements

Please enter all requirements... (i.e. ___)

Enter requirement 1...

SLiCE

Home   Resources   **Projects**   Account

Comp. X — Drone Design   SAVE

Tools > S-PASS

- Overview
- Phases
- Project Files
- About S-PASS

S-PASS

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	Column 2	Column 3
Row 1		
Row 2		
Row 3		
Row 4		
Row 5		

Matrix Multiplication

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Aenean euismod bibendum laoreet. Proin gravida dolor sit amet lacus accumsan et viverra justo commodo. Proin sodales pulvinar tempor. Cum sociis natoque penatibus et magnis dis parturient montes, nascetur ridiculus mus. Nam fermentum, nulla luctus pharetra vulputate, felis tellus mollis orci, sed rhoncus sapien nunc eget.

…To this…

CooL:SLiCE

This web-based tool was developed...

Get started!

📦 Design

Use CAD to design 3D virtual models of your products...

🌿 S-PASS

Use the sustainable product architecture and supplier selection tool to evaluate existing architectures and find replacement suppliers and architectures.

🔧 MAT

Use the Manufacturing Analysis Tool to look at the manufacturing details of your design.

SLiCE

Projects

CooL:SLiCE projects...

Comp. X Drone Des...

Test Project

New Project

SLICE

Comp. X Drone Design Save

Projects

Tools

- Design
- S-PASS
- MAT
- Settings

Dashboard

Design

Product 1: Quad-copter Edit

Product 1: Quad-copter Edit

S-PASS

Phase 1: Requirements Edit

Requirements: 6
Functions: 8
Modules: 10

23%

Phase 2: New Modules Edit

0%

Phase 3: Selection Edit

0%

MAT

SLiCE

Comp. X — Drone Design

SAVE

Projects / Dashboard / S-PASS

S-PASS

- 🕐 Overview
- ▦ Phases
- 📄 Project Files
- 💬 About

Lorem ipsum dolor sit amet. Consectetur adipiscing elit. Aenean euismod bibendum.

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Aenean euismod bibendum laoreet. Proin gravida dolor sit amet lacus accumsan et viverra justo commodo. Proin sodales pulvinar tempor. Cum sociis natoque penatibus et magnis dis parturient montes, nascetur ridiculus mus. Nam fermentum, nulla luctus pharetra vulputate, felis tellus mollis orci, sed rhoncus sapien nunc eget.

Thresholds:
- Requirement Satisfaction
- Environmental Impact

Input:
- Sustainability Requirements
- New Modules
- New Suppliers

S-PASS

Output:
- Sustainable Product Architectures
- Sustainable Suppliers

	Column 2	Column 3
Row 1		
Row 2		
Row 3		
Row 4		
Row 5		

Matrix Multiplication

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Aenean euismod bibendum laoreet. Proin gravida dolor sit amet lacus accumsan et viverra justo commodo. Proin sodales pulvinar tempor. Cum sociis natoque penatibus et magnis dis parturient montes, nascetur ridiculus mus. Nam fermentum, nulla luctus pharetra vulputate, felis tellus mollis orci, sed rhoncus sapien nunc eget.

SLiCE

Comp. X Drone Design

Save

Projects / Tools / S-PASS / Phases / Phase 1 Input

Phases

1. Requirements ⌄
- **Input**
- Output

2. New Modules ❯
3. Selection ⌄
- Input
- Output

Product 1: Quad-copter   Edit ✎

Product 2: Hexa-copter   Edit ✎

Step 1: Enter product details

Please enter all functions (eg. *Recharging battery*)   ❓ 🔍

Functions

1. Transform energy to torque

2. Accept recharge from external electric power

➕ Add a function   Update

Please enter all requirements (eg. *Use of renewable energy*) ❓ 🔍

Requirements
Enter requirement 1...
Enter requirement 2...

➕ Add a requirement   [Update]

🛑 This is an example of an error...

Please enter all product modules (eg. *knob*) and indicate whether they are used in each product (*Used* or *Not used*). ❓ 🔍

Modules	Hexa-copter	Quad-copter
Enter module 1...	✔ Used `1`	✖ Not used
Enter module 2...		

➕ Add a requirement   [Update]

Step 2: Product Contribution Estimation

Please estimate to what extent each product function contributes
to achieve each environmental sustainability requirement.

Functions ❓ 🔍

Requirements	Transform energy to torque	Accept recharge from external electric power	Provide propulsion	Protect motors and rotors from external impacts	Allow for reuse or recycling	Recharging battery	Picking-up and releasing objects handled	Partly transforming solar energy to electric energy	
Energy efficiency	40%	20%	10%	0%	0%	0%	0%	30%	✔ 100%
Durability	0%	0%	0%	60%	0%	0%	0%	0%	🛑 60%
Low environmental impact	10%	0%	0%	40%	10%				⚠`2`60%
Use of renewable energy									
Delivery of a small amount of waste									
Easy control									

0%	Impossible to contribute
10%	Nearly impossible to contribute
20%	Very unlikely to contribute
30%	Quite unlikely to contribute

Step 3: Module Satisfaction Estimation

Please estimate to what extent each product
module satisfies each product function.

Modules ❓ 🔍

Functions	Lower shell 1 (hexa-copter)	Lower shell 2 (quad-copter)	Knob	Upper shell 1 (hexa-copter)	Upper shell 2 (quad-copter)	Batter cover	Propeller	Propeller shield	
Transform energy to torque	5	0	0	0	5	0	0	0	✔
Accept recharge from external electric power	0	0	0	0	3	0	0	0	✔
Provide propulsion	3	4	5	2	1	4	0	4	⚠`3`
Protect motors and rotos from external impact `6`									🛑`4`
Allow for reuse or recycling									
Recharging battery									

[BACK]   [Save and continue >]

[Save and continue >]

🛑`5` Please complete the Module Satisfaction Estimation table

SLICE

📁 **Comp. X Drone Design**   📦 🌿 🔧 [Save]

Phases

Modules required to be replaced

Modules	Hexa-copter
M1	Lower Sell 1
M2	Lower Shell 2
M3	Knob
M4	Upper Shell 1
M5	Upper Shell 2
M6	Battery Cover
M7	Propeller Shild

Average functional satisfaction levels fo rnew product architectures

Explanation...

Functions	Products			
	Hexa-copter		Quad-copter	
Transform energy to torque	4.99999	Very good	4.99999	Very good
Accept recharge from external electric power	0	No relation	2.9999	Poor
Provide propulsion	4.49	Very good	4.49999	Very good
Protect motors and rotos from external imapcts	3.59	Very good	0.9999	Very good
Allow for resuse or recycling	0.999	Very poor	0.99999	Very poor
Recharging battery	1.999	Poor	1.99999	Poor
Picking-up and releasing objects handled	0	No relation	0	No relation
Partly transforming solar energy to electric energy	0	No relation	0	No relation
Average	2.01		2.31	

Satisfaction level of each environmental sustainability requirement for current products

Explanation...

Requirements	Products		Modules
	Hexa-copter	Quad-copter	Related Modules
Energy efficiency	2.4　Poor	3.04　Poor	M1, M5, M7
Durability	2.1　Poor	1/7　Poor	M1, M2, m3 M4, M5
Low environmental impact	0.59　Very poor	3.2　Poor	M1, M2, M4, M5
Use of renewalbe engergy	0.59　Very poor	3.2　Poor	M1, M2 M4, M5
Delivery of a small amount of waste	3.29　Poor	2.7　Poor	--
Easy Control	2.79　Poor	2.7　Poor	M1, M5, M7
Average Satisfaction	1.98	2.21	.

