

User Experience
Research & Design

Portfolio

Leif Berg

www.lpberg.com

Microsoft Design Research Internship

Microsoft Corporation

Impacted design thinking of designers, researchers, and program managers surrounding core user experiences in Windows 8.1.

Investigated how Windows 8.1 updates would be received by varying groups of end-users through the design and execution of several studies.

Applied critical thinking and analytics to findings to support product development and future design directions.

METHODS

- Stakeholder interviews
- Task Analysis
- Surveys
- Usability Testing
- Heuristic Evaluation



UX Research Internship

Biomedical Informatics Research Center, Marshfield, WI.



Strengthened designers and product managers understanding of how medical staff perceive and utilize electronic health record systems.

Conceptualized and implemented a user-centered design process integrating cognitive modeling into existing evaluation methods.

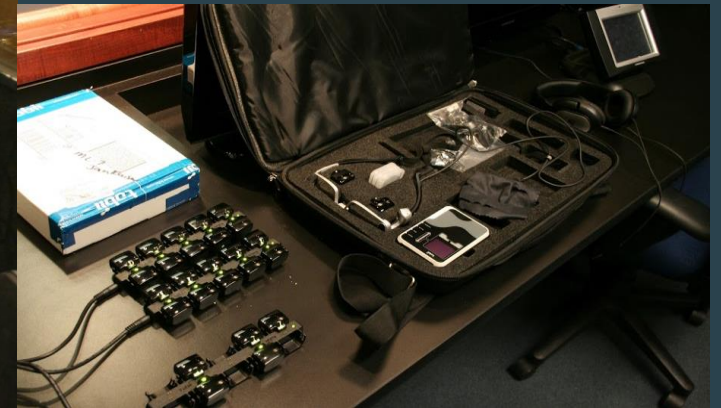
Executed in-depth usability studies with physicians to identify salient user experience issues in an electronic health record prototype.

Informed key stakeholders and research staff about design directions through presentations and reports.



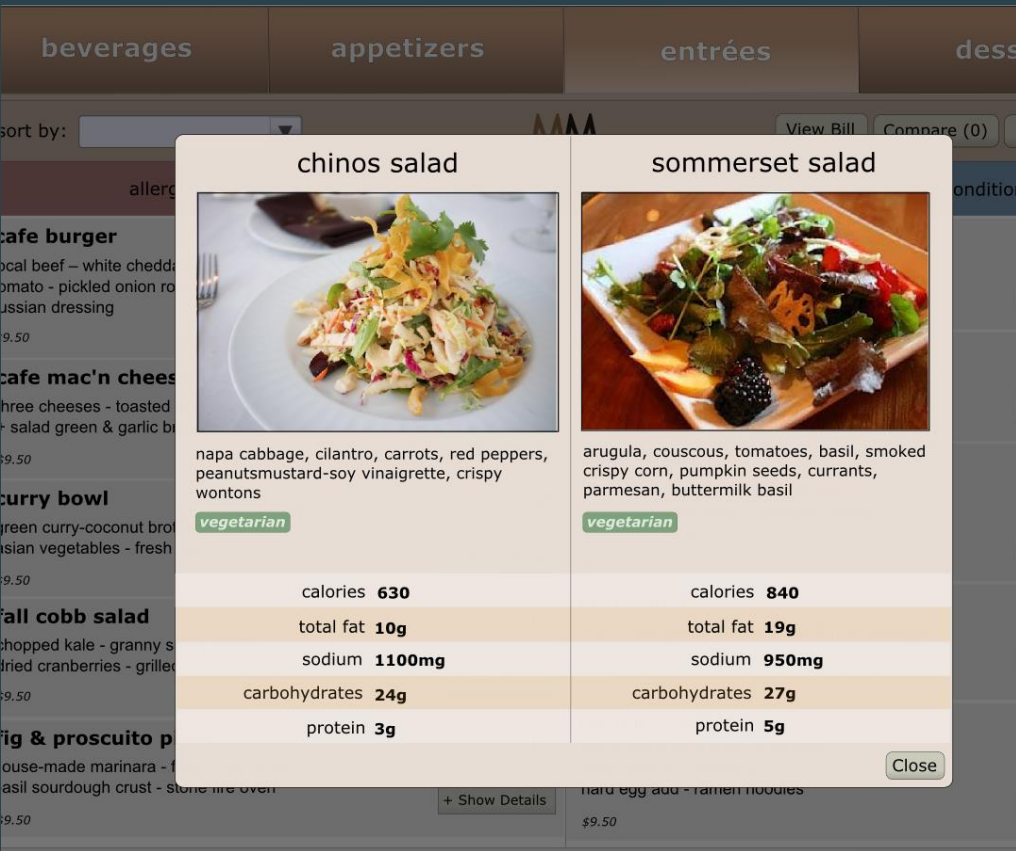
METHODS

Stakeholder interviews
Eye-Tracking & Analysis
Mobile Eye-Tracking
Task Analysis
Cognitive Modeling
Surveys
Usability Testing
Heuristic Evaluation



MenuMate: Table-top touch interface menu system for restaurants

Iowa State University, Ames, IA



Designed, developed, and evaluated a digital restaurant menu system for a touch table interface.

