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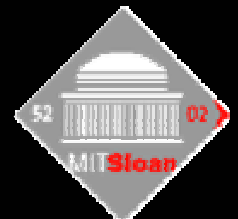
Digital Anthropology

Session ONE : Intro & Overview

14 February 2003

Instructor: Professor Sandy Pentland

Joost Bonsen, Rich DeVaul, Nathan
Eagle, & Mike Sung



50 YEARS OF DELIVERING
THE FUTURE

Class Highlights

- Experimental Studio
- Emerging & Campus-wide Theme
- Exploratory Participation in ***Reality Mining***
- Tech Testbeds
- Sociometrics
- Predictive Microcosms

Participant Alert! This class & projects entail AUDIO & VIDEO capture systems

Why “Anthropology”?

- Study of origin, behavior & cultural development of humans & organizations is of fundamental importance
- The socioscience disciplines are in ferment
- Increasingly we are applying a technologist &/or experimentalist mind-set to these domains

Why “Digital”?

- Fast(est?) changing physical & virtual artifacts
- Both influence social activity AND can be used to observe
- Experimentation is possible & relatively doable
- Timely, not only because of vast & important questions of social effectiveness & human performance, but also privacy & rights

Experimentalist Outlook (& Challenges)

- What is & How test hypothesis?
- What measure?
- What are controls?
- How observe changes?

- Difficulty of “experimenting” on humans, nevermind groups

Historic Motivators

Project Athena

- \$100 Million Educational Computing Experiment
 - IBM & DEC Corporate Sponsors
- 1983-87, + 3 till 1991
- Heterogeneous workstations
- Spawned many innovations
- Was a remarkable *Predictive Microcosm*

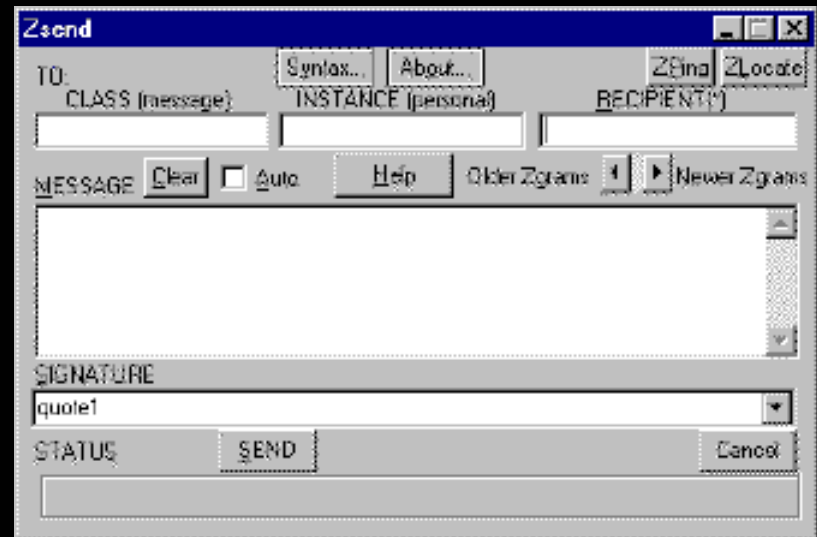
<http://www-tech.mit.edu/V121/N37/col37taoyu.37c.html>

<http://web.mit.edu/newsoffice/firsts.html>

Zephyr

- Building on Athena
- First Instant Messaging system
 - Beyond Talk, chat systems

- Now multi-platform:



- See future first
- Alum co's include
 - Invino, Flash (i.e. MS IM)

