GVU FALL RESEARCH SHOWCASE 2015

Technology Square Research Building

10.21.2015

Georgia Tech GVU Center

TSRB 2nd Floor

222	Sonification Lab
230	Graphics Lab / Room Graphics Lab
235	Ubiquitous Computing Group
223	CATEA
	GT Bionics
228B	Entertainment Intelligence Lab

233	Augmented Environments Lab
243	Contextual Computing Group
209	Local Data Design Lab
	Design and Social Interaction Studio
	Synaesthethic Media Lab

★ Registration

Basement Access

TSRB 3rd Floor

325	ADAM Lab Game Studio
309	Aware Home Research Initiative
339	Comp.Social Lab
328	Culture And Technology Lab (CAT)
329	Contextualized Support for Learning
332	Computational Enterprise Science Lab

322	Experimental Television Lab
342A	Everyday Computing Lab
323	Participatory Publics Lab
317A	Public Design Workshop
334	Information Interfaces Group
338	Electronic Learning Communities

Basement Access

Floor 2

Augmented Environments Lab - Room 233
-Applying Design Studio Pedagogy in STEM Learning with Novel Presentation and Sensing Technologies
-Interaction Techniques for Children in Augmented Reality Education
-Room-scale Video mixed Augmented Reality
-Transmedia Storyscape: An ecology of transmedia storytelling

Center for Assistive Technology and Environmental Access (CATEA) - Room 223
-Universal Design for Wayfinding

Contextual Computing Group - Room 243
-CHAT - A Dolphin Interaction Wearable
-Captioning on Glass
-CopyCat
-MAGIC Summoning: Towards Automatic Suggesting and Testing of Gestures With Low Probability of False Positives During Use
-Order Picking with Wearable Computers
-Passive Haptic Learning
-Silent Speech Recognition
-SmartSign
-UHURA - Dolphin

Design and Social Interaction Studio - Room 209
-Particle in a Box (An Experiential Approach to Quantum Mechanics Education)
-Sweet Auburn Digital Media Initiative

Entertainment Intelligence Lab - Room 228B
-An Intelligent Game Level Design Editor Informed by Gameplay Videos
-Scheherazade Story Generator

GT-Bionics - Room 223
-A Multimodal Human Computer Interface Combining Head Movement, Speech and Tongue Motion for the People with Severe Disabilities
-Enhancements on A Tongue-Operated Robotic Rehabilitation System

Graphics Lab - Room Graphics Lab - 230
-Animating Human Dressing
-Poster and Demo - Curve Averaging

Local Data Design Lab - Room 209
-Data Artifacts
-The Life and Death of Metadata
-Visualization Journalism

Sonification Lab - Room 222

-Accessible Bluetooth Cane
-Advanced Auditory Menus
-Auditory Graphs: Math and Science Education for Students with Vision Impairment
-Bone Conduction Audio
-Driving Georgia Tech: Creating a Driving Simulation of Georgia Tech's Campus
-Enhanced In-Vehicle Technologies: Novel Interfaces and Advanced Auditory Cues to Decrease Driver Distraction
-In-Vehicle Assistive Technologies
-Mwangaza Project
-Sonified Fantasy Sports

Synaesthethic Media Lab - Room 209

-Active Pathways
-Mapping Place
-Multisensory Prayer Nuts
-ROSS: Responsive Objects, Surfaces, and Spaces
-SciSketch
-Sparse Tangibles
-TASC: Tangibles for Augmenting Spatial Cognition
-VPorter

Ubiquitous Computing Group - Room 235

-B.B.C.S. - Bio-Behavioral Capture System
-In-context Motion Gesture Design
-TapSkin: Recognizing on-skin gestures for smartwatch input
-Tracking Driving Activity

Floor 3

ADAM Lab - Room 325
-Drawing Apprentice: Co-Creative Drawing Partner
-EarSketch: Teaching Computer Science through Music Composition
-TuneTable Tangible Programming Interface
-Viewpoints AI: An Exploration of Human - AI Movement Improvisation

Aware Home Research Initiative - Room 309
-Connected Living Research Initiative
-Cue - Connecting U Everyday
-RERC TechSAge: A Mobile Application to Measure Gait Speed
-RERC TechSAge: SmartBathroom

Comp.Social Lab - Room 339
-Algorithmically Bypassing Censorship on Sina Weibo with Nondeterministic Homophone Substitutions
-CREDBANK: A Large-scale Social Media Corpus With Associated Credibility Annotations

Computational Enterprise Science Lab - Room 332
-Enterprise Genome: Visual Sequencing of Relationship Activities of Global Enterprises
-dotlink360: Visual Business Ecosystem Intelligence

Contextualized Support for Learning - Room 329
-CSLearning4U: Creating Electronic Books for Teacher CS Learning
-Designing an Instructor Dashboard for eBooks
-Designing an eBook for Computer Science Principles Students
-Reducing Cognitive Load to Improve Learning to Program

Culture And Technology Lab (CAT) - Room 328
-Information Seeking Practices of Parents: Exploring Social Networks, Fears and Challenges
-Makerspaces and Makerplaces: Collaboration, Togetherness, and Learning in Maker Communities
-Parent Pedagogical Perspectives: A Framework for Design of Museum Exhibits

Electronic Learning Communities - Room 338
-Cuba Intercambio: Information and Cultural Exchange Between the US and Cuba

Everyday Computing Lab - Room 342A
-Designing Adaptive Technology to Provide Personalized Support to Cancer Patients
-Eating Disorders and Social Media - Characterizing the Presentation of Eating Disorders Online
-Human-assisted seizure detection and reporting

Experimental Television Lab - Room 322
-Social TV

Game Studio - Room 325
-Dear Games

Information Interfaces Group - Room 334
-GLO-STIX
-Mobile Information Visualization
-Multi-touch Dust and Magnet
-NBA Basketball Data Visualization
-RSketch: Streamlined Mars Rover Path Planning
-SpaceSketch - Multitouch Exploration of Urban Public Safety Data
-Visualizing PGA Tour golf shot data

Participatory Publics Lab - Room 323
-Community Historians
-Mapping iThemba

Public Design Workshop - Room 317B
-Gleaning in Atlanta

Demos by Research Area

Civic Computing
-Sweet Auburn Digital Media Initiative
-Visualization Journalism
-Gleaning in Atlanta
-Community Historians
-Mapping iThemba

Cognitive Science
-TASC: Tangibles for Augmenting Spatial Cognition
-Scheherazade Story Generator
-Drawing Apprentice: Co-Creative Drawing Partner
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Social Computing
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Online Communities
-Sonified Fantasy Sports
-Information Seeking Practices of Parents: Exploring Social Networks, Fears and Challenges
-Makerspaces and Makerplaces: Collaboration, Togetherness, and Learning in Maker

Communities
-Cuba Intercambio: Information and Cultural Exchange Between the US and Cuba
-Eating Disorders and Social Media - Characterizing the Presentation of Eating Disorders Online

Artificial Intelligence
-An Intelligent Game Level Design Editor Informed by Gameplay Videos
-Silent Speech Recognition
-Scheherazade Story Generator
-Drawing Apprentice: Co-Creative Drawing Partner
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Augmented Reality
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Graphics and Animation
-Driving Georgia Tech: Creating a Driving Simulation of Georgia Tech's Campus
-Poster and Demo - Curve Averaging
-Animating Human Dressing
-TuneTable Tangible Programming Interface

Health Informatics
-B.B.C.S. - Bio-Behavioral Capture System
-Cue - Connecting U Everyday
-RERC TechSAge: A Mobile Application to Measure Gait Speed
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Collaborative Work
-Active Pathways
-Visualization Journalism
-VPorter
-A Multimodal Human Computer Interface Combining Head Movement, Speech and Tongue Motion for the People with Severe Disabilities
-CHAT - A Dolphin Interaction Wearable
-UHURA - Dolphin
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Educational Technologies
-Active Pathways

-Mapping Place
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Human-Computer Interaction

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Music Technology
-EarSketch: Teaching Computer Science through Music Composition
-TuneTable Tangible Programming Interface

Robotics
-VPorter
-Enhancements on A Tongue-Operated Robotic Rehabilitation System

International Development
-Mapping iThemba
-Cuba Intercambio: Information and Cultural Exchange Between the US and Cuba

New Media
-Mapping Place
-Multisensory Prayer Nuts
-Transmedia Storyscape: An ecology of transmedia storytelling
-Social TV
-Community Historians
-Viewpoints AI: An Exploration of Human - AI Movement Improvisation
-CSLearning4U: Creating Electronic Books for Teacher CS Learning
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Perception
-Multisensory Prayer Nuts
-Bone Conduction Audio
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Wearable Computing
-Accessible Bluetooth Cane
-Bone Conduction Audio
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Gaming
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Mobile and Ubiquitous Computing
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Virtual Reality
-Driving Georgia Tech: Creating a Driving Simulation of Georgia Tech's Campus

Floor 2

Augmented Environments Lab - Room 233

Applying Design Studio Pedagogy in STEM Learning with Novel Presentation and Sensing Technologies
We use Augmented Reality presentation and sensing technologies to integrate design studio learning models into screen-based classrooms. The goal for this approach is to create STEM learning experiences that encourage creativity, innovation and help build strong peerlearning environments. To accomplish this goal we implement room-scale augmented reality technology with projection-based presentation and sensing technologies --projecting on surfaces and using depth sensing for unencumbered interaction (see http://research.microsoft.com/en-us/projects/roomalive/). This approach allows everyone in thespace to participate in the experience, and the cost is fixed regardless of the number of participants. Two practices from the studio model for learning webuild upon are: Pinups: In design studios, students will pin their work (completed parts, sketches, parts in-development) on a wall, and the teacher and students will walk the walls in order to comment on the pinned-up work. Pinups make both the artifacts and process of design work visible, and make it possible to compare and contrast approaches when all students work is pinned up at once. Meetups: Students working together in a design studio can look over to see what others are doing. Collaboration is fluid and at multiple levels. Sometimes, two students move their work near one another to work together (literally, closely). Sometimes, two students just look at each others work to share ideas.