Enhanced prototypes through iterative team design reviews.

Explored interactions through usability testing.

Examined sociotechnical implications of design in context.

Created research poster and presentation to communicate outcomes.

(Completed as a part of ARTGR 672A)



METHODS

Low-High Fidelity Prototyping
Usability Testing
Heuristic Evaluation
Statistical Analysis
Online Surveys

Iowa State Graduate College Website Evaluation

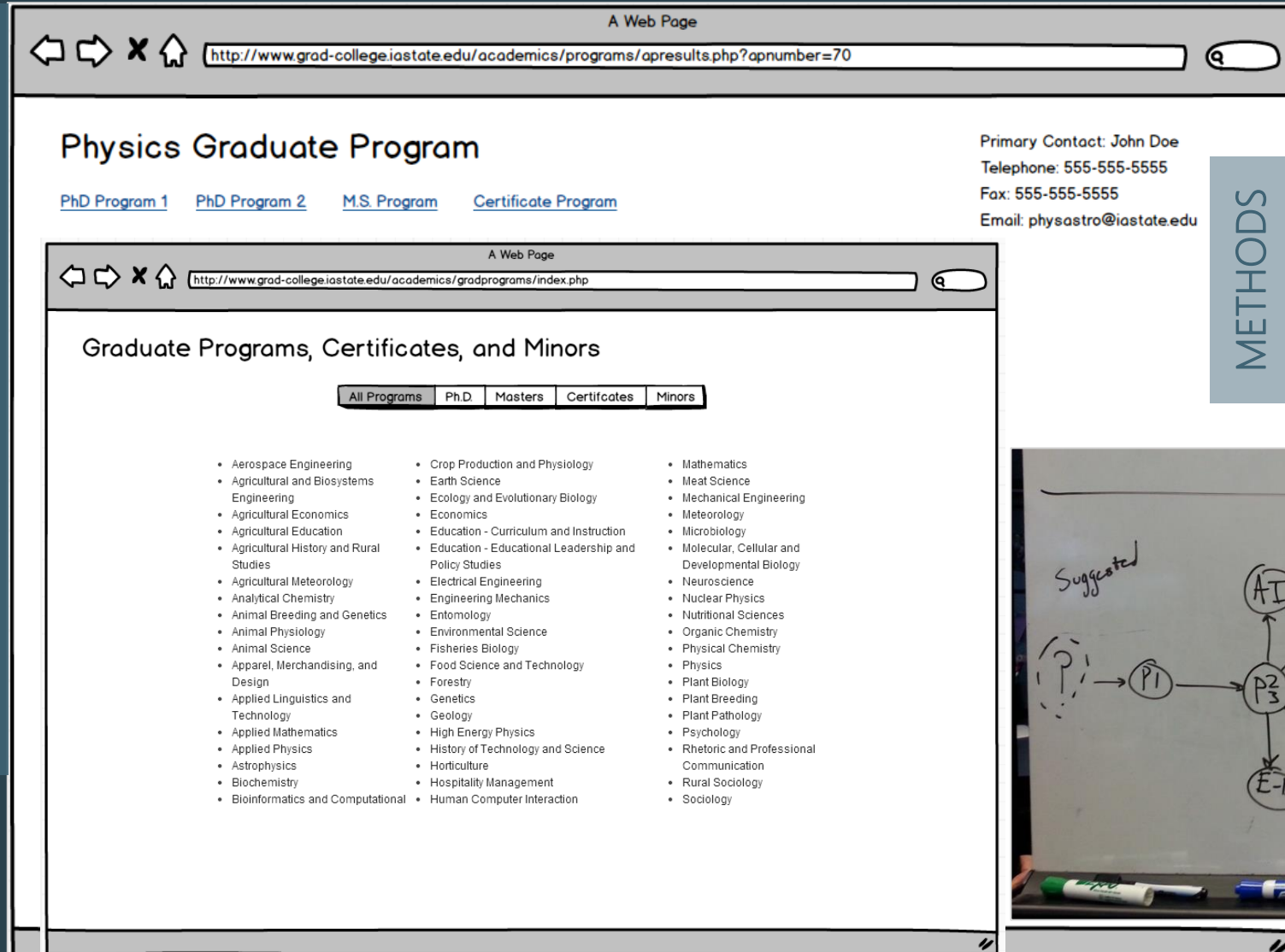
Iowa State University, Ames, IA

Analyzed current state of graduate college website and provided design recommendations to support student goals.