<http://web.mit.edu/is/help/winzephyr/winzephyr1-1.html>

~1988

FishWrap

Fishwrap was the first personalized online newspaper

<http://smg.media.mit.edu/~spiegel/design/Fishwrap.html>

Chesnais, et al
1995

802.11b @ Media Lab

- 2 years before rest of MIT
- And MIT, a few years before rest of world

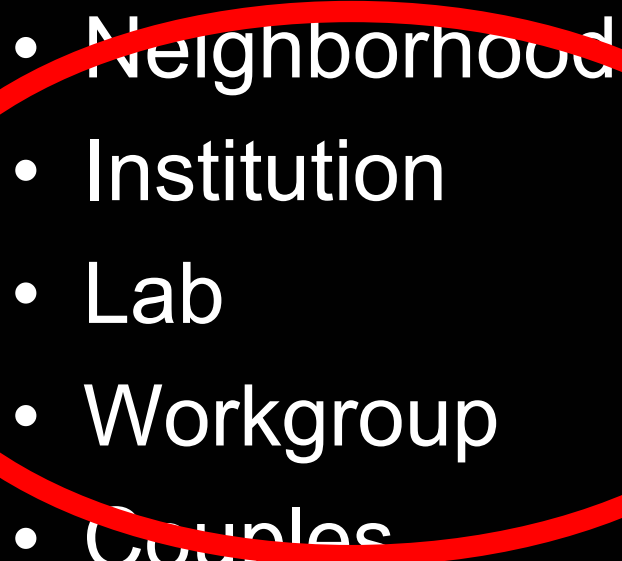
Shared Remembrance Agents

- Rhodes & Starner shared their wearable memories
- “Serendipity too important to be left to chance”
- Seemlessly sharing knowledge in a workgroup

Rhodes, Starner, et al
1996

What then are the “Athenas” &
Big Implications projects of
today?

Levels of Analysis

- Region
 - City
 - Neighborhood
 - Institution
 - Lab
 - Workgroup
 - Couples
- 

Digital Anthro is part of effort to make MIT research host for Many Technology Testbeds

- An orchestrated MIT-wide Initiatives to attract Companies & Labs deploying latest prototypes & products in “Tech Testbeds”
- MIT community & surroundings specifically as an “Early-Adaptor Microcosm”
- Allowing MIT researchers to do rigorous social science, observing usage patterns, adoption rates, social networks, and more
- If not a testbed, at least new product showcase!

Proposing Action Over Time

Research	Marketing, Media projects, Modeling Addiction & Adoption			
Education	Shift Existing Class, Paperless 2.0, New Seminar, Lead Faculty Performers			
Extra-curriculars	Marketing Club, MediaTech, Visiting Student Exposure, Influence Admissions			
Infra-structure	Muddy Renovations, SloanBar, Digital Drop-posters	Hall of Heroes, Testbed-enabled Classroom		
Support	Location-based WiFi access, e.g. Newbury Networks			
	<i>This Semester</i>	<i>This Year</i>	<i>2-3 Years</i>	<i>3-5 Years</i>

Example Technology Testbed Ideas

- **Project Mercury** – Latest wireless technologies; trial showcase for MIT Labs
- **App Assessment** – Fast feedback on new applications & usage patterns
- **Premier Digital Infospace** – Next generation libraries, info databases & visualization environments
- **Evocative Architectural Innovations** – Digital Glass, Organic HVAC, Ultra-Reconfigurability, Working Elevators

http://www.emperorlinux.com/acc_network.html

http://www.oreillynet.com/pub/a/wireless/2001/06/08/xircom_review.html

<http://www.handspring.com/>

http://www.futurelooks.com/features/Lifestyle/Wearable_comps/page1_frame.htm

<http://www-5.ibm.com/se/news/archive/images/computers/wearable-pc/wearable-pc-closseup-guy.jpg>

Being a Tech Testbed

- Deploying latest prototypes, devices, broadly in test population AND tracking actual usage patterns
- Sourcing devices & systems from both MIT Labs and corporate partners
- Serving as “Neutral Ground” for cross-comparison
- Clearly useful for “Consumer” devices & systems, but not limited to it

Tech Testbed promises...

- We see the Future First
- Part of Comparative Market Research initiative
- Accelerating Educational Innovation
- Possibly part of larger effort to Observe Innovation in all its rich forms
- Basis for MIT Cross-Campus Collaborations
- Positive visibility & press for MIT

Early-Adopter Microcosm, yes. But, *Predictive Microcosm?*

- Open Question
 - Are demographic subsets of MIT & Sloan students representative of ultimate users & consumers?
 - If indeed “predictive” might this be a method of advanced market research?
 - Can we better appreciate under what conditions there’s “prediction”?

