VIP TOUR
MARCH 15, 2012

WOMEN IN CABLE TELECOMMUNICATIONS

GVL
GEORGIA TECH

Women in Cable Telecommunications™
Southeast
FUTURETECH SUMMIT - AN EXCLUSIVE VIP TOUR OF THE GVU CENTER AT GEORGIA TECH

WELCOME TO THE GVU CENTER

The GVU Center is proud to host the Women in Cable Telecommunications FutureTech Summit VIP Tour and Reception. We are honored that you chose the GVU Center as the place to hold your flagship event for the spring.

For today’s showcase, there will be 16 labs highlighting nearly 50 research projects in a wide range of domains. You will be escorted to several labs where you will meet the faculty and students working on these projects. For those projects that you might not get to see, we have prepared this demo book which describes all of the labs and projects on display today. We customize visits for a host of companies throughout the year and would be delighted to arrange a separate tour for your company. Just let us know.

Enjoy your afternoon with us!

ABOUT THE GVU CENTER

The GVU Center at Georgia Tech is a university-wide interdisciplinary research center dedicated to developing innovative and interactive computing technologies that empower people. The Center brings together over 75 faculty and nearly 400 students across the entire Georgia Tech campus—combining deep insight into human behavior and motivation, technical savvy to invent cutting edge technologies, and vast creativity to imagine and design the future.

Building on twenty years of interdisciplinary research focused at the intersection of computing and human concerns, the GVU Center has established itself as one of the U.S.’s preeminent academic research centers in areas spanning Animation, Augmented Reality, Collaborative Work, Digital Media, Educational Technologies, Gaming, Graphics, Health Informatics, International Development, Information Visualization, Mobile and Ubiquitous Computing, Social Computing, and User Experience.

The GVU Center welcomes partnerships with industry leaders. Throughout our history, we have worked closely with some of the world’s most innovative companies to explore, develop, and deliver technical innovation that can impact their businesses.

We connect with companies in many ways. For more information contact:

Keith Edwards – GVU Center Director (keith@cc.gatech.edu)
Vivian Chandler – Corporate Relations (chandler@cc.gatech.edu or 404-385-1252)
GVU Website - www.gvu.gatech.edu
WOMEN IN CABLE TELECOMMUNICATIONS
VIP TOUR AND RECEPTION

MARCH 15, 2012

2:30 – 3:00   Registration

3:00 – 3:20   Welcome
              Laurie Baird, Director of Programming
              WICT Southeast

              Overview of the GVU Center
              Keith Edwards, Director

3:20 – 3:30   Organize into Groups

3:30 – 5:30   Escorted Tours to GVU Labs

5:30 – 7:30   WICT VIP Reception
GVU DEMO LOCATIONS

Basement Demos

GVU Prototyping Lab
Basement – Turn right after exiting elevator

1st Floor Demos

Research Network Operations Center (RNOC) – Room 123
Machine to Machine
Convergence Innovation Competition (CIC)
Augmented Infrastructure
GT Mob: A Crowd-Source Mobile Portal for the GT Community
Occupation Sensing

2nd Floor Demos

ACME Lab – Room 209
ClockReader: Sketch-Based Screening Tool for Cognitive Impairment

Augmented Environments Lab – Room 233
Argon: The Augmented Reality Web Browser

Contextual Computing Group – Room 243
BlackBox
SmartSign

HCI Master’s Students Projects – GVU Café

Music Technology – Room 243
MassMobile

Synaesthethic Media Lab – Room 209
SciSketch
Tangible Synergetic Domes
ROSS: Responsive Objects, Surfaces, and Spaces
Pathways
Tangible Anchoring
BDC: embodied Digital Creativity
3rd Floor Demos

The Apps Lab – Room 333
NBA Scheduler
Math with Friends
Drawing Pad
Make It Bounce
HearThat

Aware Home Research Initiative – Room 333

Digital World and Image Group – Room 325
Cinema Interface

Experimental Television Lab – Room 322
Smartphone/iPad EPG & Story Navigator

Information Interfaces Group – Room 342
Ploceus - Flexible Network Visualization
dotLink360: Mobile Ecosystem Visualization
Jigsaw: Visualization for Investigative Analysis on Documents

Interactive Media Technology Center – Room 333
Gaming in Aging
AR Presence
Millennium Gate – Room 309
Verizon AR System – Room 309

Pixi Lab – Room 334
LiquidText: A New Way to Interact with Documents

Ubiquitous Computing – Room 334
Using SMS to Improve Health Outcomes for Children with Asthma
BrailTouch
GROUND FLOOR DEMOS
GVU PROTOTYPING LAB