Reduced website complexity enabling students to quickly discover relevant information.

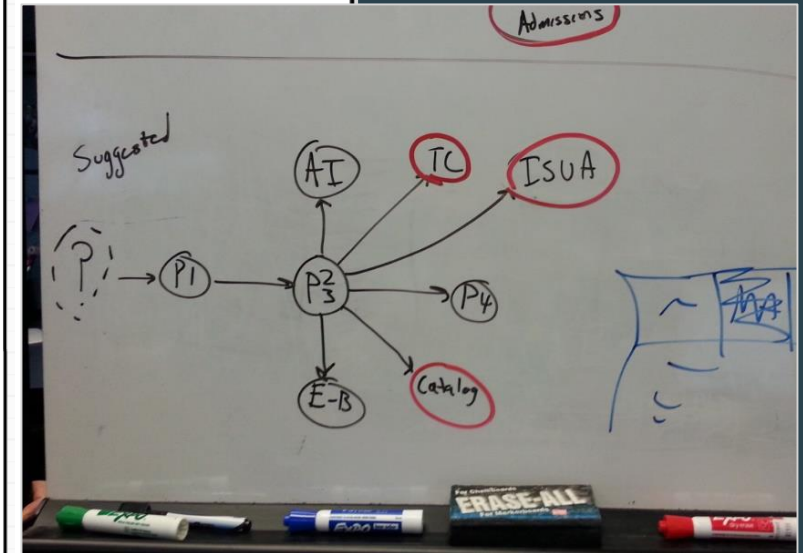
Communicated key findings to stakeholders through a presentation and report.

(ISU HCI UX Lab with Chase Meusel)



METHODS

Stakeholder interviews
Task Analysis
Heuristic Evaluation
Prototyping



Web Interface for Virtual Reality Interaction

Iowa State University, Ames, IA

```
def pressBut
print("Req
#converting
if request.
data =
else:
data =
sendToVRPN(e
return "OK"

@app.route("/t
def sendText(te
print("Reques
data = str(re
sendToVRPN(en
return "OK"
```

Designed and developed a web-based programming interface to support virtual reality interaction on mobile devices.

Integrated expert feedback through iterative prototype evaluations.

Coupled existing web tools to enable quick authoring of interaction interfaces (mobile websites).

Available online

https://github.com/lpberg/vrpn_web_ui

```
makeTextFormInput("ValueByText","Sample Text").appendTo("#text_cont
//create an analog input box - makeAnalogFormInput(label, defau
makeAnalogFormInput("Dynamic Analog",0,0).appendTo("#analog_cor
//create a button - makeButton(button_name, VRPN_button_number
makeButton("Button 0",0).appendTo("#button_controls");
//create a toggle switch button - makeToggleSwitch(VRPN_button
makeToggleSwitch(12,"My Switch Box","Enable","Disable").append
//create an analog slider - makeAnalogSlider(label, VRPN_analog
makeAnalogSlider("Slider Label",10,0,1).appendTo("#analog_con
//create a set of toggle buttons in a grid (2 steps)
//1) create a list of button labels with VRPN_button_numbers
var myGridButtons = [{"button_15", 15}, {"button_16", 16}, {"
//2) create grid - makeGridButtonList(label, listOfButtons)
makeGridButtonList("My grid of Toggle Buttons",myGridButtons
```

METHODS

Heuristic Evaluation
Expert Interviews
Prototyping
Web Development

VRPN Web UI

Using JQuery UI

Text

Analogs (VRPN Analog Channels)

Slider Label: 0.17

Buttons (VRPN Buttons)

My Switch Box

My grid of Toggle Buttons

Designing Haptic Interaction: *Assisted Virtual Assembly*

Iowa State University, Ames, IA

Video

<https://www.youtube.com/watch?v=cw4rOKokGWE>

Conceptualized virtual assembly interaction technique using a haptic device to encourage assembly process exploration.

Investigated a “snap-to” method for assembling virtual products integrating design guidelines from the “drop-and-drag” interaction convention.

Incorporated expert feedback throughout design process.