Sociometrics

- Social analog to Biometrics, Physiometrics, Psychometrics
- Indicators of what's really going on
- Who knows whom
- Measurements of Group Dynamics
- Class Feedback & social survey data
- Metrics of Effectiveness
- Degree of Generalizability

Our Seminar is



1. an Experimental Studio,
2. an Exploratory Intensive on Research Ethics & Practices,
3. a Speaker Series,
4. a Survey of Historic, Current, and Emerging Efforts, &
5. a Proposal Craftshop

(What Digital Anthro is NOT!)

- Intro to Anthropology
- Research Methods class
- Policy Oriented
- Tourist Friendly
- Exhaustive
 - Historical
 - Current

Experimental Studio

- Learn this by trying
- Participate in Live-Case Example
 - Reality Mining
- Observe others
- Share the know-how
- Fast-iteration & escalation

- This is a trial-run for us!

Speakers

- Media, Architecture, CS Researchers
- Social Scientists
- Alum technologists & entrepreneurs
- You

Readings

- References, readings all online
- Try for Paperfree class experience
- Send us suggestions!

Deliverables

- Participate in *Reality Mining* project
- Form teams to build novel experimental tools &/or apps
 - Build on projects &/or brainstorm mentioned today or your own!
- Run at least one rigorous experiment
 - Including COUHES approvals, if applicable
- Write a summary report
 - Possibly material for sponsor proposal

Surveying Example Efforts already happening at MIT

*We'll look more closely
at several of these
Over the course of the semester*

Social Facilitation

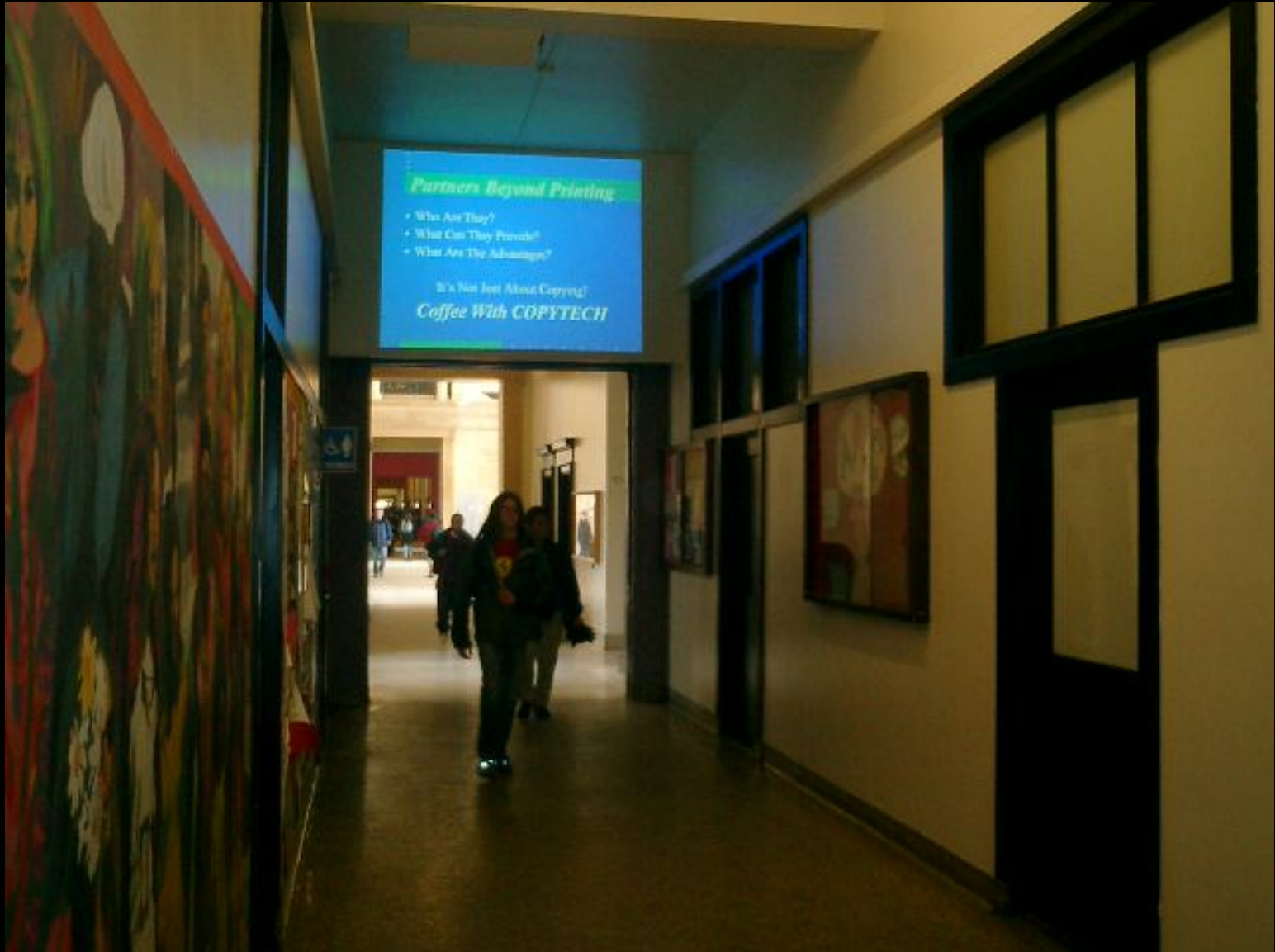
- Orchestrating Serendipity
- Thinkertools
- Tight Feedback loops
- Multi-sensor suite

