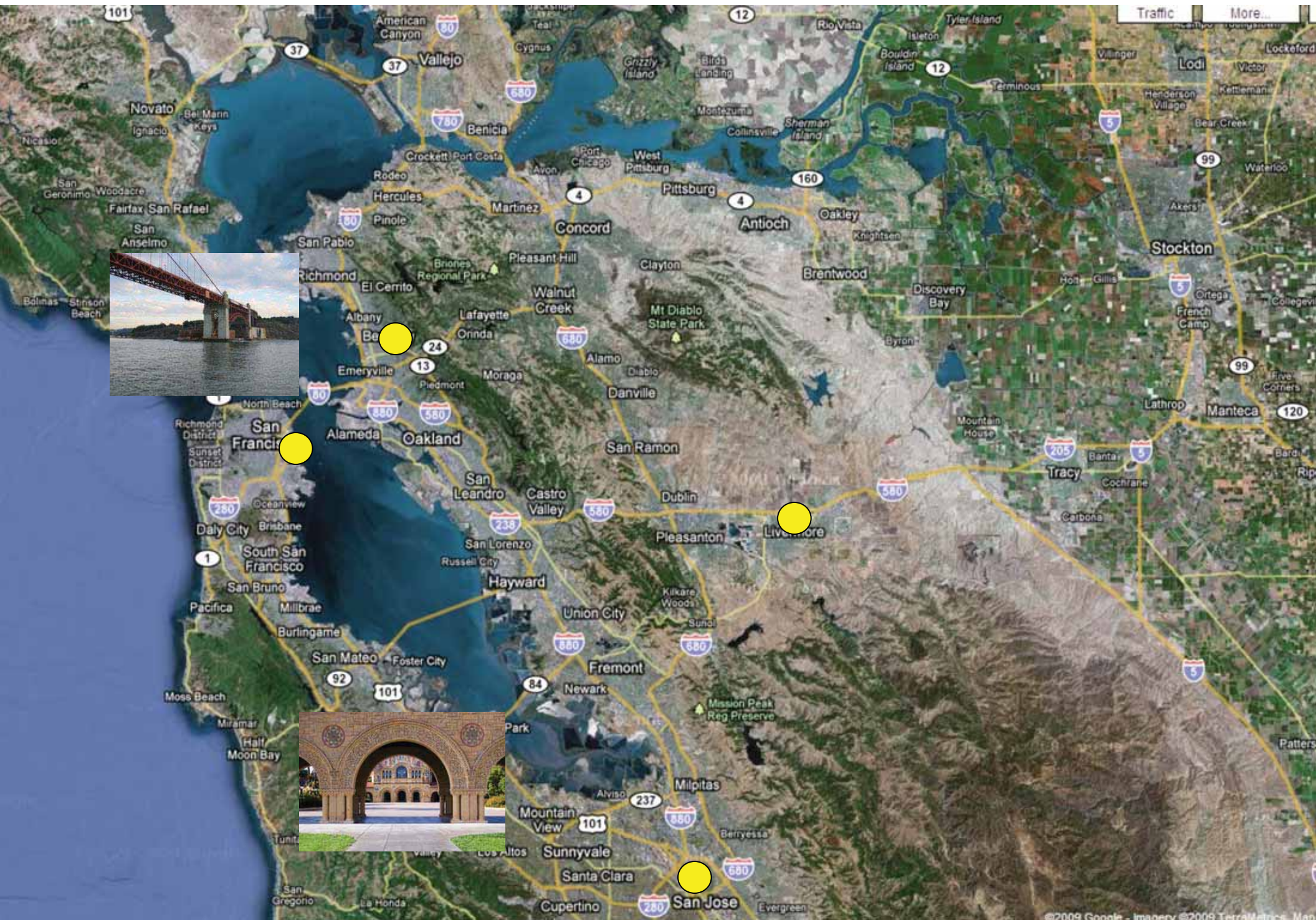


Facilitate, Catalyze, Innovate Media X at Stanford University

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Senior Researcher, HSTAR Institute
Associate Director, Media X at Stanford University

October 1, 2009



Silicon Valley



- A regional network-based industrial system that promotes collective learning and flexible adjustment among specialist producers of complex technologies
- Characterized by
 - Dense social networks
 - Open labor economics
 - Porous functional boundaries
 - Welcome the second (3rd, 4th, etc.) chance
 - Vigorous innovation