METHODS

Heuristic Evaluation
Expert Interviews



World Usability Day 2011: ISU Design Challenge

Iowa State University, Ames, IA

Re-envisioned the HCI/VRAC website.

Employed a user-centered design process over the course of a week.

Collaborated with students from various disciplines to plan and execute multiple design methods.

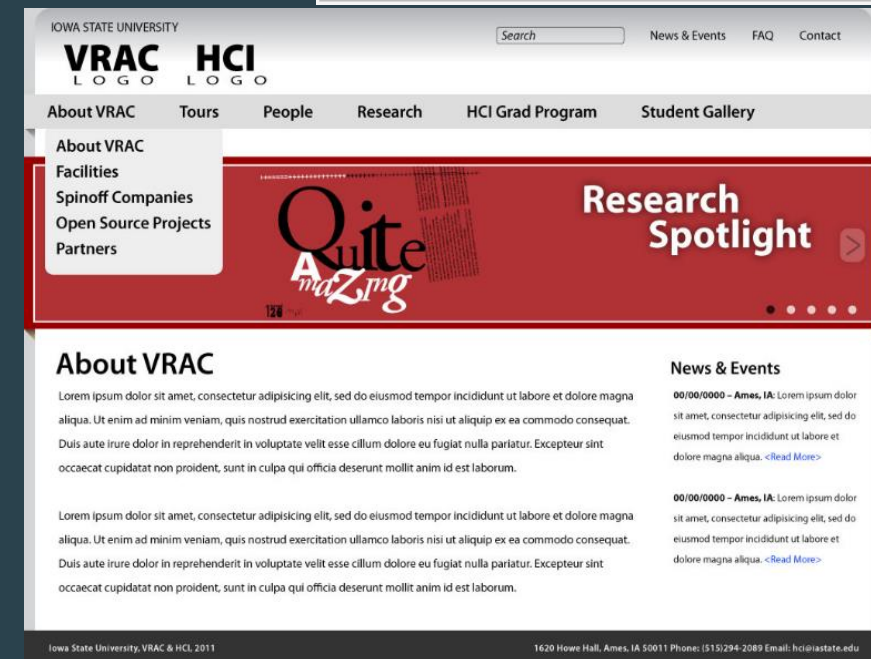
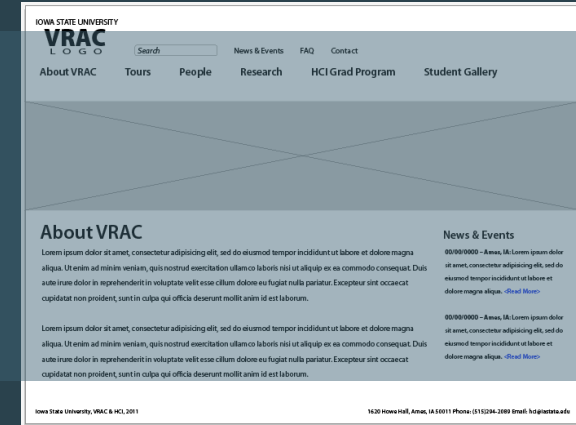
Interactive activities resulted in an expanded understanding of key stakeholder goals and motivations.

Drafted report of insights and recommendations for future design efforts.

Many individuals contributed to this effort.



Stakeholder interviews
Persona Development
Prototypes
Usability Testing
Heuristic Evaluation
Card Sorting



ISU HCI User Experience Lab Development

Iowa State University, Ames, IA

Enabled user centered design learning for students interested in user experience.

Established web-based modules to articulate user experience design principles in context.

Formulated lab processes and materials to help students utilize the resources of the Iowa State University UX Lab.

Many individuals contributed to this effort.



UCD Lifecycle: ThinkSpace

Iowa State University, Ames, IA

METHODS

Affinity Diagramming
Competitor Analysis
Persona Development
Low-mid fidelity Prototyping
Online Surveys
Usability Testing
Heuristic Evaluation
Descriptive Statistical Analysis

THiNKspace LOGO

My Spaces My Portfolios

SPACE NAME

SPACE NAME

SPACE NAME

SPACE NAME

Influenced ongoing design process of ThinkSpace learning environment.

Inspected a single user interaction through the deployment of numerous user-centered design activities with end-users and stakeholders.

Identified and prioritized user experience issues.

Designed and developed low and mid-fidelity prototypes to understand the potential benefits of design recommendations in context.