BACK

Save and continue >

I expected Axure to have more design capabilities than it does. Given our timeline though, I probably have to come to grips with the limited fidelity and just hand it off to Masashi and Jameel straight from here. We've talked about continuing the project once the summer is over, but as much as I want to continue perfecting the whole system, I'd need more information before committing to anything.

At the end of the day we met to discuss the design. Previously I've worked on UI design without any communication with a dev team, and I much prefer this! Tomorrow we hopefully have a meeting with our project mentors to show our progress, PPT-style.

We also discussed our plan of action for our upcoming presentations and research paper. We've begun writing, but still need to work on the abstract, literature review, methods paragraph and problem paragraph. *And*, unfortunately, we all feel the need to read more research articles first. So we'll be doing that tonight!

Posted in <u>Uncategorized</u> | <u>Leave a reply</u>

Printing Feet and Sketching Wireframes

1

Posted on <u>July 5, 2017</u> by <u>blodgett</u>

ORANGE SKELETON

My first 3D print from Deeper Dive is below. Assuming there's time, I want to clean up the file a bit more and reprint. I'm also working on a second model. It's a bit more of an experiment so we'll see how it goes!

UI DESIGN

As for my weekend… (aside from a wonderful 4th of July breakfast by Devi and Sophia, thanks!!!)

I rethought the flowchart of the CooL:SLiCE website as a whole. With that in mind, I worked through a few iterations of wireframing for S-PASS, just with pencil and paper. Today it meets Axure.

TO DO

…Next weekend?

- [Potbelly](#) subs with Emma and Kate
- Bike the [Skunk River Greenbelt](#)
- 3D print more cool stuff

The Des Moines Farmers' Market — An Alternate Universe?

When you arrive in Des Moines on Saturday morning for the 7-12am weekly farmers' market, you might find yourself turning in circles in an empty street. Do not panic. One possibility is that you crossed over to an alternate universe where the market was never organized, but the more *likely* scenario is that you are on the wrong 4th street. Don't ask me why there are two 4th streets in downtown Des Moines — you'll have to take that one up with the governor. Or whoever names streets around here. Anyhow, check the one on the *west* side of the river before firing up your teleportation unit.

Once you find it, the Des Moines Farmers' market does not disappoint. Tables are heavy with local vegetables, fungi, exotic street food, bakery items, jewelry and clothing; and on nearly every block there is a different band or solo musician. This jazz band had fun turning the street into a dance floor for uninhibited, bouncy little girls.

You will see the prettiest flowers in the city…

…have the opportunity to eat the most crunchy, juicy, bacon and cream cheese filled pickle (from Judy's Husband's Stuffed

Pickles and Dips)…

And sample many many flavors of [Butter Me Up!](#) nut butters. They have almond butters, cashew butters and peanut butters. The Cappuccino peanut butter was a close runner up to my own purchase, honey roasted cinnamon.

If you're with some friends, point out a riverside stage and see what happens…

Or just find an excuse to walk over and get your feet wet on a hot day… (and see tiny fishes!)

And finally, on your way to and from the market you can get glimpses of the gold-domed capitol building, forever and eternally under construction…

Maybe another issue to take up with the governor…?

Flowchart and UI Solutions

CooL:SLiCE — Flowchart and UI Solutions
Here's an updated flowchart. We've starting distributing tasks more now. I'll be wire framing and Jameel and Masashi will start building the platform.

We also took the SUS (System Usability Scale) survey ourselves. Here are the results. They're pretty terrible… But we're also biased.

Flowchart and UI Solutions

	A	B	C	D	E	F	G	H	I	J	K	L
1		S-PASS SUS					S-PASS Min Ex				S-PASS Max Ex	
2	Question #	Sum of Question	Adjusted Question Total			Question #	Sum of Question	Adjusted Quest		Question #	Sum of Question	Adjusted Quest
3	1	3	0			1	3	0		1	15	12
4	2	13	2			2	15	0		2	3	12
5	3	6	3			3	3	0		3	15	12
6	4	8	7			4	15	0		4	3	12
7	5	8	5			5	3	0		5	15	12
8	6	10	5			6	15	0		6	3	12
9	7	3	0			7	3	0		7	15	12
10	8	14	1			8	15	0		8	3	12
11	9	6	3			9	3	0		9	15	12
12	10	11	4			10	15	0		10	3	12
13		SUS Score	25				SUS Score	0			SUS Score	100
14												
15												
16			Step	Description								
17			1	I took the sum of each question(3 responses) [Strongly Disagree = 1 Strongly Agree = 5]								
18			2	If the question number was odd I subtracted 3 (one for each item to create the 0-4 scale)								
19			3	If the question number was even I do 15 - the question number (5 for each response)								
20			4	Then I took the sum of the adjustments, multiplied by 2.5, & divided by 3								
21												
22												
23		Single Tester Min Ex					Single Tester Max Ex					
24	Question #	Question Score	Adjusted Question Total			Question #	Question Score	Adjusted Quest				
25	1	1	0			1	5	4				
26	2	5	0			2	1	4				
27	3	1	0			3	5	4				
28	4	5	0			4	1	4				
29	5	1	0			5	5	4				
30	6	5	0			6	1	4				
31	7	1	0			7	5	4				
32	8	5	0			8	1	4				
33	9	1	0			9	5	4				
34	10	5	0			10	1	4				
35		SUS Score	0				SUS Score	100				
36												
37												
38												
39												
40												
41												
42												
43												

And we created a problems and solutions document from our sticky note throw down:

Visualization

Problems

- Visual Data Representation
  - No visual representations of data
  - Significance of colors
  - Scalability "screen resolution"
- Layout
  - A lot of tab switching
  - Clear identification of sections
  - Large Excel windows
  - Nav hidden at bottom
  - Scattered Info
- Visualized Feedback
  - Can't visualize what changes are being made
  - Non-dynamically adjusting numbers
  - Visual feedback
  - Anchor connections between different charts
  - Minimal Intractability (must search for rows that relate)
  - Lack of references to which architecture something is referring to

Solutions

Data Visualization:

- Fill bars to indicate level of completion/percent satisfied
- Icons and verbiage in addition to colors for visual aid
- Bootstrap for scalability and screen resolution
- Green for success/adequacy
- Red for failure/error/inadequacy

Layout:

- Main nav at top
- Phase nav top left
- Plain language labels (Phases, sections, buttons, etc.)
- Reference page
- Reference links (hover to see summary)

Visualized Feedback:

- AR for CAD design

Future work:

- Augmented reality for data visualization
- Hot keys (i.e. H for Help)
- User accounts (log in, personal info, import files for specific projects)
- State-saving
- Color blind mode

Solutions

- Platform
  - Lack of full integration into web platform
- Dynamic Functions
  - Lack of flexibility
  - Does not update info on supplies when output changes "currently hard coded"
  - Undo/Redo
  - No way to Save/Reset values
  - Non-Modular updates on suppliers "no backend"

Platform:

- React, Node.js, and mySql

Dynamic Functions:

- Tracking specific changes throughout S-PASS (side-menu for navigating affected areas?)
- Input fields for repeating items (requirements, functions, modules, suppliers, etc.)