Faculty: Blair MacIntyre, Betsy DiSalvo, Mark Guzdial
Students: Alan Dingtian Zhang, Amber Solomon, Ryan Jones
Research Focus: Augmented Reality, Educational Technologies

Interaction Techniques for Children in Augmented Reality Education
Augmented-reality is a technology that can revolutionize children's education and entertainment. In studies of adolescents and adults, it has been shown to have measurable benefits for advancing STEM education through situated 3D simulations, providing entertainment through whole-body interaction, and enhancing physical & cognitive rehabilitation through motivational engagement. We are interested in bringing such experiences into the hands of elementary-school children. In this project we are studying young children's ability to effectively use various types of handheld-AR interfaces. Handheld-AR interfaces are different from more traditional interfaces, by being small portable windows into physical spaces augmented with digital content, and their use may require more complex motor and cognitive skills than compared to traditional interfaces. Due to the novelty of handheld-AR technology, there are no standard interaction techniques for handheld AR, and little is known about children's ability to use these interfaces. Through this research we are generating guidelines for technology designers, answering questions such as: What kinds of handheld-AR interaction techniques are suitable for young children? To what degree does age influence children's ability to interact with handheld-AR interfaces? What are best practices for designing handheld-AR interfaces for children ?

Faculty: Blair MacIntyre
Students: Iulian Radu, Sahithi Bonala, Andrea Lau
Research Focus: Augmented Reality, Educational Technologies, Gaming

Room-scale Video mixed Augmented Reality
We are creating a platform for experiencing room-scaleaugmented reality through head-mounted displays. Prototypes will involve various tracking methods to interpret the user's gestures and movements. This project will be a basis for our research in the following topics:- Developing a collaborative workspace- Solving multi-content issues- Creating content for AR

Research Focus: Augmented Reality, Collaborative Work, Wearable Computing

Transmedia Storyscape: An ecology of transmedia storytelling
Transmedia Storyscape The story of The Ghost Club is bigger than just a feature film it inhabits a complex world with a deep history and mythology that engages its audience members, inviting them into the Ghost Club storyscape. The concept of the Club, its team members, and the reality and rules of this world are introduced through a variety of non-traditional media channels web series, social networks, online games, augmented reality mobile applications, and more. The Ghost Club transmedia storyscape generates a cohesive alternate reality that engages fans, encouraging them to discover, explore, and even participate in the world of ghosts and hunters. Storyscape components include: The Ghost Club Webisodes introduce viewers to the team and the show, and highlight story elements only hinted at in the feature film including Noreen being a reporter who is secretly investigating the Club. Team Facebook profiles and Twitter feeds are where The Ghost Club team members post and tweet about the other investigations taking place during their final season. This establishes the rules of the show, the personalities of the investigators, and expands on team member relationships only hinted at during the feature film such as Austin and Caitlins flirtations. The Ghost Club website serves as the official site for The Ghost Club, including the club genealogy, current team member bios, findings from past investigations, ghost tech diagrams, investigative techniques, and how-to tips. Ghost-Pedia is a wiki allowing fans and amateur investigators to enter information about hauntings, ghosts, and investigation techniques. The Ghost Club Augmented Reality App: Ghost vs. Club is a mobile game that allows our viewers to either become ghost hunters and search for geo-tagged spirits or to become spiritualists who summon ghosts for the hunters to find. TThe Ghost Club Flash Games are a variety of online games that let fans try their hand at investigating ghosts. The flash games introduce the different techniques and equipment of ghost hunting.

Faculty: Jay Bolter
Students: Hank Blumenthal, Yan Xu, Richard Shemaka
Research Focus: Augmented Reality, Gaming, New Media

Center for Assistive Technology and Environmental Access (CATEA) - Room 223

Universal Design for Wayfinding
Wayfinding in unfamiliar place has been challenging for everybody, including older adults and people with disabilities. This project investigates the barriers and difficulties people have withwayfinding systems, including environments, technology and their interaction with human. With understanding of the existing barriers and difficulties, this project also aims to provide design solutions from a universal design perspective.
Faculty: Jon Sanford
Students: Yilin Elaine Liu, Christina Harrington
Research Focus: Human-Computer Interaction, Mobile and Ubiquitous Computing

Contextual Computing Group - Room 243

CHAT - A Dolphin Interaction Wearable
CHAT (Cetacean Hearing Augmentation & Telemetry) is a wearable underwater computer system, engineered to assist researchers in establishing two-way communication with dolphins. The project seeks to facilitate the study of marine mammal cognition by providing a waterproof mobile computing platform. An underwater speaker and keyboard enables the researchers to generate whistles. The system is equipped with a two channel hydrophone array used for localization and recognition of specific responses that are translated into audio feedback. The current system is the result of multiple field tests, guided by the researchers feedback and the environmental constraints.
http://hdl.handle.net/1853/52112

Faculty: Thad Starner - thad@cc.gatech.edu, Peter Presti - peter.presti@imtc.gatech.edu, Scott Gilliland - scott.gilliland@gatech.edu
Students: Daniel Kohlsdorf - dkohlsdorf6@gatech.edu, Celeste Mason - celeste.m@gatech.edu, Stewart Butler - stewart@ethosnet.net
Research Focus: Collaborative Work, Wearable Computing

Captioning on Glass
Captioning on Glass is an on-going project creating an app for Google Glass with a companion Android phone app to assist the hard-of-hearing in everyday conversations. We are also working on another version of this app, "Translation on Glass", which will add the ability to translate between English and another language.

Faculty: Thad Starner
Students: Jay Zuerndorfer
Research Focus: Wearable Computing

CopyCat
This project involves the design and evaluation of an interactive computer game that allows deaf children to practice their American Sign Language skills. The game includes an automatic sign language recognition component utilizing computer vision and wireless accelerometers. The project is a collaboration with Dr. Harley Hamilton at the Atlanta Area School for the Deaf.

Faculty: Thad Starner, Peter Presti
Students: Kareem Hemanshu, Zahoor Zafrulla
Research Focus: Educational Technologies

MAGIC Summoning: Towards Automatic Suggesting and Testing of Gestures With Low Probability of False Positives During Use
Gestures for interfaces should be short, pleasing, intuitive, and easily recognized by a computer. However, it is a challenge for interface designers to create gestures easily distinguishable from users' normal movements. Our tool MAGIC Summoning addresses this problem. Given a specific platform and task, we gather a large database of unlabeled sensor data captured in the environments in which the system will be used (an "Everyday Gesture Library" or EGL). MAGIC can output synthetic examples of the gesture to train a chosen classifier.
Faculty: Thad Starner
Students: Daniel Kohlsdorf

Order Picking with Wearable Computers
Warehouses throughout the world distribute approximately $1 trillion in goods per year from nearly a million warehouses. Order Picking is the process of collecting items from inventory and sorting them into orders for distribution. It represents one of the main activities performed in warehouses. About 60% of the total operational costs of these warehouses is order picking. Most are still picked by hand, often using paper pick lists. Our objective is to implement and compare various order-picking systems, including: Pick-By-Paper list Pick-By-Light Pick-By-Tablet Pick-By-HUD (Heads-Up Display).

Faculty: Thad Starner
Students: Shawn Wu, Malcolm Haynes
Research Focus: Human-Computer Interaction, Mobile and Ubiquitous Computing, Wearable Computing

Passive Haptic Learning
Passive Haptic Learning (PHL) is the acquisition of sensorimotor skills without active attention to learning. Vibrations are used to passively teach the motor skill and are typically delivered by a wearable, tactile interface. Our group has previously demonstrated Passive Haptic Learning of piano melodies and of typing skills for text entry on a unique 10-key keyboard. We now investigate whether Passive Haptic instruction facilitated by wearable computers may be a feasible method of teaching Braille typing.

Faculty: Thad Starner
Students: Caitlyn Seim

Silent Speech Recognition
In this study, we address the problem of performing continuous speech recognition where audio is not available (e.g.,due to a medical condition) or is highly noisy (e.g. during fighting or combat). Our Tongue Magnet Interface (TMI) uses 3-axis magnetometers to measure the movement of a small magnet glued to the users tongue. Tongue movement corresponding to speech is isolated from the continuous data by comparing the variance of a sliding window of data to the variance of signal corresponding to silence. Recognition relied on hidden Markov model (HMM) based techniques. Using a custom headset with four magnetometers placed close to the cheeks of the participant, a maximum user dependent recognition rate of 99.8% is achieved for a ?xed phrase set of 12 sentences spoken by able-bodied participants. The average accuracy across four users is 95.9%. Using the single magnetometer aboard Google Glass, a commercial wearable computing device worn at eye level, one of 12 phrases could be selected with 93.8% average accuracy. To improve the latter recognition result we introduced a new interface, known as the Outer Ear Interface (OEI), which captures the lower jaw movements by measuring the deformation it causes in the ear canal. This measurement is done using a pair of infrared proximity sensors, one in each ear. We hypothesize that combining features from both interfaces will improve accuracy results significantly.

Faculty: Thad Starner
Students: Himanshu Sahni, Abdelkareem Bedri, Gabriel Reyes, Pavleen Thukral, Zehua Guo
Research Focus: Artificial Intelligence, Human-Computer Interaction, Mobile and Ubiquitous Computing

SmartSign
This project involves the development and evaluation of a mobile content delivery system. Using small, unplanned moments throughout the day, we endeavor to increase the

ability of hearing parents with deaf children to recognize and produce American Sign Language vocabulary.