*Facilitator
Room*

<http://whitechapel.media.mit.edu/facilitator/introduction.html>

Clarkson, Basu, Choudhury, et al

Digital Drop-Posters



House_n Living Laboratory

full-scale and fully
functional single
family home

shared research
facility

Intille, Larson, et al

Oxygen Intelligent Room

- Embedded in ordinary environments
- Complex interactions support

Darrell, Shrobe, Davis, et al

<http://www.ai.mit.edu/projects/iroom/movies.shtml>

Shortcuts Project via Sociometer

- Automatic & unobtrusive mapping of social network
- Key Questions
 - Who are key players
 - How info propagates
 - How modify for improvement



Sociometer

SK1N Badges

2003 spring consortium badges

- Viral Message Passing
- Location of individuals through the display of time since last spotting
- Formation of affinity groups
- Storing of contacts for later retrieval
- Analysis of social networking
- Realtime display of social activity
- Wearable electronics applications

Social Net Analysis

Dynamic Visualization

- Sociometrics
Example
- Understanding
social
relationships
- Guiding flows of
information
- Real knowledge
management

<http://www.netvis.org/>

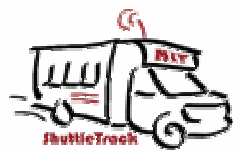
Cummings

ShuttleTrack

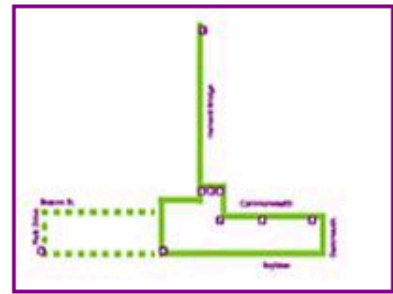
Click on the maps below: Style:

Maps

- [Boston East](#)
- [Boston West](#)
- [Cambridge](#)
- [Cambridge](#)
- [Tech Shuttle](#)
- [All Routes](#)

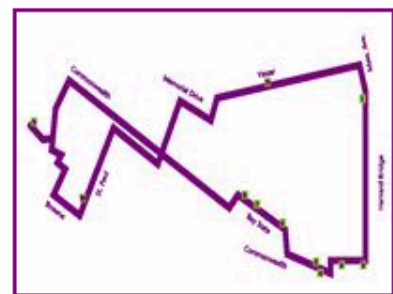


Boston East



Operates Sun. thru Wed. 6p-3a
Thurs. thru Sat. 6p-4a

Boston West



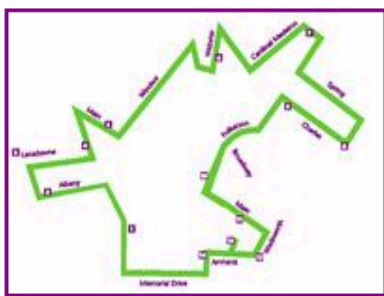
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Thurs. thru Sat. 6p-4a