The User

Solutions

- User Guideline Direction
  - Lack of kind user guide
  - Where to fill out answers to questions
  - Estimation without something to base on
  - No link to supplier in real life
  - Information overload
  - May require knowledge beforehand
  - What is a matrix?
  - Setting thresholds
  - Terminology + abbreviations

User Guideline Direction:

- Reference section
- Smaller sections overall?
- Hover for pop-up reference/explanations
- Running checklist for project
- Less abbreviation
- Custom input for repeat items

Team photo!

Amorphous Beginnings of a UI

STICKY NOTE THROW DOWN
My team has begun thinking of features, layouts, etc. to address problems that we found in the current S-Pass module. Below is our sticky note throw down from Friday where we identified and then categorized existing UI issues.

FLOWCHART

Here's a preliminary flowchart I made over the weekend. One of the difficult tasks right now is deciding how to organize information so that as students input information, they can see immediately see how it affects their output values. This probably requires adding more information/content, but each page is already at information overload. This is just one of our current puzzles.

DEEPER DIVE — 3D PRINTING

Our deeper dive is way to much fun. Granted, we haven't done any actual work yet… But we're learning so much so fast. I know for a fact that won't be able to blog about it all (esp. since it doesn't relate directly to my research at this point), but hopefully I can get some good quality photos of the process for my records.

I will share this, though. There is a "sharkfill" infill option on MakerBot. I do love tessellations.

"Mr. Jaws" by Thingiverse user Mahoney

Project Analysis and Bad Design

Intro to HCI homework

HIERARCHICAL TASK ANALYSIS
We've talked a lot about the our process for the summer and stay in close contact with our supervising faculty. Jameel has been killing it with keeping schedules updated and making sure we're on task. He created this hierarchical task analysis for us yesterday.

Hierarchical Task Analysis
CooL:SLiCE

0 Do Research

1 Find/Learn Background Information

Keep Journal in Mind During this Step

1.1 Read Subject Material Papers

1.2 Google...A Lot

1.1.1 Find a Literature Review Paper

1.1.2 Read into References of Lit Review Paper

2 Conduct Experements

Plan 0.

do 1

once comfortable with subject material begin 2 & 3.1-3.2

finish 3 after finishing 2

2.1 Design Experement

2.2 Get IRB Approval

2.3 Do Experiment

2.1.1 Pull Methods from Previous Research in Field

2.1.2 Change to Suit Needs

2.2.1 Fill Out A Very Long IRB Form

2.2.2 Submit Form & Hope for the Best

2.3.1 Get Human Subjects

2.3.2 Preform said Experiment Ethically

3 Write a Paper

Keep Journal in Mind During this Step

3.1 Write Intro & Lit Review

3.2 Write Methods

3.3 Write Results

3.4 Write Discussion & Conclusion

Gather Results

Analyze Results

Present Results

Plan 4.

repeat 4.1-4.2 until paper is published or you've exhausted journals

4 Publish

4.1 Submit Article to One Journal

4.2 Wait to Hear Back

BAD DESIGN

See the buttons on the monitor? I found the icons and placement to be very confusing. Now I know that the list icon brings up a menu and the plus and minus icons can be used to navigate left and right through the menu. As buttons, they have an affordance to be pushed, but don't indicate well what they accomplish. I still have no idea what the left two are for. But I'm happy that I figured out how to adjust my screen brightness finally!

The 2017 Des Moines Art Festival in Four Easy Steps: Kebab, Walk, Snap, Ramen

Posted on June 25, 2017 by blodgett

This was a one-time exploratory approach to the annual art festival in Des Moines. Some things we did right, some things we

did wrong. I'll let you, dear reader, decide which are which.

FIRST, KEBAB

There were multiple street food booth areas at the festival. If I had to do it over again, I would choose the more central aisle with Greek or Asian food. These kebabs on the south side of the stage, however, were decent enough. They came with four huge skewered chunks of meat and slices of bell pepper. There were also flatbread and salad options.

When in Des Moines, you really can't miss the murals. T-shirts were sold at one booth with this design.

Most of the festival booths will have paintings or photography. Others will have jewelry and sculpture. One of the most unique at this year's event was [Zanne Avenue Jewelry.](#) She uses found objects to create jewelry, hat pins, and ornaments. See more of her steam punk-esque creations on her [website](#) and on Instagram [@zanneavenue](#).

If you time it right, you might encounter Oscar and his man walking by right as you take a shot of your friend at the car show.

Oscar likes to take photos.

I mentioned the murals, right? Don't forget this one, a not oft visited wall of [Exile Brewing](#). It might just be the perfect place for a group photo!

BEFORE YOU LEAVE
You only stayed at the festival long enough if you're starving again by the end of your visit. About a mile and a half away, but worth every minute of it, is the [Krunkwich Ramen House](). They offer sandwiches, ramen bowls, stir fries and more, and run the entire gamut of spiciness. Please go.

Through Reed's Hollow to Saint Motel

My advice is this. If you plan to grab a bite to eat before a concert in Des Moines, find your restaurant and make reservations more than 10 minutes ahead. Things might turn out better for you.

JUST GIVE ME FOOD
We arrived in Des Moines around 6:30pm. We had no plan. Someone searched Google. We found The Flying Mango! But there was a nearly 2-hour wait. Chef's kitchen anyone? Also packed. So Kate found this place… Reed's Hollow. See the menu below and judge for yourself.

snacks

Tiny Vegetables | 6 | V
(radishes, turnips, gooseberries, crema, fried dirt, tomato ice)

Brussel Sprouts | 6 | - GF
(fish caramel, lemon, cabbage, Thai herbs)
vegetarian option available

Beet Curly Fries | 6 | -V/GF
(kewpie, togarashi)

Turnip Blossom | 6 | -V GF
(shaved turnips, pea spread, whipped goat cheese, apples)

Churro | 6 |
(sweet potatoes, tomato conserva, anchovy aoli

provisions

Farmer Cheese Clouds | 9 | GF
(basil puree, scallops, escabeche radish)

Cured Zucchini | 8 | V GF
(seeds, goat cheese, basil)

Mango Crab | 13 | GF
(softshell crab, miso curd, green tomatoes)

Bone Marrow | 13 |
(bacon jam, challah, pickled fresnos)

Agnolotti | 13 | - V
(shiitake soup, asparagus, enoki, scrambled egg, shiitake bacon)

Tamale | 12 | - GF
(crawfish boil, celery, remoulade)

Char Siu Beef | 13 |
(beets, pumpernickel, stuffed peppers)

entrees

Pork Cheek | 16 |
(48 hour pork cheek, grits, ramps, mushrooms)

Early Bird | Veg | 14 |
add braised lamb | 18 | - G
(marbled egg, sweet potato, onion fig moussaline, coffee)

Quail | 18 | GF
(popcorn batter, rutabaga & apple slaw, bacon hot & sour)

Smoked Chicken | 23 | - GF (minus biscuit)
(smoked chicken, confit chicken, chicken skin, hay yogurt, pickled apple, sorghum)

Skate or Die | 20 |
(green garlic, wild nettles, peppermint vinaigrette, watermelon radish)

Spring Lamb | 23 |
(nori, onion, asparagus)

Burger | 15 |
(cheddar, pickles, beet fries)

Bison Made Right | 16 |
(larb, Thai herbs, fried carrots, tiger cry sauce, pickled fresnos, challah, beet fries)

tasting menu

| 4 courses | 55 |

dessert

ask your server for selection

Round for the Kitchen | 10 | - VG

*V = vegetarian | *GF = gluten free
ask your server about vegan options

Consuming raw or undercooked meats, poultry, seafood, shellfish, or eggs may increase your risk of foodborne illness.
y increase your risk of foodborne illness.