Faculty: Thad Starner
Students: Kimberly Weaver

UHURA - Dolphin
CHAT (Cetacean Hearing Augmentation & Telemetry) is a wearable underwater computer system, engineered to assist researchers in establishing two-way communication with dolphins. The project seeks to facilitate the study of marine mammal cognition by providing a waterproof mobile computing platform. An underwater speaker and keyboard enables the researchers to generate whistles. The system is equipped with a two channel hydrophone array used for localization and recognition of specific responses that are translated into audio feedback. The current system is the result of multiple field tests, guided by the researchers feedback and the environmental constraints.
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Students: Daniel Kohlsdorf - dkohlsdorf6@gatech.edu, Celeste Mason - celeste.m@gatech.edu, Stewart Butler - stewart@ethosnet.net
Research Focus: Collaborative Work, Wearable Computing

Design and Social Interaction Studio - Room 209

Particle in a Box (An Experiential Approach to Quantum Mechanics Education)
Theories of Quantum Mechanics(QM) have been central to the philosophical and technological advances in physics and related fields. Some of the most important aspects of these theories are outside the bounds of human experience, predominantly explained and taught drawing on abstract mathematical formulas. How can we advance experience-based learning of abstract concepts such as QM so students develop the in-depth understanding needed to further advance these theories by generating and testing new hypotheses? This research project addresses this question through a series experimentations with digital media (e.g., by designing interactive games based on the rules of QM) engaging whether and how digital media could serve as the basis for an experiential understanding of QM concepts.

Faculty: Nassim Jafarinaimi (DM); Azad Naeemi (ECE)
Students: Rose Peng, Mithila Tople, Shaziya Tambawala, Ridhima Gupta, Auzita Irani, Aditya Anupam, Bill Dorn, Baishen Huang
Research Focus: Educational Technologies, Gaming, Information Visualization

Sweet Auburn Digital Media Initiative
Can locative media (Augmented and Mixed Reality, web applications, and social networking) serve as a platform for preservation of cultural heritage, informal education, and civic engagement? This is the question at the heart of the Auburn Avenue Research Project, a project that brings together researchers from variety of disciplines including media theory, design studies, and human-computer interaction to engage the above question in theory and practice. Through the creation of a tiered media strategy, the Auburn Avenue Research Project takes advantage of real world development project (e.g., new physical signage, street car) and potentials of digital technology to raise awareness of Auburn Avenues history an future trajectory, to increase the number of visitors to the neighborhood, and to support community

preservation and revitalization efforts. Project objectives include: To explore the usage of locative media forms for their potential to increase civic engagement among visitors and residents. To make the rich cultural heritage and history of Auburn accessible to people by integrating new and old representational media.

Faculty: Jay David Bolter, Nassim Jafarinaimi
Students: Colin Freeman
Research Focus: Augmented Reality, Civic Computing, Information Visualization

Entertainment Intelligence Lab - Room 228B

An Intelligent Game Level Design Editor Informed by Gameplay Videos
Check out videos of the system: here and here Intelligent tools can ease the burden of game development. One approach to easing this burden is the use of co-creative, artificial agents, capable of helping a human developer by making suggestions or extending an initial design. However, agents capable of design have historically required a large amount of hand-authored design information domain-specific rules, heuristic functions, or formal logic rules. Due to the time it takes to author this knowledge, such approaches do not remove the development burden, but shift it to the author of the agent. To solve this problem we present a demonstration a level-authoring tool with a co-creative agent informed by knowledge learned from gameplay videos.

Faculty: Mark O. Riedl
Students: Matthew Guzdial
Research Focus: Artificial Intelligence, Gaming

Scheherazade Story Generator
Story generation is the problem of automatically selecting a sequence of events that meet a set of criteria and can be told as a story. Story generation is knowledge-intensive; traditional story generators rely ona prioridefined domain models about fictional worlds, including characters, places, and actions that can be performed. Manually authoring the domain models is costly and thus not scalable. We present a novel class of story generation system--called anOpen Story Generator--that can generate stories about any topic.Our system,Scheherazade, generates plausbile sounding, but fictional stories about real world situations. Itautomatically learns a domain model by crowdsourcing a corpus of narrative examples and generates stories by sampling from the space defined by the domain model. Scheherazade can also be used to create interactive narratives in which a player gets to choose the actions for a particular character in the crowdsourced story world. See a video of the system in action:https://www.youtube.com/v/znqw17aOrCs

Faculty: Mark Riedl
Students: Boyang Li, Brent Harrison, Matthew Guzdial
Research Focus: Artificial Intelligence, Cognitive Science, Gaming

GT-Bionics - Room 223

A Multimodal Human Computer Interface Combining Head Movement, Speech and Tongue Motion for the People with Severe Disabilities
Assistive technologies (ATs) play a crucial role inthe lives of individuals with severe disabilities by enabling themto have greater autonomy in performing daily tasks. The

TongueDrive System (TDS) developed at the Georgia Tech Bionics Labis such an AT, empowering people with severe Spinal Cord Injury (SCI)to be more independent.Earlier versions of theTDS have offered tongue motion and speech as means of drivingmouse activity and keyboard input. In this project, we introducea new multi-modal Tongue Drive System (mTDS), whichincorporates head tracking to deliver proportional control of amouse cursor. ThemTDSintegrates this new capability whilepreserving tongue motion and speech frompreviousversionsand offers a richer means of driving computing interfaces, thanpreviously available to individuals with severe disabilities.

Faculty: Maysam Ghovanloo
Students: Md Nazmus Sahadat, Arish Alreja, Pooja Srikrishnan
Research Focus: Collaborative Work, Human-Computer Interaction, Wearable Computing

Enhancements on A Tongue-Operated Robotic Rehabilitation System
Patients suffering from traumatic brain or spinal cord injuries may benefit from neuroplasticity guided and reinforced by motor learning feedback through reorganization of the neural pathways in intact parts of the brain and spinal cord. An enhanced version of a tongue-operated robotic rehabilitation system is presented for accelerating the rate of improvement in the upper extremity motor functions for patients with severe hemiparesis following stroke. A new rehabilitation robot, called Hand Mentor ProTM (HM) was utilized by reading its pressure and joint angle sensors and combining them with control commands from the Tongue Drive System (TDS) to enable both isometric and isotonic target-tracking tasks in a coordinated tongue-hand rehabilitation paradigm.

Faculty: Dr. Maysam Ghovanloo
Students: Zhenxuan Zhang, Sarah Ostadabbas, M.N. Sahadat, and Nordine Sebkhi
Research Focus: Human-Computer Interaction, Robotics, Wearable Computing

Graphics Lab - Room Graphics Lab - 230

Animating Human Dressing
Dressing is one of the most common activities in human society.Perfecting the skill of dressing can take an average child three tofour years of daily practice. The challenge is primarily due to thecombined difficulty of coordinating different body parts and manipulating soft and deformable objects (clothes). We present a technique to synthesize human dressing by controlling a human character to put on an article of simulated clothing. We identify a setof primitive actions which account for the vast majority of motionsobserved in human dressing. These primitive actions can be assembled into a variety of motion sequences for dressing differentgarments with different styles.

Faculty: Karen Liu, Greg Turk
Students: Alex Clegg, Jie Tan
Research Focus: Graphics and Animation

Poster and Demo - Curve Averaging
We present our work on computing an average curve given a set of planar input curves, with select applications. This work, to be soon presented at the Symposium on Geometric and Physical Modeling, provides a mathematical formulation and a fast algorithm for the problem of finding an average curve, given a set of input curves. Applications in the field ofanimation and statistical analysis are highlighted.

Faculty: Jarek Rossignac
Students: Mukul Sati
Research Focus: Graphics and Animation

Local Data Design Lab - Room 209

Data Artifacts
The term artifact has at least two meanings. From a technical perspective, an artifact is an unintentional pattern in data, arising from processes of collection and management. From a cultural perspective, an artifact is a designed object, with a social and material history. At metaLAB, which is grounded in both technical and cultural methods, we are examining digital artifacts with both meanings in mind. In Data Artifacts, we are developing visual methods of revealing the often-unacknowledged patterns in digital data that speak to the social and material history of its accumulation. Never raw, all data carries traces of human labor, intentions and values. Data Artifacts is an inquiry into the deep history of digital collections. Digital cultures, which devote vast resources to the harvesting and handling of data sets, can be understood in part through the particular ways in which they pattern data. Artists and designers with knowledge of computing are poised to uncover such data artifacts through visualization. However, most formal approaches to visualization call for data to be filtered and standardized at the outset. In contrast, we focus on the heterogeneity inherent in human-made data. The messiness of data sets can tell us much about the history of their production.The ambition of Data Artifacts is to develop new tools to contemplate such large-scale collection processes and enable richer discussions about their technical and cultural significance.

Faculty: Yanni Loukissas
Research Focus: Human-Computer Interaction, Information Visualization

The Life and Death of Metadata
In collections of scientific and cultural history that are too big to see, metadata act as virtual handles for rare and delicate artifacts from the past. At the Arnold Arboretum, a collection of long-lived trees, vines and shrubs managed by Harvard University, landscapes from around the world and across time are stitched together by metadata. However, metadata are worthy of study themselves. Created in varied social and technological eras, they register the organizational structures and values of their time. Through a combination of data visualization and interviews with Arboretum staff, this essay illuminates what metadata can teach us about their own social and material histories, as well as how to study collections digitally.