(Completed as a part of HCI 596 with David Moore and Devin Knight)

Welcome Megan! [Logout](#)

Create New Space

Sort By: Due Date

THINKSPACE

My Profile | Settings | Help

Welcome Megan! [Logout](#)

My Spaces My Portfolios My Docs My Resources

Create Space

HCI589X

Next Assignment: Assignment #10 Due 4/28/12

Total Assignments: 10 Completed Assignments: 9 [View Assignments](#)

Owner: Winston Smith

S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30		

HCI555

Next Assignment: Assignment #4 Due 3/28/12

Total Assignments: 5 Completed Assignments: 3 [View](#)

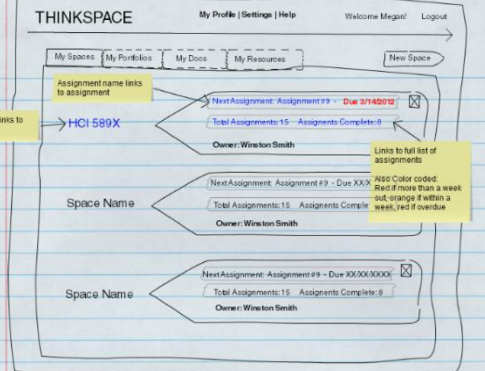
Owner: Janice Adams

STAT401

Next Assignment: Assignment 3 Due: 03/22/12

Total Assignments: 7 Completed Assignments: 2 [View](#)

Owner: Patrick Marlson



Type 1 Diabetes Mobile Application

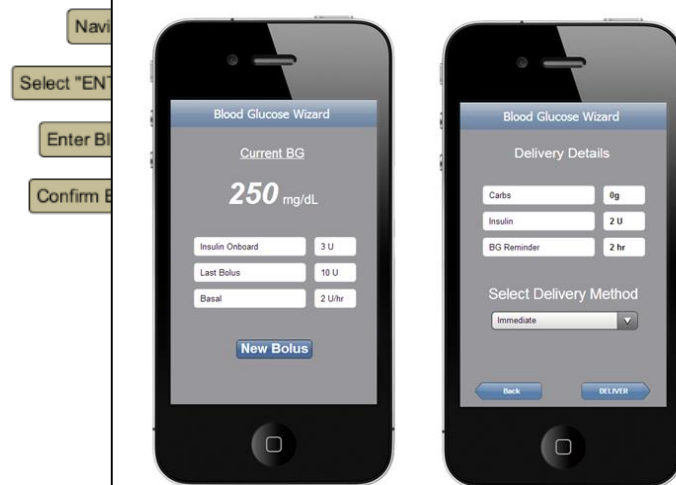
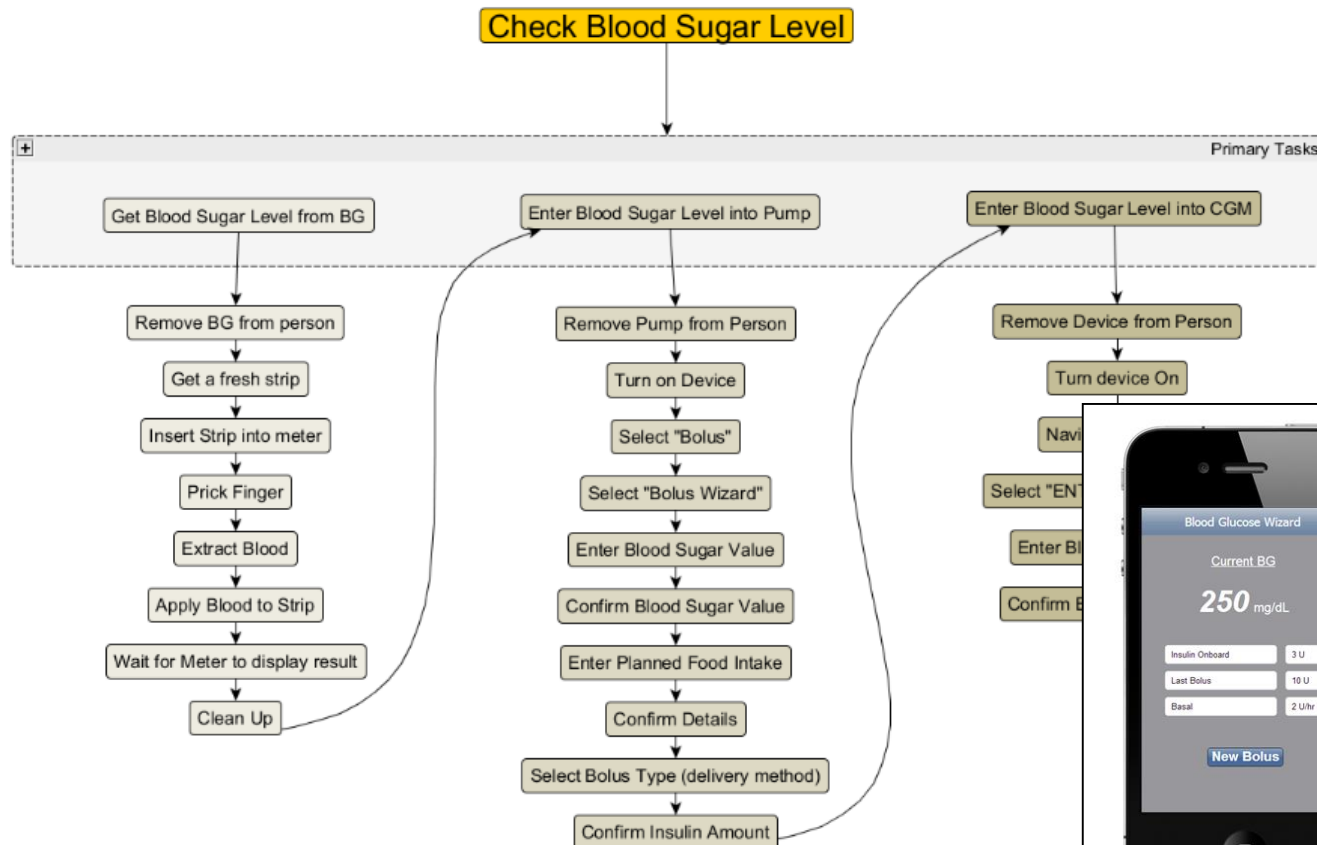
Iowa State University, Ames, IA