Below: My dinner, Agnolotti (shiitake, enoki, eggs, asparagus, dumplings, and red pepper.) I was assured by the waitress that if I didn't like it on the first bite, by the fourth I was sure to be in love it.

Her assertion was more discouraging than she intended however, since she prefaced with, "we buy everything from local farmers that no one else will take, and make something magical out of it." This lent an interesting interpretation to menu items such as "fried dirt."

The moral of the story: don't think about it too hard, just keep eating.

My three gourmet, brown liquid-filled dumplings and single scrambled egg came in a huge white bowl. The flavors were exotic, but tasty.

After a somewhat dubious dining experience, my first outdoor concert experience was a success! Saint Motel put on a good show, and the whole crowd was singing and dancing in perfect clement weather.

In our search for kettle corn afterward, Emma and I quite accidentally wound up in an unannounced line to talk to the drummer, Greg Erwin, over the corner of a fence somewhere behind the stage. Conversation and signatures ensued. He told us about their nearly realized efforts to be the first band to publish a complete album in virtual reality! They're calling it saintmotelivision.

Still hungry, Emma and I followed our noses a little further to the actual kettle corn booth, snagged the last two bags, and

wandered through the sculpture park in the dark with more members of our group. Worthwhile, even if we couldn't climb them all.

No longer starving — and having satisfied our art appetites as well, we went searching for the car, found it, and slept very hard.

UX Meetup and the Deeper Dive Reveal

UX Des Moines Meetup
Matt Arnold, UX Director and Ron Polka, UX Design Lead from ConnectFive///// presented at a local UX design meetup on the critical nature of user research for UX design for business. The presentation broadly addressed the process of design and how it relates to business goals. There were lots of venn diagrams.

And quotes.

"*Design is the rendering of intent*" — Jared M. Spool

"*It's better to appear stubborn up front than stupid at the end*" — Good advice from somebody somewhere

They briefly discussed how to defend a design budget. The three main considerations were that design provides preemptive solutions, increases customer retention, and increases customer referrals.

They talked about process, and referenced the Double Diamond model…

Design Thinking 'Double Diamond' Process Model

DIVERGE
What is the nature of the problem

CONVERGE
Which problem can we impact the most

DIVERGE
To consider many options

CONVERGE
To select & make concrete from abstract

DISCOVER
What is?

DEFINE
What if?

DEVELOP
What wows?

DELIVER
What works?

Initial
Insight/
Problem/
Statement
of work

Plan

Ship

…Mentioning that it served as inspiration for their own design process…

They stressed Moment of Truths (MOTs), and identified them in the market place. These are critical areas of user experience to either address or eliminate.

Types of MOTs:

1) Stimulus (customer discovers a need)
2) Agreement (ZMOT — Zero Moment of Truth: customer begins searching to satisfy their need by talking to friends and looking at reviews)
3) Shelf (customer finds your product and executes purchase)
4) Experience (customer has his/her first experience with the product)

They mentioned a cool place to look up:

Tellart — Museum of the future, where crowds of average people are observed to see how they respond to new technologies.

And recommended several books that I will probably never find the time to read:

Outside In
Mapping Experiences
101 Desigin Methods
Interviewing Users

Concluding discussion: Analytical quantitative research + "Squishy," subjective qualitative research are both important to investigate early on in the design process.

OTHER EVENTS
On our way to and from the UX meetup, we chatted about the Des Moines ArtFest and Des Moines Farmers' Market. Now that

I've heard about chili pepper mangoes on a stick and Butter Me Up!'s honey-roasted peanut butter I *really* have to go.

DEEPER DIVE
Ok, this was probably the best part of my day. I found out that I get to be in the 3D printing, 3-day intensive "Deeper Dive" class! (The other options were VR immersive development and Unity shaders and GPU — also fun, just not *as* fun). It's an all-girls team with Kate, Brittney and Sofia, and taught by Alex — a confirmed Office Space and Princess Bride fan. Our whole REU group was on the edge of their seats as the teams were written on the whiteboard.

CooL:SLiCE
My progress today has been to finish an article on augmented reality (AR) in education. I also went through the case study again with the existing S-Pass module and made notes on design issues. I feel ready to start sketching now — after I take our own medicine in the form of a couple dangerously long surveys.

Posted in Uncategorized | Leave a reply

Intuitive — I Do Not Think That Word Means What You Think It Means

Posted on June 21, 2017 by blodgett

"Once we move beyond the primal food supply to more contrived appliances, the decision about what is intuitive and what is not becomes a lot more difficult. If intuitive means natural, in the sense that comprehension requires no thinking, where is the division between those things that are natural and those that are familiar?

This isn't just nitpicking — a rich and evocative word like intuitive is wasted as long as it sits in a fog of uncertain associations." — Bruce G. Allen and Elizabeth Buie

(See a discussion of more usability terms here.)

"ASSESSING THE INTUITIVENESS OF A DESIGN, NOT SO INTUITIVE"
Mary Still, a Psychology Gradate of ISU and current professor at Old Dominion University gave an HCI related psychology colloquium today on intuitive design. Nebulous definitions of "intuitive" abound, but Still looks at how to better explicate the concept in an applied setting. This is critical for designers, who are tasked with creating so called "intuitive" interactions.

To understand intuitive design, Still has examined the effectiveness of objective and subjective approaches to measuring it. From a cognitive psychologist's perspective, she understands intuition to be an "automatic process driven by familiarity." Common approaches to measuring intuitive design are extremely subjective and ask users to reflect on their experience. However, if Still is correct, a user should not be able to verbalize their intuitive decisions because intuitive decisions are subconscious. Thus, her studies build an argument for incorporating more objective measures via user performance data (i.e. speed of completing a task and rate of errors while doing so).

Both of the studies that Dr. Still shared today were pertinent to our CooL:SLiCE project. The first evaluated consistencies/inconsistencies in objective and subjective measures of three levels of intuitive design: 1) affordance, 2) convention, and 3) bias. An affordance would be most intuitive, a convention less intuitive but widely agreed on, and a bias much less so to the point of being 50/50.

The results of the study indicate that affordances can be measured either objectively or subjectively and produce similar results. Conventions and biases, however, will produce uncertain or opposite results from each approach. The order of procedures can also heavily skew results. Thus, the approach is hugely important, and the current convention of using only subjective measures is not sufficient.

The second study compared objective and subjective measures of the intuitiveness of three different types of log in procedures. This time, the subjective measures were four commonly used surveys in design research: QUESI, NASA TLX, User Technology Familiarity Questionnaire, and SUS. Each survey purports to measure intuitive design, but differently.