Stanford Facts

Seven schools: Earth Sciences, Education, Engineering, Graduate School of Business, Humanities and Sciences, Law, Medicine

1,771 regular academic faculty

6,705 undergraduate students from 68 countries

8,176 graduate students from 95 countries

9 independent laboratories/centers

Several national research centers (*CASBS, NBER, SLAC*)

4,500+ externally sponsored research projects

Budget for sponsored research **\$975 million**

87% from government sources

~\$122 million / yr from corporations, foundations and individuals

Media X sponsors X-dept X-discipline research on IT and people questions

5 Professional Schools, all ranked in Top Ten

Few other Univ have all 5, no other has 5 in Top Ten



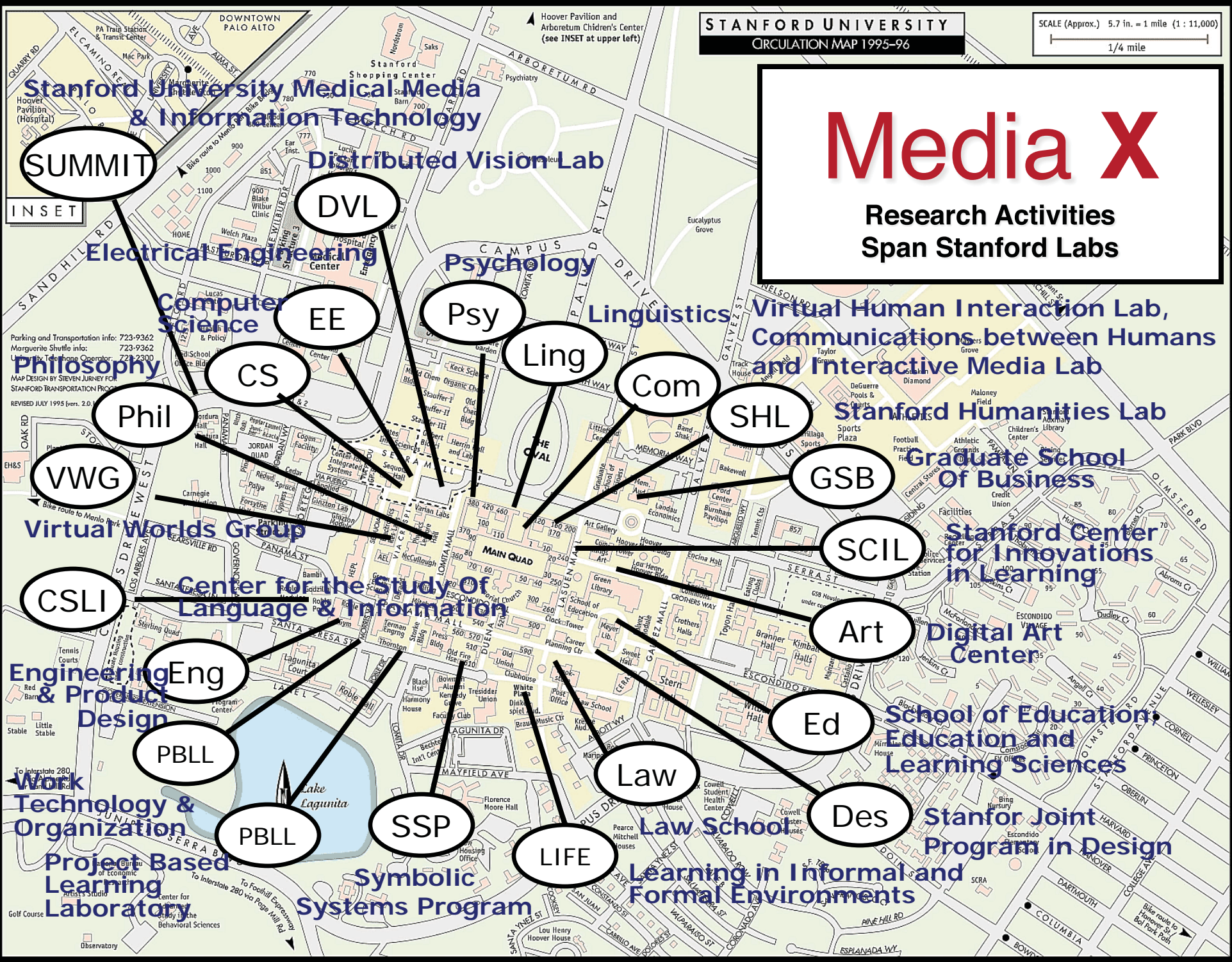
RESEARCH FOCUS

Research on **people and technology** — how people **use** technology, how to better **design** technology to make it more usable, how technology **affects people's lives**, and the **innovative use** of technologies in research, education, art, business, commerce, entertainment, communication, security, and other walks of life.