Designed and evaluated a mobile application to help people with Type 1 Diabetes manage their health.

Investigated existing technologies and processes to identify interaction constraints. Examined core scenarios through interviewing Type 1 Diabetic users.

Proposed new processes to minimize device interaction.

(Completed as a part of IE 577 with Chase Meusel and Ahmad Al-Kofani)



METHODS

Task Analysis
Online Surveys
Low-Mid Fidelity Prototyping
Usability Testing
Heuristic Evaluation

Design and Evaluation of Source Code Analyzer

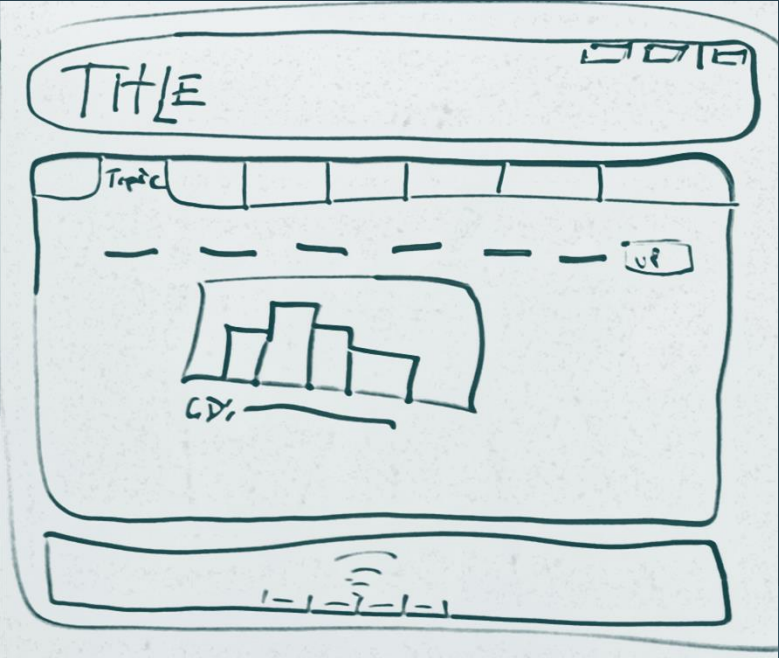
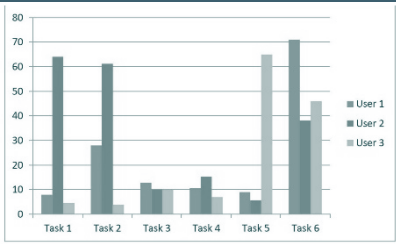
Iowa State University, Ames, IA

Designed and programmed a web-based tool to help software developers better integrate into open source communities.

Interviewed programmers to gain insight into possible future software features.

Critiqued prototypes through heuristic evaluation and iterative usability testing.