Comparing the results of each of these surveys and her objective measures, Still proposes that familiarity, past experience, and workload are the best factors to use in determining levels of intuition. Future work in this area would be to design a survey to optimize these three factors. This could lead to much more efficient studies and more intuitive designs. Whatever that means…

CooL:SLiCE — WORKING PLAN
My team has now done everything we can in the way of revising our IRB submission. Thank goodness that is out of my life. Below is our working plan, for the rest of our project:

1. Personally take our usability survey for the Excel-based S-Pass
2. Identify UI problems
3. Conceptual design (probably research at the same time?)
4. Prototype (AR and AR versions)
5. Preliminary usability test for prototypes
6. Edit prototypes and finalize tools
7. Usability test
8. Bulk user test (assuming IRB approval…?)
9. Analyze and compare results
10. Documentation (poster, paper, presentation)

Posted in Uncategorized | Leave a reply

IRB Edits and Biological Markers of Stress

Posted on June 20, 2017 by blodgett

IRB PROGRESS
We received a preliminary assessment of our human subjects IRB application with several requests for changes. In the process of editing, we have learned that we will need a third supervising faculty member, that the term "raffle" has legal implications and should be replaced with "drawing," and that a digital signature is different from an electronic signature. Who knew.

RESEARCH
Back to the question at hand. Why environmental education for undergraduate engineers? I've skimmed through several articles this morning for information that will support building S-Pass. It is a popular subject, but it's still tricky to find actual sources to reference. The pile of papers on my desk can attest to that.

LUNCHEON LECTURE
Thanks to Birdie Shirtcliff, today I learned just how broad the subject of Human Computer Interaction is. An Associate Professor at the Department of Human Development and Family Studies, Birdie presented on biological markers of stress. Basically, she set out to prove that emotional events physically change people's DNA. She has done numerous studies with children raised in abusive environments to predict things like health, life expectancy, brain characteristics (i.e. a damaged/underdeveloped cerebellum), and strength of the immune system. Currently, she measures cortisone levels in her study subjects' spit before and after putting them through a stress test (anything from public speaking to sky diving). For her next experiment, she wants to use virtual environments (which is where HCI comes in) because they can be both engaging and very stressful.

And because this blog looks excessively bear-bones, here's a picture of a butterfly from campus.

Posted in Uncategorized | **3 Replies**

Building the Argument for an Online Sustainable Manufacturing Design Education Platform

Posted on June 19, 2017 by blodgett

My team has started writing the problem statement for our research on the user interface of the S-Pass tool of CooL:SLiCE (Constructionism in Learning: Sustainable Life Cycle Engineering). Doing so requires framing an argument to support the entire CooL:SLiCE project as well as our specific task (designing a user interface and incorporating augmented reality for the S-Pass tool).

Writing the problem statement involves siting resources to demonstrate why sustainable design is significant in the first place, why we are attempting to educate college students in particular, why using an online platform is the best way to proceed, and then finally making a case for how addressing the user interface of the S-Pass tool and incorporating augmented reality (AR) might enhance said learning.

It seems strange that we are building an argument to justify the creation of something that we were assigned to and that started

three years ago. And yet, here we are. After some feedback from our mentor today, I found two articles describing the atmosphere of sustainable design in education that should prove useful.

On the bright side, we mostly know what our goals are and how to achieve them through a study. We decided on most of the details while filling out our IRB last week. We have about a million survey questions written and an outline of the basic procedures, including how we anticipate recruiting and paying participants.

Our primary tasks are as follows:

Task 1) Create two additional versions of the S-Pass tool—one with augmented reality and one without, addressing the user interface needs of each. All together the versions will be:

1) Excel-based.
2) Web-based
3) Web-based with AR

Task 2) Investigate usability and changes learning performance between the existing version and each of the two new versions of the S-Pass tool

Our research will reveal how a learning tool can be effectively integrated with a cyberspace learning platform to better and more actively engage college students in learning sustainable design. Findings from this research will also provide a basis for engineering educators to enhance the effectiveness and usability of their learning tools.

Aside from our research project, we also have other homework. For Journal Club, we read articles each week to analyze and discuss as a group. Part of me wishes we could analyze and report on papers that are pertinent to our research since there's so little time right now to actually research on our own. However, either way I'm learning what makes good article. From last week's discussion: Beware the file drawer effect and p-hacking (a.k.a. data dredging), and be aware of Cronbach's alpha.

Our 2-day Unity class commenced today. I present the result of two hours-worth of an online tutorial below (note: all art assets were provided):

On a completely different note, we had a BBQ and I learned what a melodica is (also known as a pianica, blow-organ, key harmonica, or melodyhorn). See weekend photos below!

How to Shop Like a College Student in Ames, Iowa

6

Posted on June 17, 2017 by blodgett

If you happen to find yourself in Ames one day for an extended stay (like I did), here are a few survival tips! This week I explored the farmer's market for food and fun. It helps to have a great group of friends and no other appointments for the day!

FIRST, HIT THE FARMERS MARKET

The Ames weekly farmers market starts at 8am-early afternoon and runs along Main Street downtown. Don't worry if you sleep through your alarm and skip breakfast (like me!), there are plenty of food trucks for either breakfast or lunch. You might try stopping for Huey's Mini Doughnuts, or maybe settle for just a coffee at Burgie's. The maple latte has undergone quality control by yours truly and comes recommended!

Their van goes all out…

Once you've found sustenance (or caffeine/sugar—to each his own), make sure to grab some fresh vegetables from one of the stands. You'll find only what's in season. Mid June offers radishes, carrots, cucumbers, snow peas, kale, rhubarb, beets, lettuce, Swiss chard, turnips, onions and cabbage. If fresh provolone cheese is your thing, check for the dairy guy, too. Samples are available.

There are plenty of handmade soap and lotion options as well. Below is featured a particularly cute tin of mini soap bars. If you dig, you can find Lego men!

Mini
Soaps
.25¢

The wood work is beautiful. If this is your idea of what a rolling pin should look like, check out Gingerich Amish Baskets!

Some things aren't obviously for sale, but could be tempting if you need, say, an iron… Do what you have to do in desperation. Who am I to judge.

Feel free to take a break in the wine barrel rocking chair and listen to the trumpets!

Make some friends…

Look at pretty rocks… (The petrified burnt tree trunk quarters would make unique book ends, would they not?)

Check your height…

Admire the goofy pottery…

And take advantage of vintage photo ops!

MAKE SURE TO STOP AT THE MUSIC STORE
If you're musical, you'll want to stop at Rieman Music while you're downtown. Be cautious, though. You might cave and splurge on some sheet music—or maybe even a sweet new guitar! Everyone has their weaknesses.

(Be a paparazzo to your talented friends every chance you get. It's just a good habit.)

Always keep an eye out for sculptures when you're out and about in Ames. This fella' has a bike chain for lips and looks like he'd like to dance!

TOP OFF YOUR SHOPPING AT WALMART
Most people like to live off of more than just the locally available veggies and dairy products. Fortunately for us, we have Walmart! Sometimes getting there lands you on a bus going in the opposite direction, but if you're lucky nice people will help you get back on track!

Make sure to only buy what you can carry, or your arms will fall off walking back to the bus. Also, double-bag mischievous items like strawberries and yogurt. They like to escape an the most inconvenient of times (i.e. in the middle of a crosswalk).

And that sums it up. If you do it right, you should be set in terms of both food and sight-seeing for a solid week. Cheers!

3D Modeling

BUT FIRST, ROCK CLIMBING
Yay for rock climbing after work! On Thursday we went as a group straight from the lab and had a grand time. Below is a shot of Emanuel (…harder than it looks!)