Media X

Research Activities
Span Stanford Labs



Stanford University Medical Media & Information Technology

Distributed Vision Lab

Electrical Engineering

Psychology

Linguistics Virtual Human Interaction Lab, Communications between Humans and Interactive Media Lab

Philosophy

Phil

EE

Psy

Ling

Com

SHL

Stanford Humanities Lab

GSB

Graduate School Of Business

SCIL

Stanford Center for Innovations in Learning

Art

Digital Art Center

Ed

School of Education, Education and Learning Sciences

Law

Law School Stanford Joint Program in Design

Des

LIFE

Learning in Informal and Formal Environments

SSP

Symbolic Systems Program

PBL

Work Technology & Organization

PBL

Project Based Learning Laboratory

Eng

Engineering & Product Design

CSLI

Center for the Study of Language & Information

VWG

Virtual Worlds Group

CS

Computer Science

SUMMIT

INSET

Topics Pursued Thru Media X Initiatives

- **Participation**
 - Expression, incl. CGC
 - Personalization
 - Democracy
 - Abilities-disabilities
- **Complex Problems**
 - Health
 - Environment
 - Safety
- **Collaboration**
 - Program development
 - Community
 - Decision making
 - Co-creation
 - Distant work teams
- **Technological underpinnings of all these**

The REAL Issue Deep Knowledge with Wide Applicability

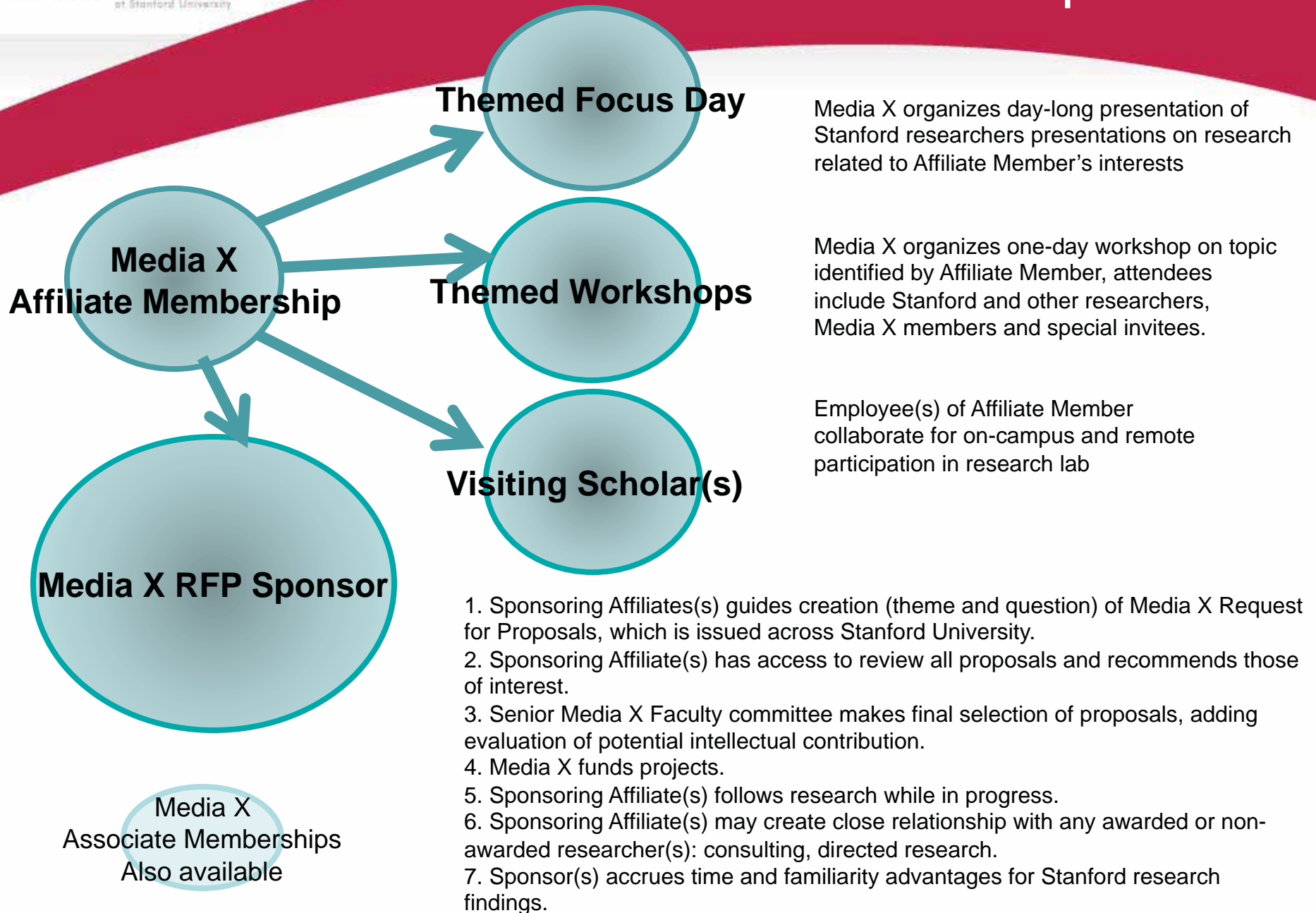
*THE ISSUE IS NOT THE RATE OF INNOVATION AND TECH TRANSFER
THE ISSUE IS INNOVATION AND TECH TRANSFER **EFFECTIVENESS***