T-Maps

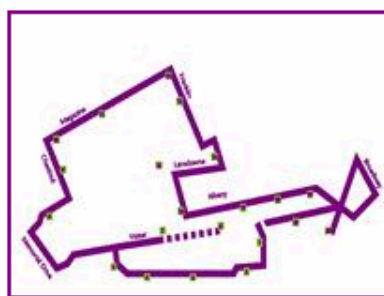
- [Boston East](#)
- [Boston West](#)
- [Cambridge](#)
- [Cambridge](#)
- [Tech Shuttle](#)

Cambridge East



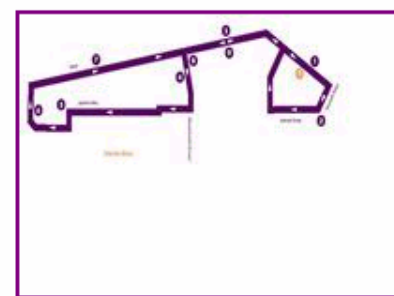
Operates Sun. thru Wed. 6p-3a
Thurs. thru Sat. 6p-4a

Cambridge West



Operates Sun. thru Wed. 6p-3a
Thurs. thru Sat. 6p-4a

Tech Shuttle



Operates Mon. thru Fri. 7:15a-7:15p

Credits

CycleScore

- Innovative Racing Game
- Engaging & inspiring experience

- Student Led Project
- \$30,000 funding...
- Z-Center Prototyping
- Collaboration with Sports Innovation Ctr
 - <http://web.mit.edu/aeroastro/www/labs/csi/>

Games-to-Teach

- Improving Educational Experience
- New Medium for Social Exchange
- Novel Pedagogical Models
- Simulation of Social Reality

Jenkins, et al

<http://cms.mit.edu/games/education/>

Additional Efforts Include...