3D MODELING
This might sound crazy, but I'm enjoying SolidWorks much more than free form modeling in Maya. I think it has to do with how each class is being taught (plus, there's so much satisfaction in knowing that something *works*). The screens are difficult to read and for Maya there were no live demos. At night I was going back to basic tutorials so that I wouldn't be as frustrated the next day. In Solidworks we are focusing a lot on theory and problem solving that is not specific to the program (which I appreciate!). But we are also learning little details and common mistakes so that we can avoid unnecessary frustration (things that might be looked over in many tutorials). Here's some of what I've done in SolidWorks so far:

Day One: Basic Controls + Revolving and Sweeping Tutorials

Day Two: Assembly of parts provided by Alex

Now for the weekend. I'm definitely ready for a break.

[From Whipped Cream to Lightning Bugs](#)

HUMAN WHIPPED CREAM CATAPULTS
I think this happened because Sushi couldn't find his fidget spinner… While waiting for a response about our IRB draft, he had been scouring the apartment for it. Soon after he gave up, we had all drifted to the lawn at his coaxing, and were practicing placing a dollop of whipped cream on our wrists and catapulting it into the air to catch ~~in our mouths~~ on our faces and clothing.

MORNING PHOTOS
Mist was hovering above all the open grass areas:

Greenbelt sun rays:

Weeds:

I also got to see the last few breaths of a rainbow on my ride. I didn't take pictures, so just use your imagination! (And don't forget the corn fields in that mental image.)

LUNCHEON LECTURE
This luncheon lecture another very interesting, conversation-style lecture, this time with Dr. Jon Kelly. We talked about the cognitive psychology of navigation—specifically as it relates to virtual reality—but also what factors influence it in the real world. For instance, a study was done that asked participants to walk straight out into the woods for a several hours. Those who could view the sun walked in a relatively straight line. Those who could not, basically walked in circles.

Although distance perception is improving in virtual environments, no one actually knows why. Dr. Kelly's experiments are starting to shed some light on the subject. For instance, he suspects that participants use different methods to determine the size of an object based on how they are asked to express the size. These methods tend to have different, but consistent levels of accuracy.

IRB COMPLETE!
My research team finally finished the IRB form that we needed to turn in for our research this summer. Now we're just crossing our fingers in hope that it gets approved in time!

LIGHTNING BUGS & SILENT LIGHTNING
It was the perfect night to go to be early… Ya. I just got back (11pm) from a long lightning photography excursion with Sushi and Chris. It was awesome. We climbed for a better vantage point, hiked around in the dark, took photos *very* precariously, stood on an ant hill (yes, they bite), avoided a train, waved to strange people… and saw lightning bugs! (One of the things on my to do list for Iowa. Also, I didn't know there was another name for them. In the west I always heard them called fireflies.)

Chris let me use his camera to snap this photo:

Lightning Shows and Biking Made Simple with Hierarchical Cluster Analysis

Waffles are just
pancakes with abs

First off, I just thought I would contribute this highly relevant information to the great pancake debate.

Furthermore, since we just went over hierarchical cluster analysis in class, this is now how my brain functions. It may take a while to wear off.

.. Tuesday night: Go to bed
  A. Finish IRB draft with team
  B. Go to bed at midnight
  C. Set alarm for 6am
:. Get up
  A. Wake up at 4am to a thunderstorm! My room lit up with the lightning and the window was rattling. I posted a video on Facebook and a friend told me how a window shattered in front of her in Iowa during a hail storm when she was 5 years old. Yikes.
  B. Wake up to alarm
      i.   Turn off alarm
      ii. Wake up 5 minutes later
      iii. Eat strawberries and cream
      iv. Decide there's enough time for a ride
:. Go for a bike ride

A. Ride 9 miles (clear and breezy!)
   i. Accidentally find Walmart
      a. Buy a bike pump that actually works!
      b. Buy coffee, YIPPEEEE!

      c.
.. Go to work
  A. Watch another lightning show while riding to work.
  B. Enter Howe Hall just as the downpour picks up! So dark outside.
.. Eat breakfast
  A. Happiness is having a cinnamon bagel with cream cheese left over from Caribou the previous day.
     i. Read my mom's blog: The Happy Libertarian (some of you have wondered why I am the way I am… This might have
        something to do with it.)

And even more to look forward to, gym night with Emma! Hooray! …Unless I get stuck in a meeting finishing this IRB.

And last but not least, more fun photos from a shoot with Paul!

Posted in Uncategorized | **1** Reply

Caribou for IRB

Posted on June 13, 2017 by blodgett

On Sunday I began filling out the IRB form that we need to submit by the 15th. This morning I returned to the battle with coffee! Kate and I bumped into Paul the tech guy at Caribou Coffee and we all three took advantage of their (rather misleading) 2 for $5 promo.

After hashing through the form again with Jameel and Sushi and drafting the necessary informed consent doc, we had a luncheon lecture with Dr. Adarsh krishnamurthy. As fascinating as his lecture was, I admit I understood very little of what he said. He spoke about simplifying the design-to-prototype process for computer-aided design (CAD) and gave an overview of some of his projects. The inner-workings of 3D modeling systems were completely new to me. We covered the CPU to GPU transition, NURBS, surface-surface intersection, and much MUCH more. It was helpful to have at least a little bit of experience in 3D modeling software before going into his lecture.

He spent the most time talking about his patient-specific heart modeling project, which was very engaging—especially with the 3D model animations. He and several co-workers have created a heart modeling system to discover why pacers are able to help certain dyssynchronous heart failure patients but not others. Through individually-built heart models, they discovered a strong correlation between the balance of stress on the heart while it was pumping and whether the patient responded or did not respond to a pacer. He hopes to further simplify the design and prototyping process with similar projects and is beginning to incorporate VR.

That's all for now folks!

Posted in Uncategorized | 1 Reply

Iowa: Shortcomings & Surprises

Posted on June 12, 2017 by blodgett

THERAPY
Sunday was wonderful. I slept in, worked on our REU t-shirt design, and then biked to Chocolaterie Stam. The chocolate shop has a beautiful Wurlitzer grand which I played for just over an hour before settling down to read this week's Journal Club homework, joined by Kate. Thoroughly therapeutic.

MONDAY

Now it's Monday, and I'm back in rhythm. And trying not to single-handedly eat the entire pan of brownies that Emma made Saturday… Off and on, I've been taking note of what I like/like less about Iowa (aside from REU). This probably isn't fair since I haven't explored beyond Ames, but here's my assessment so far:

Serious Shortcomings:

No mountains — and without them you can't even see that far. Too many little groups of trees between fields get in the way.

Sunset/sunrise — From what I've seen, these just don't begin to compare with Idaho.

Wind — It's only been getting windier since I arrived. Not a fan.

Humidity — I got up at 5:30 to run this morning and the weather (heat and humidity combined) was already stifling. At least if I was training at high altitudes the pain would pay off later. This won't.

Lawns — There are some nice lawns, particularly on campus, but the nearby park has awful grass. Hard dirt, sticks and weeds. The same goes for the lawn at the apartments.

(Early morning sightings: corn, albino bunny, purple chicken)

Pleasant Surprises:

City water — I've been spoiled with well water my entire life. The water in Ames—while not as good as straight well water—is significantly better than the city water in Idaho.