The GVU prototyping lab provides facilities to rapidly create physical devices. With equipment ranging from 3D printers to laser cutters to printed circuit board fabrication facilities, this lab is used by a large number of projects from across the center.  
**Faculty:** Keith Edwards, Scott Gilliland, Sean Brennan  
**Location:** TSRB Basement
1ST FLOOR DEMOS
RESEARCH NETWORK OPERATIONS CENTER

**RNOC Lab:** The Georgia Tech Research Network Operations Center (GT-RNOC) exists to accelerate innovation in networking, computing, mobility and convergence by enabling communities of collaboration. GT-RNOC provides supports and maintains a unique end-to-end infrastructure within a realistic operational setting, accessible to world-class students, researchers and innovators from various disciplines across the many Georgia Tech research centers. GT-RNOC leverages the unique position of Georgia Tech as a pre-eminent network and network service hub in the state, the region and increasingly in the world. It provides researchers with access to this unique network infrastructure. It provides network administrators and service providers with an invaluable tool for developing and testing new management solutions in a cutting edge environment. Industry members of GT-RNOC include leaders in wireless, telecom, and cable, plus equipment, application, and content providers. Typical project focus areas include: interactive TV / Content Aware Widgets; Cloud to Home; Social Commerce; Campus Community; Future Network Architectures; Campus and Regional Test-beds; Network Slices; Fine-grained Policy Management; and, Convergence Innovation (student) Competition.

**Machine to Machine**

**Demo Description:** This demo highlights expertise in the Machine to Machine, OSGI, Cloud, and Smart Home areas with specific examples in the social media and home automation space. With an emphasis on PC-less design and both Interactive TV and mobile (HTML5 and Argon) user interfaces.

**Lab:** Research Network Operations Center

**Faculty:** Russ Clark - Russ.Clark@gatech.edu, Matt Sanders - msanders@gatech.edu, Brian Davidson - bdavidson@gatech.edu

**Students:** Janani Narayanan

**Location:** TSRB 123

**Convergence Innovation Competition (CIC)**

**Demo Description:** The Convergence Innovation Competition (CIC) is an industry supported annual competition open to all Georgia Tech **Students:** that focuses on innovation in the areas of Converged Services, Converged Media, Converged Networks, and Converged Client and Server platforms and environments. The goal of this competition is to develop innovative applications and services that are commercially viable. Winning entries include a working end-to-end prototype with a strong emphasis on the user experience.

**Lab:** Research Network Operations Center

**Faculty:** Russ Clark - Russ.Clark@gatech.edu, Matt Sanders - msanders@gatech.edu, Ron Hutchins - ron.hutchins@oit.gatech.edu, Beth Mynatt - mynatt@cc.gatech.edu

**Students:** Brad Beglin, Janani Narayanan, Libo Su, Isaac Kulka, Rui Feng, Lan Wang

**Location:** TSRB 123

**Augmented Infrastructure**

**Demo Description:** Augmented Infrastructure is a project that utilizes the Argon Augmented Reality Browser to provide monitoring and maintenance information about the wireless
infrastructure on the Georgia Tech Campus. The project goal is to provide detailed information about access points in an intuitive manner through the use of an augmented reality interface by just looking at the access points with a mobile device. This same idea can be extended to other areas in the infrastructure maintenance and monitoring space.

Lab: Research Network Operations Center
Faculty: Brian Davidson - bdavidson@gatech.edu; Russ Clark - Russ.Clark@gatech.edu, Matt Sanders - msanders@gatech.edu, Blair MacIntyre - blair@cc.gatech.edu
Students: Isaac Kulka, Libo Su
Location: TSRB 123

GT Mob: A Crowd-Sourced Mobile Portal for the GT Community

Demo Description: GT mob is a crowd-sourced, cross-platform, HTML5-based open mobile portal where members of the campus community can contribute just about everything, for example, links to stories, information about events, locations on the campus, and the applications themselves. The project aims to make GT services and GT affiliated websites accessible to various mobile platforms and to active developers in the GT community.