Faculty: Yanni Alexander Loukissas
Research Focus: Information Visualization

Visualization Journalism
Visualization Journalism is focused on developingan interface and graphical metalanguage for massive multimodal news datasets. Such datasets are increasingly available, but for copyright reasons they cannot be made entirely open to the public. The project seeks to offeran abstracted and legal representation of news data, to enable comparative, cooperative and computer-supported analysis of trends across news events and networks.Combining quantitative methods from computational linguistics with opportunities for qualitative analysis, the project will help pundits and publics deliberate the structural characteristics that shape emergent news narratives and points of view on topics of broad social import. Existing platforms (i.e. InArticle, NewsMap, Archive.org) have only begun to demonstrate the potential for alternative forms of

criticism that can handle the increased scaleand constraintsof news access. Our project makes use of UCLA's NewsScape, a growing collection of video for more than 300,000 broadcast news programs, extending back to Watergate.

Faculty: Yanni Loukissas
Research Focus: Civic Computing, Collaborative Work, Information Visualization

Sonification Lab - Room 222

Accessible Bluetooth Cane
The Accessible Bluetooth Cane project allows visually impaired users to control their iPhone while using the white cane, without having to stop and take out the phone. This is achieved by embedding Bluetooth remote controls with tactile buttons inside the cane handle.

Faculty: Bruce Walker
Students: Mandy Chu, Amit Garg, Vincent Martin
Research Focus: Human-Computer Interaction, Mobile and Ubiquitous Computing, Wearable Computing

Advanced Auditory Menus
Many electronic devices, from desktop computers to mobile phones to DVD players, can be thought of as a menu of functions. These functions can be accessible to a blind user if the menus are spoken aloud. However, this is extremely inefficient, so we have been enhancing auditory menus with sophisticated text-to-speech, spearcons, spindex, and other audio extensions. These can also be applied in many different languages and research is ongoing to look at more language applications, including tonal types.

Faculty: Bruce Walker
Students: Thomas Gable, Brianna Tomlinson, Stanely Cantrell
Research Focus: Human-Computer Interaction, Information Visualization, Mobile and Ubiquitous Computing

Auditory Graphs: Math and Science Education for Students with Vision Impairment
The graphs and figures that are so prevalent in math and science education make those topics largely inaccessible to blind students. We are working on auditory graphs that can represent equations and data to those who cannot see a visual graph. A number of new areas we're starting research on is looking at teaching astronomy concepts through (like the Solar System) and the teaching and understanding of weather information through a combination of sonification and auditory description. Additionally we are working on making statistical output accessible for blind users to assist with higher level mathematics applications. We have a whole ecosystem of software and hardware solutions, both desktop and mobile, to help in this space. This project is in collaboration with the Georgia Academy for the Blind and the Center for the Visually Impaired of Atlanta.

Faculty: Bruce Walker
Students: Jared Batterman, Vincent Martin, Jonathan Schuett, Brianna Tomlinson, Heather Roberts, Kamen Tsvetkov, Saqlain Golandaz, Chris Latina, Mike Winters, and Michelle Johnson
Research Focus: Educational Technologies, Human-Computer Interaction, Information Visualization

Bone Conduction Audio
Most sound comes through our ears. However, it is also possible to pass vibrations through the bones of the head, and bypass much of the normal hearing pathway. This is called bone conduction audio, and can be used in situations where the ears need to be plugged, or where you need to leave the ears open to hear ambient sounds. We are studying the psychoacoustics as well as the applied aspects of bone conduction audio.

Faculty: Bruce Walker
Students: Jared Batterman, Jonathan Schuett, Thomas Gable
Research Focus: Mobile and Ubiquitous Computing, Perception, Wearable Computing

Driving Georgia Tech: Creating a Driving Simulation of Georgia Tech's Campus
Applying driving simulators for in-vehicle research allows for a wide range of studies to be performed particularly when investigating cognitive demand and distraction caused by devices in the car. By using simulations, researchers can investigate driving behaviors in high-risk situations without putting participants or others in harmful way. Currently being conducted within the School of Psychology at Georgia Tech, in-vehicle research could provide more insight into behavior and increase in applicability if participants were able to drive in areas that they are familiar with. Specifically, research being done in coordination with the Atlanta Shepherd Center investigating the use of in-vehicle technologies to assist individuals who have had a Traumatic Brain Injury could benefit largely through these real location maps. The Georgia Tech School of Architecture coincidentally has already developed a 3D model of the Georgia Tech campus and some of the surrounding areas including the Peachtree corridor (26 miles along Peachtree Street). However, in order to make this model usable within the simulator, it must be optimized and converted in a compatible format. Researchers in the School of Architecture and School of Psychology will be working on creating methods and conversion processes that will allow any 3D model to be integrated into the simulator. Development of this process of conversion will allow Georgia Tech to offer documentation and map-creation services to other researchers around the world assisting in increasing the applicability of in-vehicle research.

Faculty: Bruce Walker
Students: Racel Williams, Thomas Gable, Keenan May
Research Focus: Graphics and Animation, Virtual Reality

Enhanced In-Vehicle Technologies: Novel Interfaces and Advanced Auditory Cues to Decrease Driver Distraction
In-vehicle technologies such as modern radios, GPS devices, eco-driving displays, and smartphones require users to interact with multiple types of visual-based menus and lists while driving. Modern technologies require users to navigate these screens using physical buttons and touch screens, although recent advances have included the use of steering wheel buttons, turn wheels, Head Up Displays (HUDs) and others. Through design and prototyping of novel menu system interfaces through innovative visual display methods, interaction techniques, and the application of advanced auditory cues to old designs and these novel interfaces, we can attempt to decrease driver distraction, therefore allowing for better driving performance, while also improving search times and decreasing cognitive load on the driver.

Faculty: Bruce Walker
Students: Thomas Gable, Keenan May, Brittany Noah, Abhishek Sen, Yiwei Hao, Ruta Sardesa, and Woodbury Shortridgei
Research Focus: Human-Computer Interaction, Mobile and Ubiquitous Computing, Perception

In-Vehicle Assistive Technologies
There are many populations who need assistive technologies while driving such as the millions of Americans suffer traumatic brain injuries each year, and the majority of them return to driving at some point following their recovery. However, the residual effects of TBIs can affect perception, cognition, emotion, and motor abilities. In collaboration with the Shepherd Center we are developing software that can help improve the attention and abilities of drivers post-TBI. The system could help all kinds of drivers who may have attention lapses, cognitive processing issues, or other issues that impact driving. Similar types of applications could be built for many other types of issues as well (e.g., novice drivers, aging adults, & quote stressed out drivers).

Faculty: Bruce Walker
Students: Thomas Gable, Keenan May
Research Focus: Human-Computer Interaction, Mobile and Ubiquitous Computing

Mwangaza Project
The Mwangaza Project is a collaboration among the Sonification Lab, inAble, and Kenyatta University to develop and deploy accessible STEM educational resources to schools for the blind throughout Kenya. Projects that we are working on include accessible weather and climate education, math software for accessing graphing and number lines, and renewable energy as a component of STEM education and support for educational technologies.

Faculty: Bruce Walker
Students: Dr. Carrie Bruce, Jonathan Schuett, Brianna Tomlinson, and other lab members.
Research Focus: Educational Technologies

Sonified Fantasy Sports
The Sonified Fantasy Sports project has been exploring various ways to add sounds to online (web or mobile apps) fantasy sports in an attempt to make a more immersive user experience while also adding to the accessibility of fantasy sports for visually impaired or print disabled users. After identifying information needs and various strategies employed by users (who ranged from beginners to power users) we were able to identify a hierarchy in which to present information about 'my team' and 'players' using sound. Ongoing investigation is exploring additional ways to employ optimal soundscapes that will result in the most seamlessly integrated audio-visual experience while offering as much accessibility as possible

Faculty: Bruce Walker
Students: Jared Batterman, Jonathan Schuett, Nihkil Bhanu, Shao-Yu Chen, Sarthak Ghosh, and Arash Shirazai
Research Focus: Gaming, Human-Computer Interaction, Online Communities

Synaesthethic Media Lab - Room 209

Active Pathways
Active Pathways aims to support learning and discovery in systems biology by allowing users to construct and manipulate bio-chemical reaction network simulations using active tangibles on an interactive tabletop display surface. Researchers in systems biology currently run simulation programs that model different experimental parameters such as concentrations inside cells and reaction speeds. Parameters are adjusted algorithmically or by entering numbers into equations. The simulation results are then plotted as graphs in order to discover hidden patterns in the network. Using tangible and tabletop interaction techniques, we provide a direct hands-on way for researchers to

construct and manipulate models in order to gain a better understanding of the systems they are studying.

Faculty: Ali Mazalek, Sanjay Chandrasekharan, Nancy Nersessian
Students: Apurva Gupta, Manasvi Lalwani, Ahmed Arif, Roozbeh Manshaei, Sean DeLong
Research Focus: Collaborative Work, Educational Technologies, Human-Computer Interaction

Mapping Place
As part of the exhibit, Mapping Place: Africa Beyond Paper, which contrasts western concepts of mapping (i.e. Cartesian plots of locations) with other traditional practices, Synlab students created an interactive tabletop installation that lets participants tell their own stories by creating a digital Lukasa, a mnemonic device used by the Luba people of central Africa to record genealogy and history. The exhibition was at the Robert C. Williams Paper Museum from February 27 to June 6, 2014.

Faculty: Ali Mazalek, Ken Knoespel, Teri Williams
Students: Jean Ho Chu, Paul Clifton, Daniel Harley
Research Focus: Educational Technologies, Human-Computer Interaction, New Media

Multisensory Prayer Nuts
We present three prototypes designed for a hypothetical museum exhibit that elicit historical and experiential qualities of early 16th century prayer-nuts.As personal religious experiences included a dependence of spirituality on material objects during the 16th century,we believe that digitally-enhanced multisensory interactions can help situate the artifact in its historical context.The 3D printed interactive prayer nutsaugmented with audio-visual effects support thevisual voyage, experience of spirituality, andscents of power.Thetactile, aural, visual, olfactorysensory interactionsare mapped meaningfully to incorporate some of the original sensory aspects oftheartifactand related practices.Our research provides insight on howmultisensory interactions can provide museum visitors with the opportunity to experientially engage in content related to an artifacts history and original use.