WHAT HAPPENS IS:

MOST GROUPS TRY TO TRANSFER A LOT, and THEY DO MOST POORLY

***INSTEAD,** WORK ON BOLDER THINGS, ITERATE THEM
QUICKLY, TRANSFER FAR FEWER OF THEM, TRANSFER THEM
BRILLIANTLY*





▪ **COLLABORATION**

- [Advanced human communication technologies](#). Exploring the fusion of virtual and physical worlds for advanced human communications.
- [Interactive technologies for social interaction and collaboration](#). Using interactive technology in social interaction and collaboration in productivity contexts, including synchronous and asynchronous uses of text, graphics, voice and video.
- [Use of mobile devices in collaboration](#). Researching mobile device-centric interactive technology used in collaboration in the context of multimedia.

▪ **HUMAN-MACHINE INTERACTION AND SENSING**

- [Human-machine interaction and sensing](#). Research on human-machine interaction and sensing that focuses on the detection or sensing of human-comprehension, emotional states, gestures or touch.
- [Sensing and control](#). The integration of technology and the understanding of human psychology and social behavior that can lead to new technologies that enable natural interaction with information and the physical world.
- [Emotion detection from video capture of facial expression](#). Enabling vehicles to automatically perceive driver emotions and determine the driver's alertness/fatigue in order to provide a reliable and actionable safety index.

▪ **PARTICIPATION**

- [Online media content](#). Evaluating consumers as publishers or establish ontologies of content.
- [Learning and training](#). Interactive technologies relating to learning and training, focusing on the integration of technology and an understanding of human psychology and social behavior to enhance understanding and performance.