Lab: Research Network Operations Center
Faculty: Brian Davidson - bdavidson@gatech.edu; Russ Clark - Russ.Clark@gatech.edu, Matt Sanders - msanders@gatech.edu, Ron Hutchins - ron.hutchins@oit.gatech.edu
Students: Brad Beglin, Libo Su, Rui Feng, Lan Wang, Janani Narayanan
Location: Room 123

Occupancy Sensing

Demo Description: Occupancy Sensing is a project with the purpose of designing a low cost sensor infrastructure to collect occupancy information per room. This infrastructure will include different sensors that provide similar information with varying modalities and degrees of robustness. It will be backed by RESTful API that combines the disparate building sensor data into a unified data service around building occupancy. In addition to that, an orchestration function will be built that assigns confidence values to each sensor and based on that provides estimates for sensor response to occupancy information. The goal is to use this infrastructure to research potential value added services that can be developed utilizing this information.

Lab: Research Network Operations Center
Faculty: Matt Sanders - msanders@gatech.edu, Russell Clark - Russ.Clark@gatech.edu, Brian Davidson - bdavidson@gatech.edu
Students: Enrique Berzosa, Victor Petcu, Aman Parnami
Location: TSRB 123
2\textsuperscript{ND} FLOOR DEMOS
ACME LAB

ACME (A Creativity Machine Environment) Lab: We are interested in everything about design computing and cognition. From ambient intelligence to physical computing, from sketch understanding to intuitive design tools, from web log analysis to social networking, from patient communication systems to ubiquitous computing, from interactive furniture to architectural robotics, just to name a few.

ClockReader: Sketch-Based Screening Tool for Cognitive Impairment

Demo Description: Early detection of cognitive impairment can prevent or delay the progress of cognitive dysfunction. In the field of neurology, the Clock Drawing Test (CDT) is one of the most popular instruments for detecting cognitive impairment in the elderly. One purpose of the ClockReader System is to enable patients to take the Clock Drawing Test without the presence of a human evaluator. The system consists of three main components: data collection, sketch recognition, and data analysis. First, the system should record and recognize a patient’s freehand drawing and collect the data. Then, based on the scoring criteria, the system should automatically analyze the drawing and report the score. There are two major benefits of a computerized screening test. With electronic records, doctors can easily follow the progress of a patient’s condition for disease diagnosis and treatment. Patients can save time and money by decreasing the frequency of clinical visits.

Lab: ACME Lab
Faculty: Ellen Yi-Luen Do - ellendo@gatech.edu
Students: Hyungsin Kim, Chih-Pin Hsiao, Nick Davis
Location: TSRB 209

AUGMENTED ENVIRONMENTS LAB

Augmented Environment Lab (AEL): investigates how interactive computing environments can be used to directly augment a user’s senses with computer-generated material. We use the term Augmented Environments to emphasize our interest in systems and experiences where the physical environment is an essential element of the experience, and does not merely act as a background for the overlaid computer media. From the artifacts in a historic home to the people sharing a game around a kitchen table, the places and people are what gives the experience its meaning. Our current work is focused on handheld AR experiences and games, mobile AR (using both handhelds and head-worn displays), the interaction between online virtual worlds and AR, tracking and sensing for mobile AR, and the use of AR/MR in the support of business collaboration.

Argon: The Augmented Reality Web Browser

Demo Description: Widespread future adoption of augmented reality technology will rely on a broadly accessible standard for authoring and distributing content with the flexibility and interactivity provided by current web authoring technologies. We demonstrate Argon, The Augmented Reality Web Browser for iOS (and coming soon to other platforms!).
Argon utilizes a unique combination of modern, open standards to bring Augmented Reality to the World-Wide-Web. KARML, an extended version of KML (the language of Google Earth), is used for geospatial referencing and combined with HTML for content development and delivery. KARML provides content creators extensive control over the presentation of HTML content and its spatial relationship relative to other content. Content creators can also take advantage of the full-featured Argon JavaScript API that allows for script-based creation and manipulation of AR content.

The Argon browser-platform allows rapid development and deployment of rich interactive mobile augmented reality content using existing web authoring tools and practices, flexible client-side JavaScript scripting, AJAX-style programming paradigms and multi-user session-controlled synchronization.

We will be showcasing projects and demos created specifically for Argon.

**Lab:** Augmented Environments Lab

**Faculty:** Blair MacIntyre - blair@cc.gatech.edu, Maribeth Gandy

**Students:** Hafez Rouzati (hafez@gatech.edu), Evan Barba, Brian Davidson, Dustin Harris

**Location:** TSRB 233

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**CONTEXTUAL COMPUTING GROUP**

**Contextual Computing Group:** Our research creates computational interfaces and agents for use in everyday mobile environments. We combine wearable and ubiquitous computing technologies with techniques from the fields of artificial intelligence, pattern recognition, and human computer interaction. Projects range from Blackbox, and Android software package designed to passively monitor mobile device usage and context information to SmartSign, a context aware mobile content delivery system using small, unplanned moments throughout the day to help students to learn American sign Language.