Faculty: Ali Mazalek
Students: Jean Chu, Daniel Harley, Jamie Kwan
Research Focus: Human-Computer Interaction, New Media, Perception

ROSS: Responsive Objects, Surfaces, and Spaces
The Responsive Objects, Surfaces, and Spaces (ROSS) API is a way for tangible applications to operate seamlessly across a variety of tangible input devices and platforms. It allows applications to exchange information about the devices they are running on and obtain real-time data about tangible and touch interactions from other devices. In a ROSS world, you can use your mobile phone as a controller to play games on the digital coffee table in your living room; and your guests can join in with their phones too.

Faculty: Ali Mazalek
Students: Ahmed Arif, Aneesh Tarun, Andrea Bellucci, KJ Chabra
Research Focus: Human-Computer Interaction, Mobile and Ubiquitous Computing

SciSketch
Sketching plays an important role in learning in the sciences. The process of sketching can help students think about and better understand scientific concepts. By sketching collaboratively, students can also compare their mental models with each other

and share them with instructors in order to further enhance their understanding. What if these sketches could come to life so that students could experimentally test out and iteratively refine their models of natural phenomena and systems? We are designing SciSketch, a tabletop tool for sketch-based problem-driven collaborative learning in the sciences. The system tracks multiple pen inputs on a tabletop display surface and can transmit sketch data to a remote computer. The first prototype provides basic functionality of digital sketching tools, such as copy, paste, and playback. We study how such a tool could be incorporated into the classroom environment for undergraduate courses in biomedical engineering.

Faculty: Ali Mazalek, Joe LeDoux
Students: Brien East

Sparse Tangibles
Sparse Tangibles investigates the use of novel tangible and gestural interactions for making sense of large biological datasets. Our current prototype employs active tangibles in combination with a large multi-touch tabletop displays to navigate and visualize gene regulatory network data from the BioGrid database.

Faculty: Ali Mazalek, Matt Kyan
Students: Ahmed Arif, Roozbeh Manshaei, Sean DeLong
Research Focus: Human-Computer Interaction, Information Visualization

TASC: Tangibles for Augmenting Spatial Cognition
Spatial ability has been shown to be significantly correlated with interest and success in STEM fields. It also has been linked to embodiment in different ways. Tangible and embodied interfaces have been shown to support embodiment, including linking embodiment to changes in spatial ability. However, little research has linked the interaction design elements of tangible and embodied interfaces to specific effects on spatial cognition. Our research aims to gain a deeper understanding of the effects of tangible and embodied interfaces on spatial cognition and to develop interface protocols that enhance spatial ability training. Our current prototype employs tangible interaction with physical/digital blocks in a virtual reality environment to support perspective-taking spatial abilities.

Faculty: Ali Mazalek, Michael Nitsche, Tim Welsh
Students: Paul Clifton, Georgina Yeboah
Research Focus: Cognitive Science, Educational Technologies, Human-Computer Interaction

VPorter
Face-to-face video communication technologies have grown tremendously in recent years, however they are not designed to provide a persistent sense of remote presence. More recently, telepresence robots give single users the ability to have a remote and mobile physical presence in another space. Combining telepresence robotics with persistent large-scale displays and multiple viewports, VPorter creates a telepresence ecology to support team collaboration across remote but connected lab spaces.

Faculty: Ali Mazalek
Students: Aneesh Tarun, Daniel Harley, Apurva Gupta
Research Focus: Collaborative Work, Human-Computer Interaction, Robotics

Ubiquitous Computing Group - Room 235

B.B.C.S. - Bio-Behavioral Capture System
B.B.C.S. is a working system that can be easily deployed at homes, clinics, laboratories and therapy centers among others, in order to help its users collecting relevant behaviors of interest over long periods of time to get a deeper understanding of them. This system captures behaviors of interest using multiple cameras alongside biological signals, such as heart rate, in a synchronized manner, allowing the user to analyze visible and invisible characteristics of behaviors.
B.B.C.S. is intended to be an everywhere / anywhere system, so it allows the user to annotate, comment and control the system in situ. Since B.B.C.S. can store weeks of data it was design that allows quickly browsing and filtering weeks worth of data to get to specific moments of interest. As an example of a potentially interesting deployment scenario, we could mention the houses of families with individual(s) on the Autism Spectrum. Using this system would enable parents and researchers to obtain lots of data in their natural environment. We would be bringing the Lab home.

Faculty: Gregory D. Abowd
Students: Ivan Riobo
Research Focus: Health Informatics, Human-Computer Interaction, Mobile and Ubiquitous Computing

In-context Motion Gesture Design
Motion gestures can be expressive, fast to access and perform, and facilitated by ubiquitous inertial sensors. However, implementing a gesture recognizer requires substantial programming and pattern recognition expertise. Although several graphical desktop-based tools lower the threshold of development, they do not support ad-hoc development in naturalistic settings. We present a mobile tool for in-context motion gesture design. Our tool allows interaction designers to create and test motion gestures using inertial sensors in commodity and custom devices. Therefore, our tool encourages development of gestures with commonas well as atypical body parts. Moreover, the data collection, design, and evaluation of envisioned gestural interactions can now occur within the context of its use.

Faculty: Gregory D. Abowd, Thad Starner
Students: Aman Parnami, Gabriel Reyes
Research Focus: Human-Computer Interaction, Mobile and Ubiquitous Computing, Wearable Computing

TapSkin: Recognizing on-skin gestures for smartwatch input
We explore how to use human body as asensing medium and what novel applications can be developed.

Faculty: Gregory D. Abowd, Omer Inan, Thad Starner
Students: Cheng Zhang
Research Focus: Human-Computer Interaction, Mobile and Ubiquitous Computing, Wearable Computing

Tracking Driving Activity
For many American households, transportation is the second highest expense -- behind housing and ahead of food and medical. The average American spends between $9122 (sedan) and $11,599 (SUV) per year to own and operate each vehicle. However, tracking and understanding the personal cost of driving is elusive for the individual. We may know how much we spend on gasoline (per week), car payments (per month), and insurance (twice a

year), but few of us know how much we spend driving to work, school, or the grocery store. We have developed the Personal Taxi Meter, a system that allows you to track the total cost of driving per trip. (This includes not just fuel, but also depreciation, insurance and maintenance.) The motivation for this system is to
increase awareness of the transportation costs that are invisible to most of us, so that we can be better-informed about how, when, and where we choose to move around.

Faculty: Gregory D. Abowd
Students: Caleb Southern

Floor 3

ADAM Lab - Room 325

Drawing Apprentice: Co-Creative Drawing Partner
Collaboration is known to push creative boundaries and help individuals sustain creative engagement, explore a more diverse conceptual space, and synthesize new ideas. While the benefits of human collaboration may seem obvious, the cognitive mechanism and processes involved in open-ended improvisational collaboration are active areas of research. Our research group has developed a co-creative drawing partner called the Drawing Apprentice to investigate creative collaboration in the domain of abstract drawing. The Drawing Apprentice draws with users in real time by analyzing their input lines and responding with lines of its own. With this prototype, we study the interaction dynamics of artistic collaboration and explore how a co-creative agent might be designed to effectively collaborate with both novices and expert artists. The prototype serves as a technical probe to investigate new human-computer interaction concepts in this new domain of human-computer collaboration, such as methods of feedback to facilitate learning and coordination (for both the user and system), turn taking patterns, and the role control and ambiguity plays in effective collaboration.

Faculty: Brian Magerko, Ellen Yi-Luen Do
Students: Nicholas Davis, Chih-Pin Hsiao, Kunwar Yashraj Singh, Lisa Li, Raphael Gontijo Lopes
Research Focus: Artificial Intelligence, Cognitive Science

EarSketch: Teaching Computer Science through Music Composition
Computational remixing of hip hop (i.e. using code to control loops and beats to compose music) can be used as a tool for the cultural engagement in computing of underrepresented populations. EarSketch is a digital audio workstation environment, with an accompanying curriculum, that will allow high school and summer workshop students to create their own computational remixes through learning computing principles.

Faculty: Brian Magerko, Jason Freeman
Students: Regis Verdin, Anand Mahadevan, Chris Latina, Tulika Saraf, Tanisha Wagh, Alex Duncan, Ziwen Fan, Tom Jordan, Elise Livingston, Michael Madaio, Scott McCoid, Erica Richards
Research Focus: Educational Technologies, Human-Computer Interaction, Music Technology

TuneTable Tangible Programming Interface
This project is a responsive tabletop application with a tangible user interface. The intention is to teachbasic computer programming concepts tomiddle school-aged to high school-aged children (9-15 years old) using physical blocks that work as snippets of code.Each block has a unique design on the bottom that when placed on the acrylic surface of the table is identifiedby the software using cameras mounted underneath the acrylic surface of the table.When the arrangementof blocks is recognized, the applicationoutputs musical and visualfeedback. Users compose short songs by building chains of blocks that represent code.

Faculty: Brian Magerko
Students: Marc Huet, Jessica Anderson, Travis Gasque
Research Focus: Educational Technologies, Graphics and Animation, Music Technology

Viewpoints AI: An Exploration of Human - AI Movement Improvisation
Viewpoints AI is an interactive art installation that explores the improvisation of proto-narrative movement between humans and virtual AI agents using full body, expressive, movement-based interaction. Interactors can co-create movement with an autonomous virtual agent that learns movement, response, and improvisation directly from interacting with human teachers. It analyses their movement using Viewpoints movement theory.