▪ **IMAGE, SPEECH AND LANGUAGE PROCESSESING**

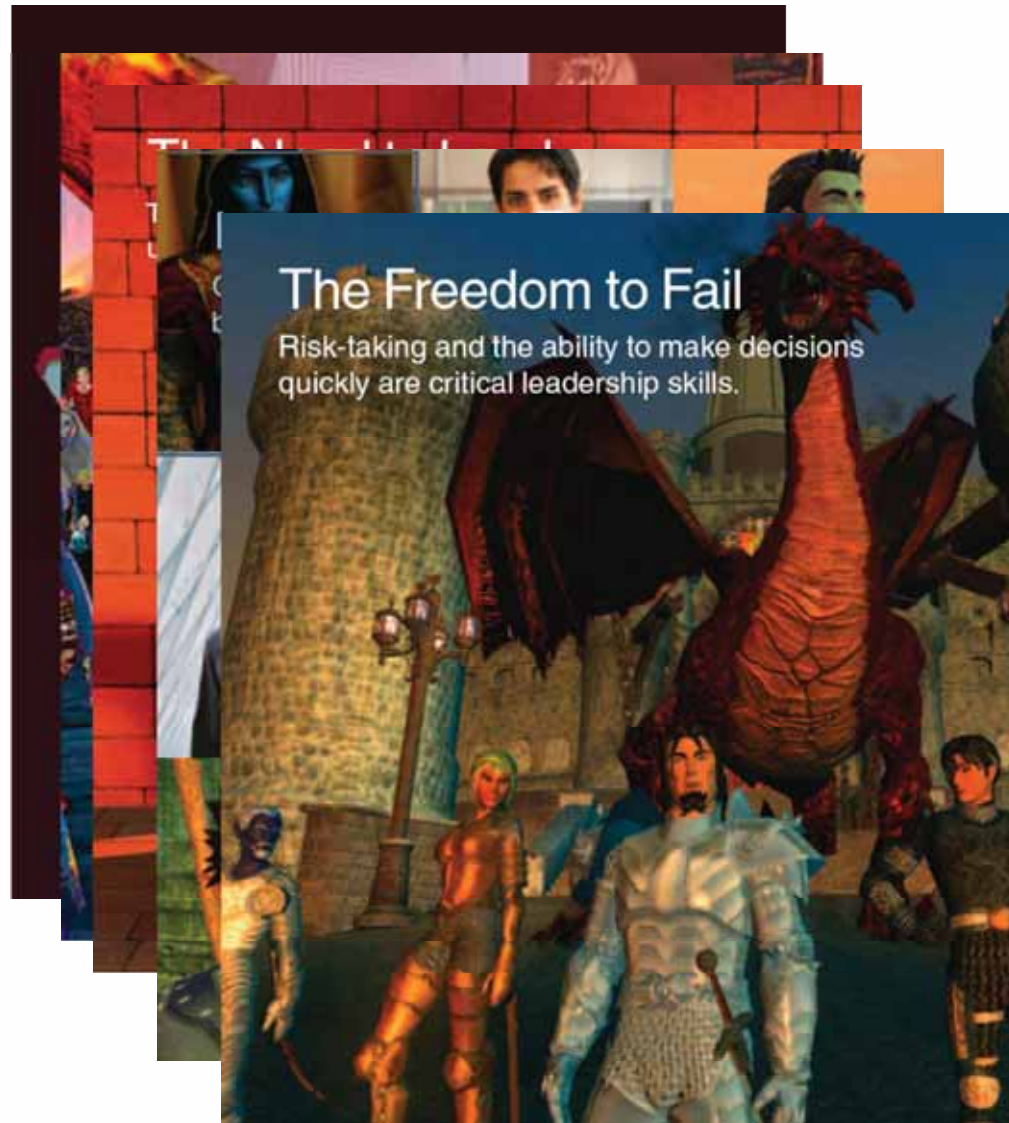
- [Natural language research](#): Basic and strategic research, training and technology transfer in speech and language processing.
- [Video processing, cataloging, retrieval, and reuse](#). Using interactive technologies related to video processing, cataloging, retrieval and reuse, with a view to the development of automated systems to support video libraries.

▪ **FORM FACTORS**

- [Mobile devices and alternative form factors](#). Researching mobile communication devices and services focusing on the device itself, the use cases for that device, the interface employed to render that device useful, and the connectivity opportunities and needs required to make that device part of the "connected" computing ecosystem.

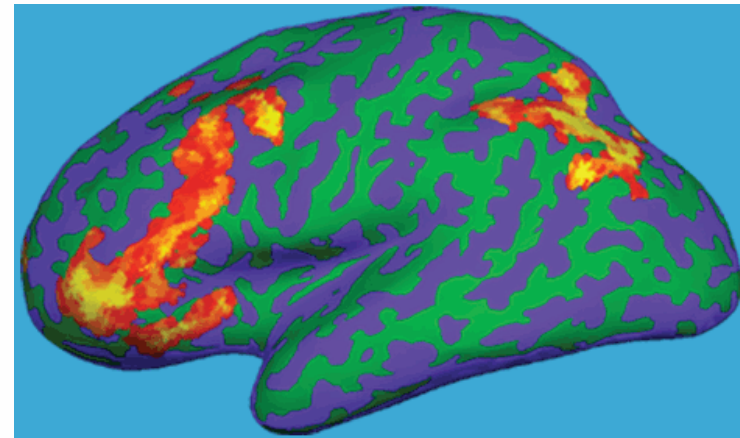
- **Example - RFP Process**
 - RFP Issued
 - 19 Proposals from 28 Departments
 - Awarded 7 catalytic projects
 - Others research activities were initiated