**BlackBox**

**Demo Description:** BlackBox is an Android software package designed to passively monitor mobile device usage and context information. Designed to allow for non-invasive study of mobile device use, BlackBox allows researchers to collect information about key presses, motion and orientation, and **Location:** and store this information locally. This allows researchers to deploy BlackBox on devices and let participants use them for an extended period of time, as the researchers observe the participants' actual device use in their everyday lives.

**Lab:** Contextual Computing Group

**Faculty:** Dr. Thad Starner

**Students:** David Quigley

**Location:** TSRB 243
SmartSign

**Demo Description:** 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.

**Lab:** Contextual Computing Group

**Faculty:** Thad Starner

**Students:** Kim Weaver

**Location:** TSRB 243

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**HCI MASTER’S STUDENTS PROJECTS**

Georgia Tech's Master of Science in Human-Computer Interaction (HCI) is one of the most prominent programs of its kind. The degree is an interdisciplinary program of three Schools: Interactive Computing; Literature, Communication, and Culture (LCC); and Psychology.

The program provides students with the practical skills and theoretical understanding needed to become leaders in the design, implementation, and evaluation of the next generation of usability in human-computer interfaces.

Students will demonstrate their technical, creative, and presentational talents with live demos of their projects.

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**MUSIC TECHNOLOGY**

**Music Technology:** The Georgia Tech Center for Music Technology (GTCMT) is an international center for creative and technological research in music, focusing on the development and deployment of innovative musical technologies that transform the ways in which we create and experience music. Our mission is to provide a collaborative framework for committed students, faculty, and researchers to apply their musical, technological, and scientific creativity to the development of innovative artistic and technological artifacts. Our work aims at combining musical, technological, and cognitive research in an effort to create rich and expressive experiences for performers and audiences alike. Areas of interest include composition, performance, mobile music, machine listening, music information retrieval, digital signal processing, robotic musicianship, interactive music manufacturing, networked music, music perception, music theory, multimedia development, and education.

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**MassMobile**

**Demo Description:** MassMobile is an audience participation framework that allows artists, composers, performers and audience members to collaborate in the creation of an engaging and unique experience by utilizing the new and enabling capabilities of emerging mobile technology. Audience members use their personal devices and the MassMobile interface for real-time interaction and bi-directional communication with the performers.

**Lab:** Distributed Music Group

**Faculty:** Jason Freeman
SYNAESTHETIC MEDIA LAB

Synaesthetic Media Lab: Synlab explores emerging modalities in new media. Our research focuses on tangible interaction and sensing technologies that support creative expression bridging the physical and digital worlds. Applications range across media arts, entertainment, sciences and educational domains. Platforms explored include Tables and Surfaces, Full-body environments, Installations and Tangibles. Research themes include: Narrative, Games, Media Art, Education, Workspace, Science, Visualization and Navigation.

SciSketch

Demo Description: 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.

Lab: Synaesthetic Media Lab
Faculty: Ali Mazalek - mazalek@gatech.edu, Joe LeDoux - joe.ledoux@bme.gatech.edu
Students: Andy Wu, Eric Caspary, Jay Yim, Scotty Hoag, Ravi Karkar
Location: TSRB 209

Tangible Synergetic Domes

Demo Description: A set of tangible, interactive, dynamic objects complimented by digital media content assist students in learning the principles of Geodesic dome design and related theories from R. Buckminster Fuller's Synergetics. The overall framework for design is in keeping with an interactive science museum exhibit. This project is a DM Master's Project, Spring 2012.

Lab: Synaesthetic Media Lab
Faculty: Ali Mazalek - mazalek@gatech.edu, Claudia Rebola - crw@gatech.edu, Carl DiSalvo - carl.disalvo@lcc.gatech.edu
Students: Fred Leighton - fleighton3@gatech.edu
Location: TSRB 209

ROSS: Responsive Objects, Surfaces, and Spaces

Demo Description: 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.

**Lab:** Synaesthetic Media Lab

**Faculty:** Ali Mazalek – mazalek@gatech.edu

**Students:** Scotty Hoag, Andy Wu, Sam Mendenhall

**Location:** Room 209

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**Pathways**

**Demo Description:** Pathways allows users to interact with bio-chemical reaction network simulations using tangible interaction on a tabletop display surface. Systems biologists 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. By adopting a tangible display surface for visualization, we provide a direct hands-on way for researchers to manipulate parameters and immediately see the system-wide effects of their manipulations across the reaction network.