Faculty: Brian Magerko
Students: Mikhail Jacob, Lauren Winston, Sasi Viriyayuthakorn, Allen Tsai, Margaret Hu
Research Focus: Artificial Intelligence, Cognitive Science, New Media

Aware Home Research Initiative - Room 309

Connected Living Research Initiative
Connected living is the fast-growing intersection of mobile, wearable, home, community, car and other technologies to assist individuals in accomplishing more seamless interactions and goals in daily life. Mobility and cloud computing are two pillars of growth that has brought about significant changes in industry. Cloud computing, big data, mobility and low-cost sensors are driving the internet of things and connected industries, and the internet of things is forcing transformation and innovation across the connected home, connected workplace and connected city. It is estimated that the Connected Living market will reach 730 Billion USD by 2020. We are in the process of defining the Connected Living Research Initiative (CLRI) to bring together industry stakeholders, academic/research faculty and civic partners in defining the future of the connected life. CLRI is currently on boarding partners to delineate research goals that include (but is not limited to) the future impact of big data, improved user experience in daily activities, and data security and privacy in this ever more connected daily experience. For more information contact: Brian Jones or Siva Jayaraman

Faculty: Brian D Jones, Siva Jayaraman
Research Focus: Human-Computer Interaction, Mobile and Ubiquitous Computing, Wearable Computing

Cue - Connecting U Everyday
No matter what age we are, we have likely forgotten to turn off the stove or oven, iron, heater or even water. Forgetfulness can lead to serious events that may result in costly damage to the home or even injury or death. Older adults are more prone to such forgetfulness. When an older adult forgets to turn off a hazardous appliance, it is often attributed to losing mental capacity and may lead to loss of self-confidence, embarrassment, and judgment from others. Many families turn to monitoring when they discover such hazards, but this can result in their loved one feeling a loss of independence. We feel there is an opportunity before monitoring to use technology to provide gentle reminders or cues that empower the resident to determine for themselves when such appliances should be turn off. Introducing cue. The system would consist of several ambient and/or wearable reminder products that would integrate with existing connected home systems and provide those gentle reminders both at and away from the primary hazard. We have designed, a couple of example reminder concepts, mainly for the stove, oven, iron, or heater to address this need. The latest consists of a device in proximity of the stove that provides a larger/brighter light than most stovetops with an integrated proximity sensing capability and a smartwatch with ability to vibrate and alert through sound and visuals. If motion is no longer detected in the kitchen, the watch would alert the user of the potential hazard. The user may also choose to snooze the

reminder. While we focused on hazardous appliances, this same system may support cues related to medication taking, water leaks, door lock status, smoke detector battery level, feeding or walking the do, or similar needs.

Faculty: Brian Jones, MSEE
Students: Shiva Pandey, M.ID.; Steven Strouble, MS HCI; Varsha Jagdale, MS HCI; Yasmin Hazrat, MEE; Grace Cha, M.ID., Connor McNally, BS.ME
Research Focus: Health Informatics, Mobile and Ubiquitous Computing

RERC TechSAge: A Mobile Application to Measure Gait Speed
Multiple studies have shown a consistently strong association between gait speed of frail older adults and negative functional (e.g., survival) and activity outcomes. However, health care professionals have been slow to measure this physiologic parameter, largely due to the lack of a simple, standardized way of measuring it. The purpose of this project is to develop a reliable, simple, and cost-effective mobile app to measure gait speed and demonstrate the feasibility of this measure as a predictive tool to identify risk of functional decline and activity limitation in frail elders who are aging with ambulatory disability.

Faculty: Brian Jones
Students: David Byrd; Priyanka Sadandanda
Research Focus: Health Informatics, Mobile and Ubiquitous Computing

RERC TechSAge: SmartBathroom
The needs and abilities of people who are aging with progressive chronic conditions, such as MS, Parkinson's, ALS and Arthritis fluctuate from day to day. Yet, even when they have supportive AT, such as grab bars, to compensate for functional limitations, those features are fixed, only able to support some abilities, some of the time. The purpose of this project is to develop a SmartBathroom environment capable of assessing an individual's abilities at any point in time and spontaneously adjusting supportive environmental features to accommodate those abilities.

Faculty: Jon A. Sanford, M.Arch.; Brian Jones, MSEE; Brad Fain, PhD
Research Focus: Mobile and Ubiquitous Computing

Comp.Social Lab - Room 339

Algorithmically Bypassing Censorship on Sina Weibo with Nondeterministic Homophone Substitutions
Like traditional media, social media in China is subject to censorship. However, in limited cases, activists have employed homophones of censored keywords to avoid detection by keyword matching algorithms. In this paper, we show that it is possible to scale this idea up in ways that make it difficult to defend against.
Specifically, we present a non-deterministic algorithm for generating homophones that create large numbers of false positives for censors, making it difficult to locate banned conversations. In two experiments, we show that 1) homophone-transformed weibos posted to Sina Weibo remain on-site three times longer than their previously censored counterparts, and 2) native Chinese speakers can recover the origi- nal intent behind the homophone-transformed messages, with 99% of our posts understood by the majority of our participants. Finally, we find that coping with homophone transformations is likely to cost the Sina Weibo censorship apparatus an additional 15 hours of human labor per day, per censored keyword. To conclude, we reflect briefly on the opportunities presented by this algorithm to build interactive, client-side tools that promote free speech.

Faculty: Eric Gilbert
Students: Chaya Hiruncharoenvate
Research Focus: Social Computing

CREDBANK: A Large-scale Social Media Corpus With Associated Credibility Annotations
Social media has quickly risen to prominence as a news source, yet lingering doubts remain about its ability to spread rumor and misinformation. Systematically studying this phenomenon, however, has been difficult due to the need to collect large-scale, unbiased data along with in-situ judgements of its accuracy. In this paper we present CREDBANK, a corpus designed to bridge this gap by systematically combining machine and human computation. Specifically, CREDBANK is a corpus of tweets, topics, events and associated human credibility judgements. It is based on the real-time tracking of more than 1 billion streaming tweets over a period of more than three months, computational summarizations of those tweets, and intelligent routings of the tweet streams to human annotatorswithin a few hours of those events unfolding on Twitter. In total CREDBANK comprises more than 60 million tweets grouped into 1049 real-world events, each annotated by 30 human annotators. As an example, with CREDBANK one can quickly calculate that roughly 24% of the events in the global tweet stream are not perceived as credible. We have made CREDBANK publicly available, and hope it will enable new research questions related to online information credibility in fields such as social science, data mining and health.

Faculty: Eric Gilbert
Students: Tanushree Mitra
Research Focus: Human-Computer Interaction, Social Computing

Computational Enterprise Science Lab - Room 332

Enterprise Genome: Visual Sequencing of Relationship Activities of Global Enterprises
In an increasingly global and competitive business landscape, firms must collaborate and partner with other firms to ensure survival, growth, and innovation. Understanding the evolutionary composition of a firms relationship portfolio and the underlying formation strategy is a difficult task given the multidimensional, temporal nature of the data. In collaboration with senior executives, we have designed and implemented an interactive visualization system that enables decision makers to gain both systemic (macro) and detailed (micro) insights into a firms relationship activities and discover patterns of multidimensional relationship formation. Our system provides sequential/temporal representation modes, a rich set of additive crosslinked filters, the ability to stack multiple enterprise genomes, and a dynamically updated Markov model visualization to inform decision makers of past and likely future strategy moves.

Faculty: Rahul Basole
Students: Timothy Major, Arjun Srinivasan
Research Focus: Information Visualization

dotlink360: Visual Business Ecosystem Intelligence
Business ecosystems are characterized by large, complex, and global networks of firms, often from many different market segments, all collaborating, partnering, and competing to create and deliver new products and services. Given the rapidly increasing scale, complexity, and rate of change of business ecosystems, as well as economic and competitive pressures, analysts are faced with the formidable task of quickly understanding the fundamental characteristics of these interfirm networks. Existing tools, however, are predominantly query- or list-centric with limited

interactive, exploratory capabilities. We have designed and implemented dotlink360, a web-based interactive visualization system that provides capabilities to gain systemic insight into the compositional, temporal, and connective characteristics of business ecosystems. dotlink360 consists of novel, multiple connected views enabling the analyst to explore, discover, and understand interfirm networks for a focal firm, specific market segments or countries, and the entire business ecosystem.

Faculty: Rahul C. Basole, John Stasko
Students: Arjun Srinivasan
Research Focus: Information Visualization

Contextualized Support for Learning - Room 329

CSLearning4U: Creating Electronic Books for Teacher CS Learning
A key idea in CSLearning4U is that we candesignCS learning opportunities. Simply wrestling an interpreter or compiler can't be the best way to learn about computer science. Throwing people into the deep end of the pool can teach people to swim, but there are better ways. We want to dobetter than a bookfor CS learning, and we want to design thephonics of computing educationto integrate with the "whole language learning" of programming. We are creating a new distance-learning medium for computing education especially for in-service high school teachers based on ideas from instructional design and educational psychology. In-service high school teachers are particularly time-constrained (and thus need efficiency) and they are more metacognitively aware than other students (and thus able to better inform the project design). The new medium will combine multiple modalities, worked examples, and structure based on cognitive models of designers' knowledge. The research questions are that (1) the teachers will learn CS knowledge in the on-line setting, (2) the teachers will be more efficient at programming tasks, and (3) the teachers will find the materials useful and satisfying. Because of its focus on teachers, the project can potentially have broad impact, in particular on the strategies for training the 10,000 teachers envisioned in the CS 10K Project. The project will establish models and design guidelines that can be used for the creation of other learning materials, including materials for students in, for example, the proposed newCS Principles AP course.