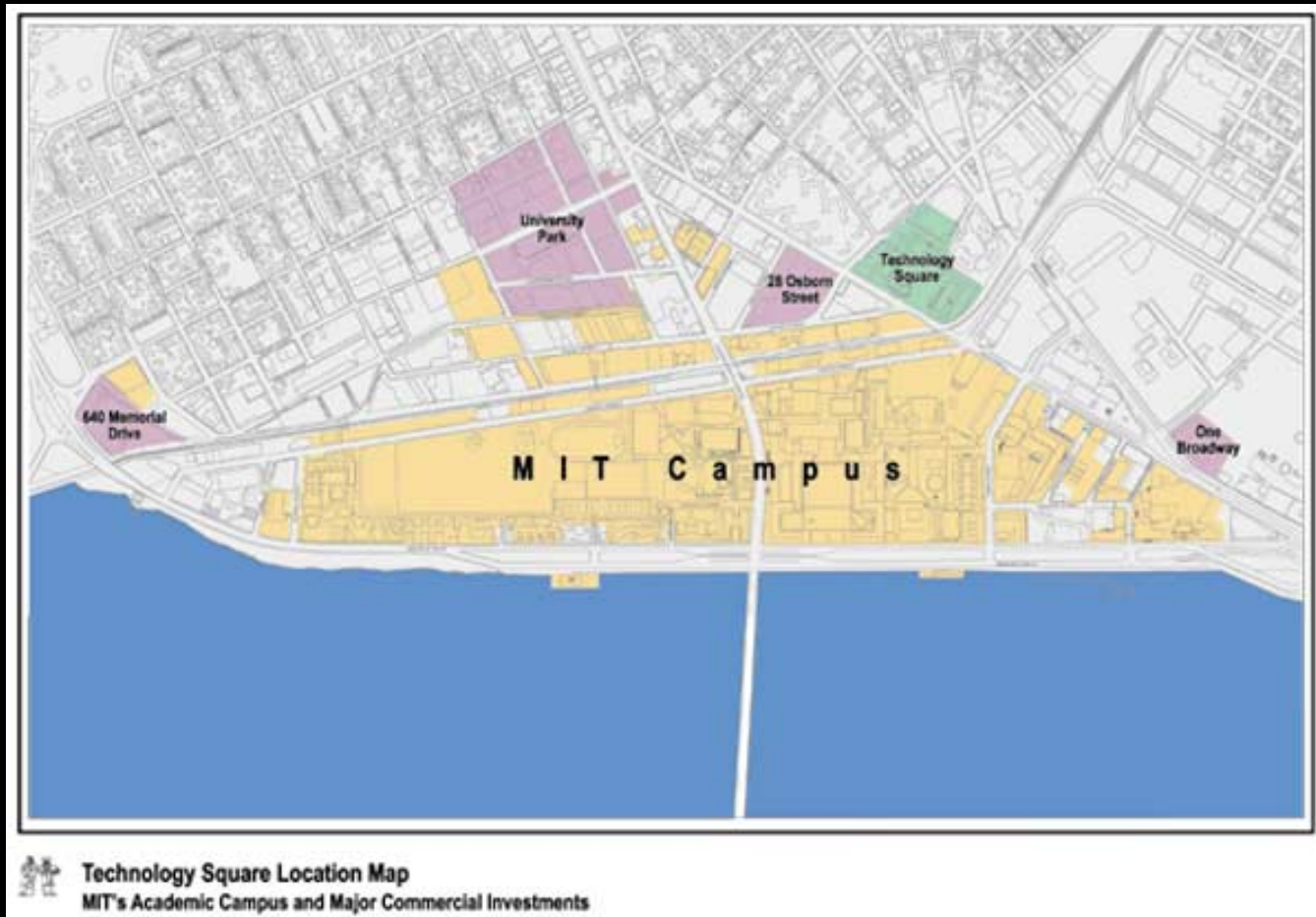
- Sloan's Virtual Customer Initiative
- Sloan Product Development & Marketing Classes
- MasterCard's RFID PaymentCard
- MIT's New Grad Dorm Equipment
- Newbury Network's Location Enabled Networking
 - <http://www.newburynetworks.com/>

MIT Labs

- LCS / AI Project Oxygen
<http://oxygen.lcs.mit.edu/>
- Media Wearable Computing
<http://www.media.mit.edu/wearables/>
- House 'n'
 - http://architecture.mit.edu/house_n/
- CMS
 - <http://web.mit.edu/cms/>
- eBusiness
 - <http://ebusiness.mit.edu/>
- Auto-ID
 - <http://www.autoidcenter.org/main.asp>

...

MIT Tech Venture Zone / Kendall “Concentric Connections” Initiative



<http://web.mit.edu/newsoffice/nr/2001/tsmap.jpg>

Possible Sponsors

- I-Campus Project
 - <http://swissnet.ai.mit.edu/projects/i-campus/>
 - <http://www.swiss.ai.mit.edu/projects/icampus/projects/>
- Peer Testbeds
 - Cambridge-MIT Institute
 - Singapore-MIT Alliance
- Industry Consortia
- Government: DARPA, NSF
 - E.g. CIPD
- Foundations

Using this Seminar as

- Surveying Testbed & Sociometrics Research Landscape
- a Vehicle for Personal Learning,
- Sponsor Engagement,
- Proposal Writing,
- Building Prototypes,
- Exploratory Experiments,
- Seeking Collaborators

Iterative Escalation & Exploration

- Fast feedback on prototypes & sociometrics
- Let ideas recombine
- Projects may Entail
 - Formal, Rigorous Research
 - Exploratory Test Trials
 - Education Improvement Projects
 - Performance Art / Aesthetic Impact

Assignment for 2/21

- At least one 1-2 PPT slide idea / opportunity proposal by Thursday 2/20 midnight
- **Problem Observed, or**
- **Hypothesis to be Tested, or**
- **New Product inspiring New Use, or**
- **Question about Social Systems**
- Put your name & email on slides
- You'll present next week Friday
 - As individuals or teams

Introductions All Around

...grab the digital voice recorder, tell us...



- First & Last name
- Course & Year
- Area of Interest &/or Expertise with respect to our class

...pass the digital recorder onward ...