**Lab:** Synaesthetic Media Lab

**Faculty:** Ali Mazalek – mazalek@gatech.edu, Sanjay Chandrasekharan – sanjayan@cc.gatech.edu, Nancy Nersessian – nancyn@cc.gatech.edu

**Students:** Andy Wu, Jay Yim, Eric Caspary, Scotty Hoag

**Location:** Room 209

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**Tangible Anchoring**

**Demo Description:** Tangible Anchoring explores potential practices for news reporting and analysis afforded by the convergence of tabletop computing, mobile user-generated content, the Web, and broadcast media channels. We are exploring how these technologies could be used to increase the sense of participation in the viewer's experience of current events through co-discovery with newscasters of how opinions differ and real-time contributions to the on-air debate. Our current implementation, built on the KinoPuzzle story engine, features multiple viewpoints from reporters presented using a tangible tabletop broadcast anchordesk, assuming multiple camera angles, two or much anchors/discussants, multiple displays, and issues-based polling/reporting using mobile phones.

**Lab:** Synaesthetic Media Lab

**Faculty:** Ali Mazalek <mazalek@gatech.edu>

**Students:** Susan Robinson, Sam Mendenhall, Ramik Sadana, Lauren Langley, Suchit Dubey

**Location:** Room 209

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**BDC: emBodied Digital Creativity**

**Demo Description:** Extending common coding theory from neuroscience, we investigate how the mental connection between players and game avatars might be leveraged to augment players' cognition. To examine this question, we have designed and developed a tangible puppet interface and 3D virtual environment that are tailored to optimize the mapping between player and avatar,
to the extent players can recognize their own avatars through body movement recognition. Our system draws on traditional puppeteering techniques and has applications in both artistic performances and scientific studies of cognition.

**Lab:** Synaesthetic Media Lab

**Faculty:** Ali Mazalek - mazalek@gatech.edu, Michael Nitsche - michael.nitsche@lcc.gatech.edu, Sanjay Chandrasekharan - sanjayan@cc.gatech.edu, Tim Welsh t.welsh@utoronto.ca

**Students:** Paul Clifton, Fred Leighton, Friedrich Kirschner

**Location:** TSRB 209
3rd Floor Demos
THE APPS LAB

GVU’s Apps Lab is a “hackerspace” devoted to the creation of mobile application and technologies, across a range of platforms. Focused specifically on undergraduate students, this facility serves as a learning lab to give students experience in mobile applications development.

**App Name:** NBA Scheduler  
**App Description:** Provide a list of the NBA games and times for the current day, so you can be sure to always catch your favorite game!  
**Author:** James Zhang

**App Name:** Drawing Pad  
**App Description:** A simple drawing pad for a mobile device. Selectable brushes, colors and other options to allow you to create your masterpiece!  
**Author:** James Zhang

**App Name:** Math with Friends  
**App Description:** A game where players earn points by solving their friend's math challenges. The app even takes care of verifying the answer, so the players don't have to. Dominate your friends…with MATH!  
**Author:** Kevin Dietze

**App Name:** Make It Bounce  
**App Description:** A game where players draw lines on the screen in order to bounce a ball up onto a target. Accurate physics and unique game mechanics make this game a challenge for all players.  
**Author:** Jesse Rosalia

**App Name:** HearThat  
**App Description:** This app lets you record a simple word or phrase (e.g. your name, "hey there") and vibrates the phone whenever it hears that word or phrase. Originally developed for use by people with hearing loss. You talkin' to me!?  
**Author:** Daniel Lee and Jesse Rosalia

AWARE HOME

Aware Home Research Initiative: Overview

**Demo Description:** The Aware Home Research Initiative (AHRI) at Georgia Tech is devoted to the multidisciplinary exploration of emerging technologies and services based in the home. Since 1998, faculty and Students involved in the initiative have focused their efforts on solving problems of significant social and economic impact, particularly in the areas of wellness and health. Core to our research and teaching is an understanding of individual needs; how individuals perceive and interact with different devices; and how different technologies and
devices are accepted by individuals in their homes and lives. We will provide: a sampling of projects, past and present associated with the Aware Home Research Initiative, a list of locations where current projects are being showcased, and describe future plans.

**Lab:** Aware Home Research Initiative  
**Faculty:** Brian Jones - brian.jones@imtc.gatech.edu  
**Students:** Nitya Noronha - nitya.noronha@gatech.edu  
**Location:** 333

### DIGITAL WORLD AND IMAGE GROUP

**Digital World and Image Group Real-time Animation Studio:** Our mission is to improve interactions between people with the help of digital media. We consider interactions as performances in the virtual as well as physical space. Our goal is to improve the creative use of these spaces and reclaim them for their inhabitants. To achieve this, we experiment with creative media and digital performance creating a real-time performance environment using custom hardware and software.