Students: Briana Morrison, Miranda Parker, Barbara Ericson, Stephen Moore
Research Focus: Educational Technologies, Human-Computer Interaction, New Media

Designing an Instructor Dashboard for eBooks
A key idea in CSLearning4U is that we candesignCS learning opportunities. Simply wrestling an interpreter or compiler can't be the best way to learn about computer science. Throwing people into the deep end of the pool can teach people to swim, but there are better ways. We want to dobetter than a bookfor CS learning, and we want to design thephonics of computing educationto integrate with the "whole language learning" of programming. We are creating a new distance-learning medium for computing education especially for in-service high school teachers based on ideas from instructional design and educational psychology. In-service high school teachers are particularly time-constrained (and thus need efficiency) and they are more metacognitively aware than other students (and thus able to better inform the project design). The new medium will combine multiple modalities, worked examples, and structure based on cognitive models of designers' knowledge. The research questions are that (1) the teachers will learn CS knowledge in the on-line setting, (2) the teachers will be more efficient at programming tasks, and (3) the teachers will find the materials useful and satisfying. Because of its focus on teachers, the project can potentially have broad impact, in particular on the strategies for training the 10,000

teachers envisioned in the CS 10K Project. The project will establish models and design guidelines that can be used for the creation of other learning materials, including materials for students in, for example, the proposed newCS Principles AP course.

Students: Briana Morrison, Miranda Parker, Barbara Ericson, Stephen Moore
Research Focus: Educational Technologies, Human-Computer Interaction, New Media

Designing an eBook for Computer Science Principles Students
A key idea in CSLearning4U is that we candesignCS learning opportunities. Simply wrestling an interpreter or compiler can't be the best way to learn about computer science. Throwing people into the deep end of the pool can teach people to swim, but there are better ways. We want to dobetter than a bookfor CS learning, and we want to design thephonics of computing educationto integrate with the "whole language learning" of programming. We are creating a new distance-learning medium for computing education especially for in-service high school teachers based on ideas from instructional design and educational psychology. In-service high school teachers are particularly time-constrained (and thus need efficiency) and they are more metacognitively aware than other students (and thus able to better inform the project design). The new medium will combine multiple modalities, worked examples, and structure based on cognitive models of designers' knowledge. The research questions are that (1) the teachers will learn CS knowledge in the on-line setting, (2) the teachers will be more efficient at programming tasks, and (3) the teachers will find the materials useful and satisfying. Because of its focus on teachers, the project can potentially have broad impact, in particular on the strategies for training the 10,000 teachers envisioned in the CS 10K Project. The project will establish models and design guidelines that can be used for the creation of other learning materials, including materials for students in, for example, the proposed newCS Principles AP course.

Students: Briana Morrison, Miranda Parker, Barbara Ericson, Stephen Moore
Research Focus: Educational Technologies, Human-Computer Interaction, New Media

Reducing Cognitive Load to Improve Learning to Program
Cognitive Load is the amount of "processing" your brain does when learning something new. This project investigates ways to lower the cognitive load while learning to program.

Students: Briana Morrison
Research Focus: Cognitive Science, Educational Technologies

Culture And Technology Lab (CAT) - Room 328

Information Seeking Practices of Parents: Exploring Social Networks, Fears and Challenges
Through findings from over 60 interviews and a national online survey with 978 withdiverse groups of parents, we explored parents ability to find learning opportunities, we identify differences in parents use of online social networks in finding learning opportunities for their children across different socioeconomics.

Faculty: Betsy DiSalvo
Students: Parisa Khanipour
Research Focus: Educational Technologies, Online Communities, Social Computing

Makerspaces and Makerplaces: Collaboration, Togetherness, and Learning in Maker Communities Interviews with 61 makers, along with observations in several maker communities,

provide empirical insight on the nuances between different types of communities and how these differences are influenced by the space and place of the makerspaces.Our exploration led to the identification of five prototypical maker communities; closed and regulated, open and messy, hybrid, online large-scale, and online small-scale.

Faculty: Betsy DiSalvo
Students: Parisa Khanipour, Kayla DesPortes
Research Focus: Collaborative Work, Human-Computer Interaction, Online Communities

Parent Pedagogical Perspectives: A Framework for Design of Museum Exhibits
The rise of ubiquitous technology has resulted in exponential growth in potential options for the design of interactive museum exhibits. We posit that using a framework of parental beliefs about learning and teaching for design can be useful to the HCI community when creating museum exhibits to facilitate learning. Our study builds upon Swartz and Crowleys framework of parental pedagogical approaches through analysis of 118 observations of social interactions between parents and children at museum exhibits. We classify our observations of parent-child interactions into the frameworks five categories:Fun Exploration, Individual Discovery, Basic Knowledge, Parent Engaged Learning, and Contextualized Explanations. We identify how these categories can be applied to evaluate and guide design for learning in the context of museums and other informal learning environments.

Faculty: Dr. Betsy DiSalvo, Dr. Carrie Bruce
Students: Kayla DesPortes, Varsha Jagdale, and Auzita Irani
Research Focus: Educational Technologies, Human-Computer Interaction

Electronic Learning Communities - Room 338

Cuba Intercambio: Information and Cultural Exchange Between the US and Cuba Cuba has been called the second most isolated country in the world, partially due to its tightly controlled internet, but that may soon change. This research examines social media and Internet use by Cubans during this critical time of potential change. Through qualitative research with Cuban citizens, we have found thatas a result of major constraints to online access,Cubans are highly collaborative in their use of the internet, often conducting research and posting photos for friends with less access. Based on these findings, we are creating a way for Cubans to more easily access information on the internet via a crowdsourced system that will also serve as a cultural exchange between Cubans and the rest of the world.

Faculty: Amy Bruckman, Annie Antn
Students: Michaelanne Dye
Research Focus: International Development, Online Communities, Social Computing

Everyday Computing Lab - Room 342A

Designing Adaptive Technology to Provide Personalized Support to Cancer Patients
We design, deploy, and evaluate mobile health tools that support and meet patients needs over time from diagnosis of a chronic disease, through treatment and into survivorship. Our research explores the ability for personalized, adaptable, mobile tools to support patients over the course of their individual breast cancer journeys. Our technology needs to anticipate and recognize barriers to care that occur at various points in a cancer journey, adapt with the patient as they navigate these barriers, and successfully provide patients with the tools and resources they need to manage and

mitigate such barriers. The goal of our work is to improve patient health outcomes by supporting patients' outside of the clinic by helping them to learn about, engage with, and manage their disease alongside the demands of daily life.

Faculty: Beth Mynatt, James Clawson
Students: Maia Jacobs, Florian Foerster
Research Focus: Health Informatics, Human-Computer Interaction, Mobile and Ubiquitous Computing

Eating Disorders and Social Media - Characterizing the Presentation of Eating Disorders Online

Within the computing field, little has been done to systematically analyze online eating disorder (ED) communities. This research project focuses on understanding how individuals use social media platforms to promote and share their eating disorders with their networks and with the world. We use social computing techniques to identify and anzlye content generated across several popular social media platforms.Through this characterization of eating disorder activities online, we draw attention to the increasingly important role that technologists play in understanding how the platforms and technologies that we create are used and misappropriated for negative health purposes. CAUTION: This project includes media that could potentially be a trigger to those dealing with an eating disorder or with other self-injury illnesses.
Faculty: Elizabeth Mynatt
Students: Jessica Pater
Research Focus: Health Informatics, Online Communities, Social Computing

Human-assisted seizure detection and reporting

Problem: Epilepsy treatment currently relies on the ability of patients and guardians to report the number of seizures that occur between appointments. In practice however most patients are unable to recognize seizures at night and many struggle to report them during the day [1]. The inability for patients to accurately report seizures presents a well known problem in the field as neurologists are unable to determine how well medication is working. Purpose The purpose of our study is to evaluate a new system for helping both adult and pediatric patients and clinicians to detect, review and report seizure events. The goal is to evaluate the extend patients and clinicians themselves may be able to further increase the accuracy of a commercial seizure detection system by reviewing video of detected seizure events and then correctly dismissing false alarms. This motivation stems from a long term shortcoming in the field. Many seizure detection technologies proposed, however none report seizures perfectly and patients are often more accurate at reporting seizures than automated detection devices [3]. In our case, weve developed a pair of wrist worn seizure detectors that have been shown to work well with but still report about one false alarm per day [2]. In this case were exploring a "two pass" strategy where wearable wristbands detect possible seizure events and then a patient and his or her clinician take a second pass reviewing video of these detected events and dismiss false alarms for increasing overall reporting accuracy. Scientific Impact The reasearch goals are to Enable patients to reporting seizures that would otherwise be missed and Increase seizure reporting accuracy beyond current technology limitations and Expand and improve our wrist worn seizure system for adult patients. If successful we hope to extend our work for supporting seizure reporting in the home. References Hoppe, C., Poepel, A., and Elger, C.E. Epilepsy: accuracy of patient seizure counts. Archives of neurology 64, 11 (2007), 15951599. Poh, M.-Z., Loddenkemper, T., Reinsberger, C., et al. Convulsive seizure detection using a wrist-worn electrodermal activity and accelerometry biosensor. Epilepsia 53, 5 (2012), e93e97. Van de Vel, Anouk, Kris Cuppens, Bert Bonroy, Milica Milosevic, Katrien Jansen, Sabine Van Huffel, Bart Vanrumste, Lieven Lagae, and Berten

Ceulemans. Non-EEG Seizure-Detection Systems and Potential SUDEP Prevention: State of the Art. Seizure 22, no. 5 (June 2013): 34555. doi:10.1016/j.seizure.2013.02.012.