Fresh produce — I was mentally prepared to forgo fresh garden produce and eggs this summer after leaving home (we have a large garden and lots of chickens). But the produce in the grocery stores is better than I expected. My expectations for the farmers market have increased.

No goat heads — If you've never experienced goat heads, I don't expect you to understand.

50m outdoor pool — The only other time I've had access to one of these was in Taiwan. It's amazing.

Chocolaterie Stam — This, I could live without… but it could also become a serious habit. The grand piano is key.

Bubble tea — Another habit contender, TJ Cups is a really fun stop. I have to try more flavors.. Although I've since heard that a lot of places put questionable chemicals in their drinks…?

Goals for the week:

- Practice the flute twice
- Boulder twice
- Anybody want to try out the High Trestle Trail on Sunday? =D We can make it an evening thing so that on our way back we see it lit up! We'd need car transportation.

Otherwise, I'm looking forward to Mary Still's HCI related psychology colloquium June 20th regarding intuitiveness of design and [Alberto Cairo's lecture on data visualization June 28th](#).

Also, I'm not invited, but I'm looking forward to blueberry pancakes and apple crumble something or other by Emma and Alfredo this weekend!

Posted in Uncategorized | **3 Replies**

Group Photos, Design by Committee, & Dangerous Heights

Posted on June 11, 2017 by blodgett

GROUP PHOTOS
Here are two favorites from our photo shoot on Wed:

TEAM T-SHIRTS

After work hours on Thurs, we had a one-hour conference to decide on the basic t-shirt design and colors that our program will have made for us. I didn't realize! It was fun. Especially once we got to deciding on colors…

Here's a glimpse of our process:

CODENAMES

I joined in a couple rounds of Codenames in my apartment on… Friday? The days are blurring together again. Anyhow, I was able to reaffirm that not everyone's brains are wired the same way (I'm looking at you, Brittany and Devi!).

HAPPY BIRTHDAY ALFREDO!

As far as I'm concerned, anytime within a week—nay month, of a person's birthday, they have free range to party. Happy birthday, Alfredo. Hope it was a good one!

WORKING AWAY

Our last C++ course covered classes, objects, and inheritance. I'm so glad it's over, but I still have this urge to go back and do some more exercises. In Journal Club with Anna we discussed an article published in CHI (Computer Human Interaction) about a fog machine. The article itself was full of jargon and hard to read, which led us to discuss the target audience and purpose of the article. We also rabbit-trailed a bit into this Teslasuit, and other more immersive technologies that are being developed for VR.

ROPES CHALLENGE COURSE

This was awesome. We started off with a few outdoor, active puzzles that involved brainstorming and teamwork. This included, but was not limited to, a trust fall, this 35ft swing (see pic), and a 50ft rope/log tower for climbing. More pictures to come!

Roomies (left to right): Kate, me, Emma

Emma Dodoo
6h ago

CHAT

UPDATE:
More photos from the ropes challenge course:

Surrealist Plumbing

THIS IS NOT A CAT SMOKING A PIPE

MORNING TASKS

1. Team meeting to better define our project problem statement/goals.
2. Request access to the the Tobii eye tracking lab for project purposes.
3. Read!

LUNCHEON LECTURE
Sherry Berghefer, of the HCI department here at Iowa State gave a fascinating lecture on her research in hyperreality and our ability/inability to distinguish between completely computer-generated images,

photographs with negligible to no manipulation, and heavily manipulated images. Her research focuses on visuals, communication, and psychology.

> **Hyperreality — *"A condition in which what is real and what is fiction are blended together so that there is no clear distinction between where one ends and the other begins"***

To some degree, even what we see with our own eyes is not "real," but invented by our brains. She briefly covered how our eyes take in light waves, discard information, break up the rest and send it to our brains for reassembly.

Hyperreality relies on simulacra — *"representations that become more real than the actual objects they represent."* Simulacra and realism have been around for ages (consider Renaissance paintings, early Silver Halide photo manipulation, etc.), and the conversation hearkens back to a few of my first art classes in college. Honestly, though, even photographs, paintings, etc. are not "real" situations. The object/image in it's natural form seems like the easiest place to draw the line. I've never been satisfied with the current terms and definitions.

But which pipe is real?

Here's an example of a 100% computer-generated ad, produced by The Mushroom Company:
[Silestone — 'Above Everything Else'](#) from [Alex Roman](#) on [Vimeo](#).

42 & Redshirts

FOURTY TWO
Great, now I want pancakes. 42 out of 48 workdays to go. 59 more days total to finish the project that we know so little about.

🫧🫧🫧🫧
I skipped my morning ride due to energy levels of precisely 0.000. Fortunately, Emma decided to workout in the evening and I joined her for the reward of bubble tea afterward. This was my first experience, and I was not disappointed.

According to the interwebs, bubble tea, also known by a myriad of other names, was invented in Taiwan in the 1980s. The original drink was made by pouring sweetened pudding with tapioca balls into cold tea. I had an iced version (it also comes hot) with grass roots jelly? Or just grass jelly. I can't remember. My personal expert ordered for me. And it was delicious. In general, bubble tea flavors might be added in the form of fruit flavored powder, fruit juice, pulp, or fruit flavored syrup.

经典奶茶

原味珍珠奶茶
原味奶茶
茉香奶绿
乌龙奶茶
玄米奶茶
日本烤茶
泰式奶茶 [+$.50]
樱花奶茶 [+$.50]
R $4.50 L $4.75 H $4.75

TJ 推荐

榛子奶茶
抹茶奶茶
香芋奶茶
冬瓜牛奶
冬瓜烤茶
冬瓜奶绿
草莓奶茶
芒果奶绿
葡萄奶茶
巧克力奶茶
黑芝麻奶茶
R $4.75 L $5.00 H $5.00

自制奶盖

红茶奶盖
茉莉绿茶奶盖
玄米茶奶盖
乌龙奶盖
L $5.25

薄荷红茶奶盖
樱花茶奶盖
抹茶奶盖
巧克力奶盖
L $5.50

鲜奶拿铁

经典红茶拿铁
茉香绿茶拿铁
玄米拿铁
乌龙拿铁
抹茶拿铁
L $5.50

奶昔

芒果奶昔
草莓奶昔
抹茶红豆奶昔
香蕉巧克力奶昔
香芋鲜奶奶昔
奥利奥奶昔
L $5.00

清凉冰沙

芒果冰沙
草莓冰沙
菠萝冰沙
L $5.00
荔枝冰沙
百香果冰沙
白桃冰沙
青苹果冰沙
柚子蜜冰沙
香蕉冰沙
柠檬冰沙
L $4.75

冰激凌特饮
[香草口味]

冰激凌红茶
冰激凌绿茶
冰激凌玄米茶
冰激凌乌龙茶
冰激凌抹茶
L $5.00

热饮

经典红茶
茉香绿茶
玄米茶
乌龙茶
樱花茶 [+$.50]
R $3.50 L $3.75

生姜蜜
韩国柚子蜜
红枣龙眼蜜
L $4.50

加料
[+$.50]

原味珍珠
芒果星星
荔枝椰果
三色椰果
葡萄椰果
鸡蛋布丁
烧仙草

芒果爆珠
草莓爆珠
荔枝爆珠
蓝莓爆珠
咖啡椰果
红豆
芦荟

糖分

全糖
半糖
无糖

冰量

正常冰
少冰
去冰

HUSSLE
Work/class today was more C++ (if statements, switch statements, loops, controls, and fstream i/o). It shouldn't have, but it made my head hurt. Eh, I'll blame it on allergies.