(Completed as a part of HCI 573 with Patrick Carlson)



Task Success						
Participant	Task 1	Task 2	Task 3	Task 4	Task 5	Task 6
User 1	Success	Success	Success	Success	Success	Failure
User 2	Failure	Success	Success	Success	Success	Success
User 3	Success	Success	Success	Success	Success	Failure

METHODS

- Task Analysis
- Low-Mid Fidelity Prototyping
- Usability Testing
- Heuristic Evaluation

Formal evaluation of DirectedReading

Iowa State University, Ames, IA

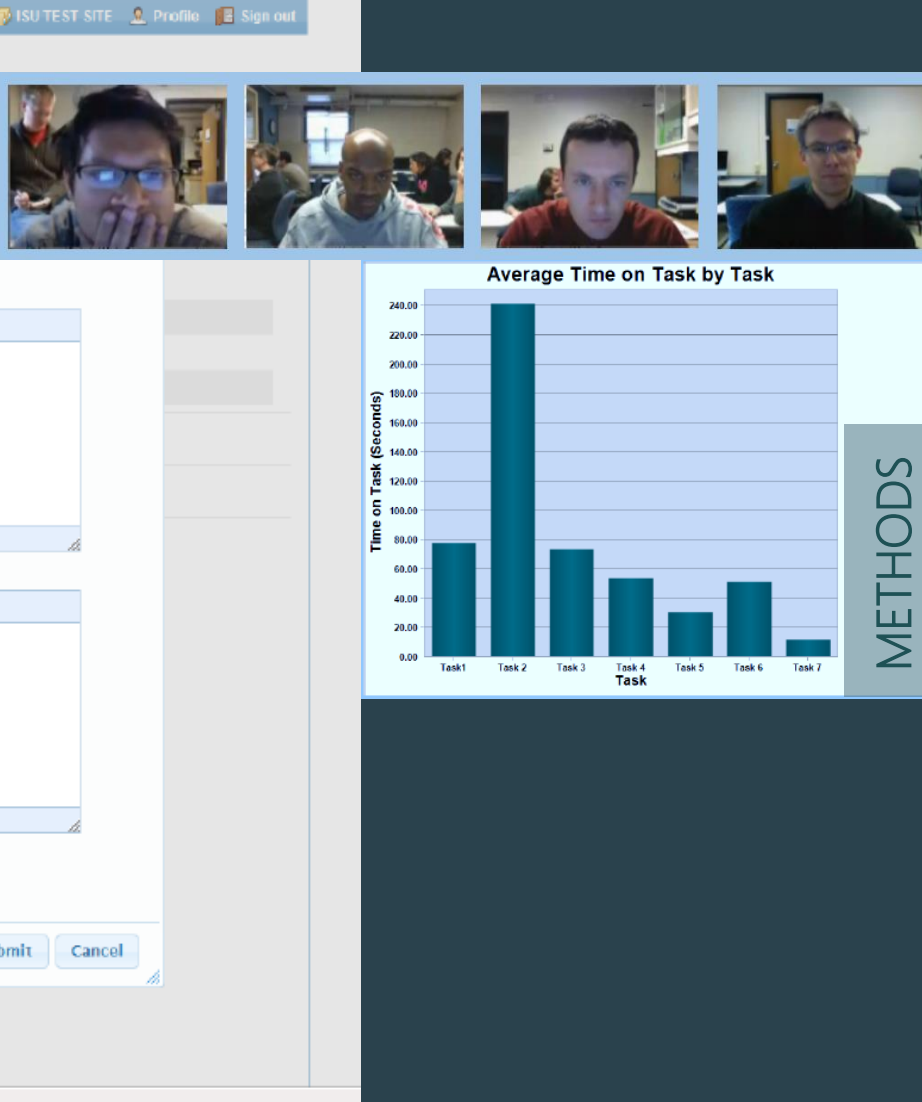
Motivated designers to explore alternative design opportunities by diagnosing notable user experience concerns in DirectedReading.

Interviewed end-users to benchmark existing design against proposed improvements.

Described crucial findings and recommendations with design team.

Delivered formal report and presentation of activities to stakeholders.