**Cinema Interface**

**Demo Description:** Which interfaces can support the camera and character control in real-time animations? As part of the "Assistive AI for Digital Filmproduction" project (Rield/ Nitsche, NSF Creative IT) and Kirschner's own PhD work, we develop accessible interface technologies to control real-time film production supporting practices such as machinima and digital puppetry. More information at: http://dwig.lcc.gatech.edu/projects/kirschner/

**Lab:** DWIG  
**Faculty:** Michael Nitsche - michael.nitsche@gatech.edu  
**Students:** Friedrich Kirschner  
**Location:** TSRB 325

### EXPERIMENTAL TELEVISION LAB

**Experimental TV Lab:** Georgia Tech’s eTV Protoyping Group explores the future of narrative forms in the new digital medium that is emerging as TV converges with computational formats. The eTV Prototyping Group works by prototyping applications on current and hypothetical platforms, using narrative material drawn from actual and planned television shows and by creating its own narratives specifically designed for interactivity. Drawing on students in the Georgia Tech’s graduate program in Digital Media, the group has prototyped interactive video applications for delivery on the internet, DVD, and consumer TV platforms.

**Smartphone/iPad EPG & Story Navigator**

**Demo Description:** The Experimental Television Lab explores the future of narrative forms in the new digital medium that is emerging as TV converges with computational formats. This semester we have created a prototype of an advanced secondary screen remote control using the iPhone and iPad platforms. Current Smartphones and PDAs are capable of much more than just using them to change channels on a media center or television. Because of their processing
power it is possible to control the content on the television screen in a whole new way. A novel channel changer and TV guide, an interactive documentary, and an interactive film browser are the prototypes we are presenting as proofs of this concept.

Lab: Experimental Television Lab  
Faculty: Janet H. Murray - janet.murray@lcc.gatech.edu  
Location: TSRB 322

INFORMATION INTERFACES GROUP

With the advent of the Internet, the World Wide Web, portable computers, mobile communication devices, and greater computing power in general, the amount of data available to people and organizations has grown astronomically in recent years. While one would hope that access to this data would foster improved understanding, insight, and decision-making, too often it leads to confusion, bewilderment, and a sense of a missed opportunity instead. Our research group develops ways to help people and organizations understand data via innovative interfaces and applications in the areas of information visualization, visual analytics, and peripheral awareness. We ultimately want to help people solve problems and understand the world better.

Ploceus - Flexible Network Visualization

Demo Description: Ploceus is a visual analytic system that allows users to create networks from spreadsheets and databases and to visually analyze the networks. Users create nodes from data tables columns and connect different types of nodes by simple interactions such as drag and drop, applying high-level transformations through dialogs, and slicing and dicing the network flexibly. Ploceus provides immediate visual feedback in the form of node-link diagrams, and users can analyze the generated networks more closely through different visual representations and statistical

Lab: Information Interfaces Group  
Faculty: John Stasko - stasko@cc.gatech.edu  
Students: Zhicheng Liu  
Location: TSRB 342

dotLink360: Mobile Ecosystem Visualization

Demo Description: The mobile industry is in an era of tremendous change. Players in the market have formed a complex and dynamic network, and collaboration and competition have moved beyond traditional market boundaries. We are developing a visual analytics system that helps business executives, market analysts, and venture capitalists understand the competitive structure and dynamics of the mobile ecosystem. The system draws data from business alliances, press releases and patents, and provides a number of visualizations that give insight into the mobile industry from the perspective of companies, market segments and the ecosystem

Lab: Information Interfaces Group  
Faculty: Rahul Basole - rahul.basole@ti.gatech.edu, John Stasko - stasko@cc.gatech.edu  
Students: Mengdie Hu, Harshit Mehrotra, Pritesh Patel
Location: TSRB 342

Jigsaw: Visualization for Investigative Analysis on Documents

Demo Description: We are developing a system called Jigsaw that helps investigators explore and understand collections of unstructured and semi-structured text documents. In essence, Jigsaw helps people "put the pieces together" and gain a deeper understanding of text documents through human-centered, interactive exploration of the documents and the entities within them. It is a visual analytics system that can be used in domains such as law enforcement, investigative reporting, business intelligence, and academic research. Jigsaw provides a collection of visualizations that each portray different aspects of the documents, including connections between different entities.