REDSHIRTS
After lunch, we set out on a mission to make memorable group photographs. We all survived, but some of the balloons didn't. Paul the tech guy worked the camera, so we should have photos soon!

FIRST MAIL

A surprise mail delivery contained a collapsible music stand! <3 No more standing in front of the fridge and using magnets. I hope no one minds the evening melodies!

Workday Rythm

Posted on <u>June 6, 2017</u> by <u>blodgett</u>

TWO WHEELS
I can now go to and from work in about 7 minutes. Bike transportation FTW! The bike also allows for small grocery trips to Fareway, just 2 miles north of my apartment. Their fresh fruit selection will be a good alternative if the weekend farmer's market doesn't work out. (Attn: Cy fans: There is a large Cy in front of Fareway just waiting for a photo…)

SWIMMINGLY
I tried out the Furman Aquatic Center 50 meter outdoor pool this morning. It's easy to sign up for their weekly Early Bird swim slot from 6-8am and the center is less than a mile away. It was crowded, but everyone was friendly and ready to share lanes.

UFO
UAVs that I pass daily outside the work lab. They occasionally disappear for use in the field. The poster describes a project done for Boeing that uses drones to inspect the exteriors of aircraft. Their use eliminates the need for people to be hoisted or climb above the many aircraft in need of inspection. It is both safer and much more efficient. As of yet, there is no way to inspect the interiors of the aircraft with drones, but it could be done in the future with much smaller drones.

No idea which drones are used for what…

LUNCHEON LECTURE

The first thing on the official schedule today was a lecture and lunch with Dr. Oliver, director of the Virtual Reality Applications Center and the CyberInnovation Institute, as well as co-founder and director of Iowa State University's inter-disciplinary graduate program in Human Computer Interaction. He told us about his academic experience and the current graduate school climate.

CooL:SLiCE

For work today, I spent a few minutes following case study instructions for the current online prototype portal, taking notes, and searching for relevant research articles. The tool we will be focusing our efforts on (only a piece of the entire CooL:SLiCE portal) is called SPASS, and uses matrices to determine satisfactory products and suppliers. Matrices are awesome, btw. Even if I barely got my head around how they're used in SPASS—thanks to Masashi's ninja whiteboard skills!

We have a few project goals now. To start off, we'll need to come up with ways to test and measure the current SPASS tool. Hopefully we can utilize eye tracking software and the current high population of STEM REU students on campus. Handy, that.

We also had a productive coffee meeting with our project supervisor, Dr. Kijung Park this afternoon. Communication feels good and things are moving along.

ADVENTURE

Also, score. Kayaking is on the schedule!

Posted in Uncategorized | **2 Replies**

Gold Nuggets

Posted on June 5, 2017 by blodgett

How do you get a perfect interior right angle on a CNC? You probably don't. The CNC bit is round, and smaller bits are liable to break. (Apparently the most precise method is chemical, but that is very expensive). Eliot used some real world examples to impress upon us the importance of understanding real-world, physical engineering. (So odd that you have to distinguish between virtual and physical now…)

There will be three "deeper dive" workshops soon, where we split into groups to study different subjects for a week and half. I'm hoping I get into 3D printing. Not only would it be fun, but it is applicable to creating virtual environments and models.

C++ is interesting so far. Not too different from ActionScript, and I had already gotten a small taste of Visual Studio last

semester while experimenting with Unity. I had to ask for help turning down the brightness of my monitor, though lol. The simplest things…

What does one do on a weekend in Ames?

Posted on June 4, 2017 by blodgett

3

Ames had a downtown art walk on Friday. This was similar, though smaller, than monthly First Thursday events that are held in my hometown, Boise. Most of us spent the majority of our time in a music shop, then found some good pizza and topped off the trip at Chocolaterie Stam. This was a Victorian style shop with a lounge area, chocolates (some corn-shaped…), gelato, and a grand piano that I was invited to go back and play <3

Devi and Emanuel waiting for Pizza ^^ at the Great Plains Sauce & Dough Company.

Corn sighting^^ (a well-documented phenomena by certain other members of the group)

Saturday was laser tag (yes, my team won, though not because of me…) and bowling and Perfect Games. Not my ideal Friday afternoon, but we did get to hang out as a group and get to know each other better! Shooting each other is a decent way to break the ice.

Our last hours of weekend were spent ~~fixing up bikes~~ watching someone fix bikes for us at a local non-profit for us to use over the summer (thanks, [Reliable Street](#)!) and then going to a University-wide REU picnic across the street. While there, we joined some other teams and had a few successful games of sand volleyball. Hot, sweaty and some of us covered in sand when we got back, someone had the bright idea of fill water balloons… I kept my distance and brandished a DSLR.

Posted in Uncategorized | **3 Replies**

Gadgets and Gear

Posted on June 2, 2017 by blodgett

Today we were guided through Iowa State library's online databases for research purposes. My group created a Slack account

and Google Drive folder for sharing documents. Time to dive into the reading! After that we took the [Meyers Briggs](#) personality tests. [I'm Ceasar](#).

Then came the fun part of trying out some cool tech. I tried four headsets: Vive, Hololens, and Google Daydream. Game or application demos were set up for each, and I'm getting a bit more familiar with the controls. My favorite was the [HTC Vive longbow tower defense game](#).

The HoloLens Boeing demo was unlike anything I'd tried before (see headset below). There are huge benefits to be able to see where you are in the real world, but I found it much less comfortable because of the weight of the headset and the awkwardness of hand controls.

We also got a tour of the C6, Iowa State University's cyclone-shaped, fully-immersive virtual reality cave. It doubles as a sculpture since a certain percent of the budget has to go toward art. In the morning the sun strikes the iridescent panels around the exterior.

Last night I dropped in and explored the first floor of the design building while waiting for a bus to Walmart. They had a life-size flying contraption dangling from the ceiling and covered in cobwebs.

Super excited to get some bikes soon so that I don't have to ride the buses and can finally go for a decent ride! It's been arranged for us to go help fix up some bikes at a local shop so we can use them for free for the rest of the summer. Thanks for setting it up Anna!

Posted in Uncategorized | **2 Replies**

Introduction to Iowa

Unpacking, orientation, paperwork, introductions, coffee! My first three days as an REU intern have been chalk full of activity. Highlights were seeing the campus (beautiful!), disc tossing with the group afterward, and later manhandling rogue robots and teleporting on Masashi's Oculus Rift.

I also enjoyed attending Eliot's first lecture yesterday. I was familiar with some of the topics from my previous design classes and projects, and I look forward to implementing them in CooL:SLiCE—the sustainable engineering/manufacturing educational platform that I will be working on.

(above: tidbits of campus)

As a group we have spoken a lot about the process we will be following this summer, namely research, prototyping, and then writing a paper, making a poster and presenting. Today we met our mentors for our specific projects and had individual kick-off meetings. It's nice to have a better idea of what we need to accomplish.

CooL:SLiCE is funded by the National Science Foundation (NSF) and has apparently been in progress for three years. As such, we will probably have less research to do than the other teams. The platform is already up and running with a case study or two and our primary goal will be to make the interface fun and effective.

I'll be posting more regular photos to Instagram! @gypzyroze

Posted in Uncategorized | Leave a reply