Demos & Illustrations

Demo!

Digital Anthropology

Project Prompts, Current
Commercial Devices, Speculative
Applications

&

Brainstorming!

Using Big Displays

Pulp-free Promos



JazzLink

Presented by TechLink

Sample Vinages and Cheeses
Dishes Around the World
Live Jazz!

January 30th
7:00pm
MIT Entrepreneurship Center
Memorial

MIT Entrepreneurship Center
Sponsored by the MIT Council, Sloan School
TechLink, MIT Entrepreneurship Center, and others

mitTechLink <http://mit.edu/techlink>





biz tech lecture series
Microbiology
Dr. [Name]

Weekly Wednesdays
5:00 pm
Wing Campus Pub
FREE BEERS & VEGGIES

Graduate Student Council and MIT TechLink present
Business & Technology Lectures
Showcasing the latest and best of research in
Business and Technology at MIT
With generous support from
MIT Office of Technology Development
Technology Strategy
Speaker: Professor of Technology Strategy
Prof. Rebecca Henderson
Senior Lecturer and Professor of Management
MIT Sloan School of Management
Feb 27th, Wednesday
10-250, 4:30 - 6:30 pm
(followed by a reception in the lobby)
<http://web.mit.edu/techlink/>



Today's Events
12noon
Speaker: Charlie Harris



Enhance the Commons



Hall of Heroes



 Rensselaer



Shirley Jackson
Physics '68

President, RPI
Former Chair, NRC



Nuclear Regulatory
& Safety Pioneer

Project Mercury

- Case example of Tech Testbed “big-idea”
- A Wireless “Project Athena”
- Campus-wide broadband wireless networking

- Latest terminal devices
 - PDAs, padPC, wearable computers, watches
- Tracking Social & Applications Usage
 - Location, Communication, Collaboration, Games

- Multi-MIT Lab Collaboration
- Social Systems Experiment

Go Dramatically Beyond Our Boilerplate IT Infrastructure

- We expect Laptops, Ethernet, WiFi 802.11b
- How about ReallyWiFi 802.11a, quivers of computers, wireless power, etc?
- Advanced applications
- Paperless workplace
- ...

More Examples

- Pool Companion
- GameSpaces
- OmniPresent Conversations
- Minimalist Badges
- Kendall Conference Center
- Showcase Sloan

Brainstorming!

Brain!

Let's make MIT the
Premier Tech Testbed

Benefits

- (a) Boosting MIT campus & student experience,
- (b) Envisioning the future by experiencing it,
- (c) Basis for cross campus research collaboration,
- (d) Prototype testbed for inventive developers to fast iterate the next generation artifacts,
- (e) Experimental anthropology via predictive microcosms,
- (f) Inspiring entrepreneurial new product and venture development,
- (g) Capturing intellectual property for truly novel Project-related inventions, and
- (h) Great PR around this “really MIT idea”.

References

- Project Athena
 - http://wwwtech.mit.edu/V119/N19/history_of_athe.19f.html
 - <http://web.mit.edu/newsoffice/tt/1991/feb27/24322.html>
- Research on Human Subjects
 - <http://web.mit.edu/policies/14.3.html>
- Project Notebook
 - <http://web.mit.edu/is/np/projects/wireless/>
- Cisco/Radiata's 802.11a Promises
 - <http://www.eetimes.com/story/OEG20000728S0021>
- Project Oxygen
 - <http://oxygen.lcs.mit.edu/>
- MIT IS
 - <http://web.mit.edu/is/>
- Wearable Computing
 - <http://www.media.mit.edu/wearables/>
- Product Innovation
 - <http://web.mit.edu/cipd/>
- MIT Sloan Virtual Customer
- MIT CMS
 - <http://web.mit.edu/cms/>

All on Website

- Be sure we have your emails
 - We'll send a follow-up this weekend
- Syllabus & references to be online
- All proposals online
- All documentation online

Assignment for 2/21

- 1-2 PPT slides by Thursday 2/20 midnight
- Problem Observed, or
- Hypothesis, or
- New Product inspiring New Use, or
- Question about People

- Put your name & email on slides