Lab: Information Interfaces Group
Faculty: John Stasko - stasko@cc.gatech.edu
Students: Zhicheng Liu, Youn-ah Kang, Chad Stolper
Location: TSRB 342

INTERACTIVE MEDIA TECHNOLOGY CENTER

Interactive Media Technology Lab (IMTC): IMTC is a research, design, and education center focusing on technology, education, culture, and medicine, specifically focusing on applied research and technology, health and accessibility, interactive experiences and mobile computing. We are a team of interactive media experts that includes computer scientists, electrical engineers, and graphic artists. IMTC’s mission is to assist companies in developing advanced multimedia systems while educating students in multimedia technologies and techniques. IMTC serves industrial clients in almost any capacity, from basic research, to developing complete turnkey systems, to assisting internal staff in the completion of projects, to training staff in multimedia techniques. Our research, interests and projects include but are not limited to: Augmented, virtual, and mixed reality; Applied Human Computer Interaction; Accessibility and disability research and development; Ubiquitous computing; Medical technologies; Telehealth; Audio and voice processing; Entertainment; Novel user-interface design; Mobile and wearable computing; Large-scale multimedia applications; High-speed speech and audio searching; Custom application software; Custom electronics design and fabrication; Interactive kiosks; Dynamic website design; Education and computer based training; 3D animation and video production; and, Human motion capture technologies
Gaming in Aging

**Demo Description:** The grant consists of a series of studies that will have older adults play video games on the Nintendo Wii™ under various experimentally controlled conditions, such as varying levels of challenge, familiarity, and social interaction. The specific goals of this research program are to: understand how video games can contribute to improvements in cognition what properties of the gaming environment (novelty, active attention, and/or social interaction) are critical for cognitive improvement create an older adult specific game that loads on the critical properties identified empirically test the efficacy of this theoretically designed game to produce the largest gains in the cognitive performance of older adults

**Lab:** Interactive Media Technology Center  
**Faculty:** Maribeth Gandy - maribeth.gandy@imtc.gatech.edu, Jeremy Johnson, Peter Presti  
**Students:** None  
**Location:** TSRB 333

AR Presence

**Demo Description:** Presence is a concept currently used in the VR community to evaluate the quality and effectiveness of virtual environments. Presence is defined as the “sense of being there” or, more appropriate for our purposes, “a perceptual illusion of non-mediation”. In this project, we are investigating presence for use in AR evaluation. In this first phase we are exploring what this concept means in a mixed reality setting, how existing measurement techniques such as questionnaires and physiological sensing can be applied to AR applications, and whether existing data regarding immersion factors and presence translate to the AR domain. Our first experiment recreates the virtual “pit” experiment done at UNC in AR with the goal of producing similar physiological effects on the study participants. The overall goal of this work is to generate evaluation techniques for AR as well as to begin defining design and usability guidelines for the creation of effective AR experiences.

**Lab:** Interactive Media Technology Center  
**Faculty:** Maribeth Gandy - maribeth.gandy@imtc.gatech.edu, Blair MacIntyre, Richard Catrambone  
**Students:** None  
**Location:** TSRB 333

Millennium Gate

**Demo Description:** The Millennium gate is a 73 foot high Monumental Arch being built in Atlantic Station in midtown Atlanta, the largest brownfield redevelopment site in the US. IMTC is developing interactive visitor technology for inclusion in the museum in the base of the gate, showcasing the history of Atlanta and the influence of philanthropy on the development of Atlanta and the other great cities in the US. A prototype of the system will be on display. The Gate opens in Spring 2008.

**Lab:** Interactive Media Technology Center  
**Faculty:** Maribeth Gandy, Scott Robertson, Peter Presti, Jeff Wilson  
**Students:** None  
**Location:** TSRB 309
Verizon AR System

Demo Description: The Verizon AR system is a "magic window" viewer installed at the Verizon Executive Briefing Center in Waltham, Ma. The large screen, which can be rotated freely by the visitors, gives a group of users an augmented view of the gallery, allowing them to preview what they will see in various parts of the center, visualize Verizon's LTE technology, and get more information on the various technological exhibits.