(Completed as a part of HCI 504 with Phil Vander Broek, William Morse, and Ashley Batts)



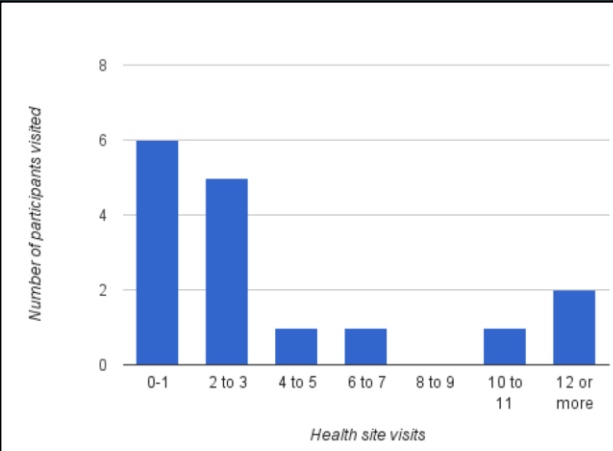
The Usability of Online Healthcare Resources considering Young Users

Iowa State University, Ames, IA

Evaluated the usability of two healthcare websites while considering use cases common to young users. (18-40 years of age).

Compared user experiences through surveys and task-based usability tests. Created report and presentation to communicate results.

(Completed as a part of HCI 522 with Manjeet Sahota)



METHODS

Online Surveys
Usability Testing
Heuristic Evaluation
Descriptive Statistical Analysis

Task A

You regularly feel a burning sensation in your chest area usually occurring after you have a main meal. A friend of yours tells you that it could be heartburn. He says that you can use over the counter medication to help relieve the symptoms. You are going to use Medline to look up some medication to relieve some symptoms. Give 2 examples of over the counter (otc) medication.

Task B

In the news lately, there has been a lot of hype about one of the best ways to prevent cancer is get early testing done. So you want to look into this and find out what age is the recommendation on when to get checked. You also think it would be a good idea to look up common symptoms that relate to colon cancer. Please find the recommended age for symptoms.

	R	H	C	ASD	L	MI	PP	NR
Q15	0.64	0.46	0.89	*	0.68	0.46	0.39	1.0
Q21	0.64	*	1.0	*	0.56	*	1.0	0.77
Q8	0.64	*	1.0	*	0.53	*	1.0	0.64

Socio-technical Analysis of Regents Hall, St. Olaf College

St. Olaf College, Northfield, MN. (Undergraduate project)

Enriched sociotechnical experiences of students in Regents Hall.

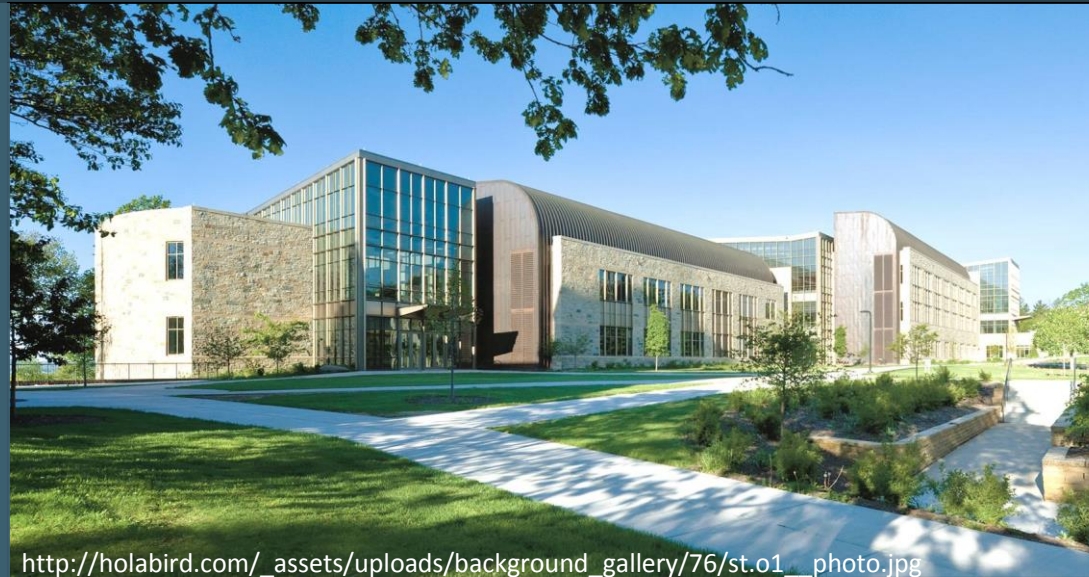
Conceptualized prospective human-computer interactions across numerous interaction spaces.

Surveyed collaborative spaces to identify potential interaction issues.

Observed and interviewed potential users to influence future space alterations.

Presented findings and recommendations to the building's design team. Spring 2008.

(Undergraduate - course project at St. Olaf College)



http://holabird.com/_assets/uploads/background_gallery/76/st.o1_photo.jpg

METHODS

Surveys
Stakeholder interviews
Field Observations