Faculty: Beth Mynatt
Students: Jonathan Bidwell
Research Focus: Health Informatics, Human-Computer Interaction, Mobile and Ubiquitous Computing

Experimental Television Lab - Room 322

Social TV
Social TV is a mobile application that works in conjunction with watching TV. It is targeted to users who may be living in a new location and watch TV alone, or to users who want to increase the social aspect of watching TV. Through integration with Facebook, the mobile app presents a TV Feed where users can share information, such as screenshots, quotes and recommendations with other individuals in their network. The app has a TV chat feature, where users can engage in both synchronous and asynchronous chatting about what is occurring in the show of their choosing. Users have the option to add friends to their TV watching experience, expanding their social network. Other aspects of the app include the ability to keep track of your own and friends progress on TV shows, scheduling time to watch TV with others, and discovering new TV shows they may be interested in.

Faculty: Janet Murray
Students: Chester Guo, Tica Lin, Max Silverman, Xiaoxue Zhang
Research Focus: New Media, Social Computing

Game Studio - Room 325

Dear Games
Dear Games is an educationalprogramcollaboration betweenCharis Circle, members of theGA Tech Game StudioandDifferent Games Collective.We offer inclusive events to support diverse participation in videogame developement and culture at the South's oldest independent feminist bookstore,Charis Books and More, with consideration tothe ways that longstandingfeminist community organizations can inform contemporary efforts to increase diversity in STEM.

Faculty: Ian Bogost, Blair MacIntyre
Students: Sarah Schoemann, Michael Vogel
Research Focus: Gaming

Information Interfaces Group - Room 334

GLO-STIX
Graph-Level Operations (GLOs) are a holistic vocabulary of encapsulated manipulations of graph visualization elements. GLOs allow analysts to explore their network data in new and interesting ways, freeing them from being restricted to predefined graph visualization techniques. GLOs also provide software engineers with an alternative, extensible means of writing extensible graph visualization applications. Finally, GLOs provide an elegant method for generating animated transitions between graph visualization techniques. GLO-STIX is a user-centered

application for exploring a network using GLOs.

Faculty: Polo Chau, John Stasko
Students: Chad Stolper, Brian Kahng
Research Focus: Information Visualization

Mobile Information Visualization
Visualization has an important role in science and technology. People rely on visualizations to better understand problems they have to solve. Information visualization has recently increased its domain, from being used for representations of business data, to more political and social uses via groups like visualizing.org and infosthetics.com. In parallel with this growth we have seen the widespread acceptance of mobile technology by masses. Mobile phones, today, are being used for everything from email to ticketing and web browsing to watching videos. As society becomes more mobile, it is important to consider the application of information visualization on mobile and other touch based devices. The aim of this project is to understand if and how traditional information visualization techniques like line charts, bar graphs, and treemaps can be useful in a mobile environment and what the best style of interaction with those charts should be.

Faculty: John Stasko
Students: Ramik Sadana
Research Focus: Human-Computer Interaction, Information Visualization

Multi-touch Dust and Magnet
This demo shows a system called Dust and Magnet (DnM) that is a general purpose data visualization system. DnM represents data items as iron dust. Each attribute of the data then is a magnet. The system is implemented on a large multi-touch display where the analyst can deploy magnets and drag them around the view. Data points will then be attracted more strongly or weakly depending on that data item's value of the attribute represented by each magnet. This system provides a very hands-on, visceral data exploration experience.

Faculty: John Stasko
Students: Andrew Dai, Chad Stolper, Ramik Sadana
Research Focus: Human-Computer Interaction, Information Visualization

NBA Basketball Data Visualization
We have developed a system to visualize all the player and game statistics from an entire NBA season. The system shows all of the players on a team's performance in various statistics for the 2012-13 NBA season. Through one concise view, a person can explore the dataset to learn more about team and player performance and to perform analysis.

Faculty: John Stasko
Students: Fengbo Li

RSketch: Streamlined Mars Rover Path Planning
Large, multisensor datasets are available covering a large portion of Mars. Analysis and display of these datasets are currently in use for path planning tools that provide a precise, low-level visualization that fosters precision planning for Rover Planners at NASA Jet Propulsion Laboratory. However, these visualizations do not foster path planning at a higher level of abstraction. In addition, planning a path uses a non-intuitive process of generating rover commands, simulating them, visualizing the

results, and then tweaking the commands until the path looks correct. RSketch expedites path planning for JPL Rover Planners by allowing them to intuitively generate and assess rover paths. The path generation process in RSketch must be influenced by traversability measures, incorporate and visualize multisensor data used for the traversability analysis, enable rapid path generation and comparison between alternatives, and export generated paths to mission operations tools. The prototyped RSketch system aims to provide a streamlined path generation and analysis tool for Rover Planners. The tool uses processed data, raster images, and rover state files as the basic dataset. RSketch uses this dataset to provide the Rover Planner with situational awareness of the rovers state and the surrounding environment in a 2-dimensional map space. The Rover Planner can select and modify the display of the overlaid data on the map, as well as view annotations such as the long-term path. In order to plan out a path, RSketch provides Rover Planners a simple sketching capability to drop and modify waypoints that define a driving path. These waypoints can later be imported into the rest of the Rover Planners system as localized waypoints other parts of the Rover Planner system then generate low-level rover commands from the exported path in RSketch. This export feature allows Rover Planners the ability to integrate with the rest of their system. When sketching out a path, Rover Planners are able to visualize data along the entirety of the rover path. The data is visualized in two different forms: directly on the path and along a slideout panel. Both of these visual forms afford varying analysis modalities. The data along the path, coupled with path sketching affords the ability to make informed decisions on how a modification affects the rovers planned traversal. The slide-out graphs allow Rover Planners to conduct summative analysis at different chronological points of the path planning process by visualizing all data parameters at once.

Faculty: John Stasko
Students: John Thompson
Research Focus: Human-Computer Interaction, Information Visualization

SpaceSketch - Multitouch Exploration of Urban Public Safety Data
Visualization tools for spatio-temporal data utilize map-based representations to help a user understand trends and outliers within a given region over time. Multitouch visualization tools allow us to recreate many of the capabilities of sketching directly on maps while still taking advantage of computational models of public safety. We will be demonstrating SpaceSketch, a multitouch approach to spatio-temporal visualization. Visitors will be allowed to explore crime and transit data in the city of Atlanta using our high-resolution Perceptive Pixel Interface.

Faculty: John Stasko
Students: Alex Godwin
Research Focus: Human-Computer Interaction, Information Visualization

Visualizing PGA Tour golf shot data
The PGA Tour provides an extensive data collection of information about players' performance and individual shots over the past few years. This collection is called ShotLink data. In this project we are building an interactive visualization system that will allow the viewer to easily browse and explore the golf shot data to learn more about the performance of all the players on tour. The system presents a variety of different statistics including scoring, driving accuracy, greens in regulation, putting, and so on. We are now working to integrate visual representations of shot patterns on specific holes and players' summary performances when hitting shots from different distances.

Faculty: John Stasko, Rahul Basole

Students: Anand Sainath
Research Focus: Information Visualization

Participatory Publics Lab - Room 323

Community Historians
This project is developed through an ongoing collaboraton with the Historic Westside Cultural Arts Council.Through a series of design workshops and public events we are co-designing mobile and social technologies to help cultivate a shared community identity to support local civic engagement. By working directly with community members, we are able to build technology platforms suited to their specific needs and which amplify their values and concerns as the community goes through significant changes.

Faculty: Christopher Le Dantec
Students: Jessica Lewis
Research Focus: Civic Computing, Collaborative Work, New Media

Mapping iThemba
Mapping iThemba draws on ethnographic research that Professor Anne Pollock began in 2010 at iThemba Pharmaceuticals (pronounced ee-TEM-ba), a small start-up pharmaceutical company in the outskirts of Johannesburg that was founded in 2009 with the mission of drug discovery for TB, HIV, and malaria. The synthetic chemistry research that scientists do at iThemba is no different than what might be done in a well-equipped lab anywhere in the world. Yet, place matters. Theinteractive map is an opportunity to explore how. Mapping iThemba has been made possible by a grant from the National Science Foundation program for Science, Technology, and Society (Award #1331049). Professor Anne Pollock did the research and wrote the text for this site, new media artist Katherine Behar conceived the interactive map, and Digital Media master's student Russell Huffman designed, illustrated, and programmed it. This site provides only one small window into the project. More is available in an article that Anne Pollock published inSocial Studies of Science:"Places of pharmaceutical knowledge-making: Global health, postcolonial science, and hope in South African drug discovery."Emailapollock@gatech.eduif you would like to request a copy. Currently, she is writing a book manuscript on the project with the provisional titleSynthesizing Hope: Global Health, Postcolonial Science, and South African Drug Discovery.For updates on publications from the project, seeher website at Georgia Tech.

Faculty: Anne Pollock
Students: Joel Russell Huffman
Research Focus: Civic Computing, Educational Technologies, International Development

Public Design Workshop - Room 317B

Gleaning in Atlanta
Gleaning is the practice of salvaging food left over from itsintended use. Our research delved intotheactivities of gleaning with an emphasis on the tools used ingleaning. From this research we identifieda series of designopportunities. Perhaps themost fertile opportunities arerelated to socio-technical networking: the processes andinfrastructures for providing information about the availability of food for gleaning and access to the actorswho can move and store gleaned food.

Faculty: Carl Disalvo
Students: Andrew Nelson
Research Focus: Civic Computing, Collaborative Work, Human-Computer Interaction

About GVU Center at Georgia Tech

We've created an unique environment where some of the most progressive work in academic research is being done. Our program has gained international prominence and has become a hotspot for faculty and students committed to developing people-focused, creative, socially relevant technologies.

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