Lab: Interactive Media Technology Center
Faculty: Ed Price - ed@imtc.gatech.edu, Thad Starner - thad@cc.gatech.edu, Jeremy Johnson - jeremy.johnson@imtc.gatech.edu, Peter Presti - peter.presti@imtc.gatech.edu
Students: N/A
Location: TSRB 309

PIXI LAB

Pixi Lab: The Pixi Lab is a group of researchers at the GVU Center at Georgia Tech who are exploring the boundaries between interaction and infrastructure. We take a human-centered approach to our research, by understanding the needs and practices of people through empirical methods, designing compelling user experiences that fit that context, and then building the underlying systems and networking infrastructure necessary to realize that user experience. We are dedicated to creating technology that is not simply usable but also useful. Members of our group come from diverse backgrounds, including design, networking, and information security. We believe that deep problems require broad interdisciplinary collaboration to solve. Our current project portfolio is focused around creating new technologies that expand the ability of people to interact with the increasingly complex technology around them. For example, we are developing new methods to simplify home network management and troubleshooting. We are also exploring how to create security technologies that are more useful and usable by ordinary people.

LiquidText: A New Way to Interact with Documents

Demo Description: We are creating a different way to read text, where the document is no longer a fixed, monolithic unit, but rather a flexible representation to be arranged, embellished and structured by the reader. Through this flexibility, one can manipulate a text to best support finding, recording, and communicating the meaning contained within it. To enable this fluid, flexible document representation, we take advantage of recent advances in touch technology, allowing people to use natural hand movements and gestures to perform these manipulations of a text. We will present an interactive demonstration of this system to show an idea of what we are creating.

Lab: Pixi Lab
Faculty: Keith Edwards - keith@cc.gatech.edu
Students: Craig Tashman
Location: TSRB 334
 Ubiquitous Computing / Future Computing Environments (FCE) Group: The Future Computing Environments (FCE) Group is a collection of students and researchers across various units of Georgia Tech who are interested in developing a culture and infrastructure on campus for the investigation, prototyping, and construction of computing environments now that we believe will be commonplace in 10-15 years. The main research interest of the FCE group lies in the intersection between Software Engineering and Human-Computer Interaction. The FCE mission is to invent and better understand what constitutes an effective, everyday partnership between humans and technology. Today, the FCE Group is recognized nationally and internationally as a premier research group in ubiquitous computing. In addition to pushing a strong experimental research agenda in various sub-disciplines of Computer Science, the FCE Group fosters a culture of excellence in the development of living laboratories for research, investigating and building futuristic computing applications that apply ubiquitous computing technology to everyday life situations, such as education, tourism and the home.

Using SMS to provide continuous assessment and improve health outcomes for children with asthma

Demo Description: Several factors influence effective management of a chronic condition these include: open communication between patient and health care provider; a patient’s awareness of symptoms and knowledge of her/his condition; and level of adherence to medical regiment. Best practices for patients with chronic conditions such as diabetes and asthma include visits to their physician 3 or 4 times a year. Despite the knowledge that communication is vital, there is often no communication between the patient and physician between regularly scheduled visits, unless there is an acute episode (e.g., asthma attack) that lands the patient in the emergency room. Here we present an approach that addresses all of the afore mentioned factors that lead to effective chronic care management.. We gathered symptom and management information from patients between scheduled medical visits using SMS. We also developed a visualization tool that presented the patient’s SMS data in a clinically palatable format for the physician to utilize. Results from our randomized control study showed that the simple act of communicating knowledge and awareness information via SMS leads to improved pulmonary outcomes for pediatric patients. It also showed that the physician were able to use the data from the visualization tool to deliver patient-specific information during a follow-up medical visit. Although, the data we present is from pediatric asthma patients we believe that this approach can be tailored to other chronic conditions to improve patient-physician communication.

Lab: Ubiquitous Computing Lab
Faculty: Gregory D. Abowd - abowd@gatech.edu, Rosa I. Arriaga - arriaga@cc.gatech.edu
Students: Tae-Jung Yun - tjyun@gatech.edu
Location: TSRB 334

BrailleTouch

Demo Description: BrailleTouch is an eyes-free text entry technology for mobile touchscreen devices. We developed BrailleTouch as a soft keyboard based on the six-key chorded keyboard used on the industry standard Perkins Braille and most electronic braille notetakers. In a laboratory experiment with visually impaired users, participants averaged speeds of 18 words per
minute using BrailleTouch on a touchscreen smartphone, compared with 30 wpm on a full-sized physical braille keyboard. The code is straightforward to learn, and uses three fingers from each hand to represent the six dots in a standard Braille character. The BraileTouch technology allows touch-typing on your touchscreen.

**Lab:** Ubiquitous Computing Lab

**Faculty:** Gregory Abowd - abowd@gatech.edu, Mario Romero - mario@gatech.edu

**Students:** Caleb Southern, Brian Frey, James Clawson

**Location:** TSRB 334