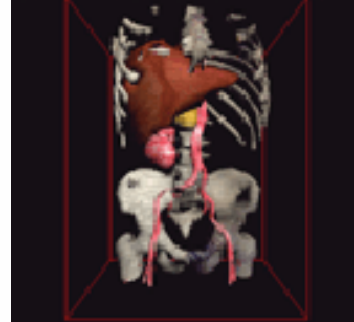
- **Example - RFP results - to date**
 - Directed research
 - Sponsoring Associate has selected two projects to continue as directed research, IP provisions
 - Leveraged funding
 - 3 projects have received substantial follow-on funds
 - Visiting scholars
 - A visiting researcher spent 8 weeks on campus and continues with monthly visits to labs
 - Periscope for interests
 - 2 workshops held on topics that evolved from RFP
 - A Round Table Meeting on derived topic



The Impact of Social Belief on the Neurophysiology of Memory

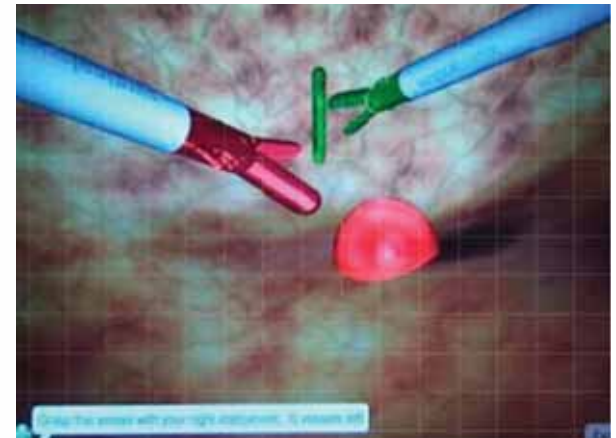
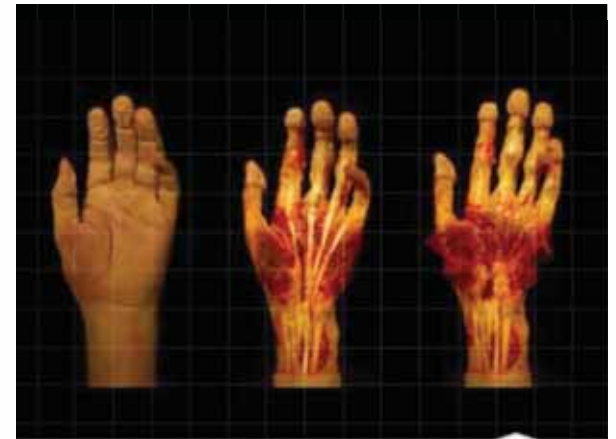
- To use the acquired equivalence paradigm to measure the extent to which learners are able to use the concept of memory-dependent logical inference as a basis for generalization
- To study whether virtual contexts are optimal for learning and the expression of flexibly addressable knowledge



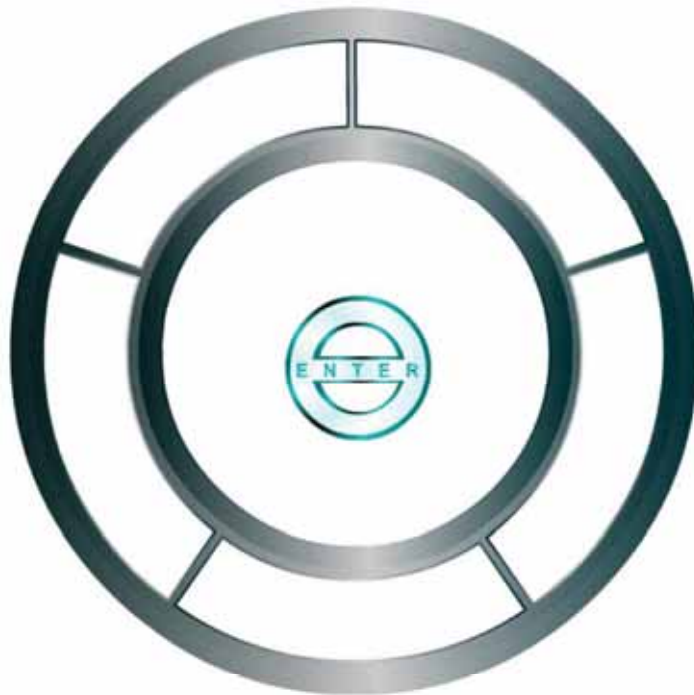


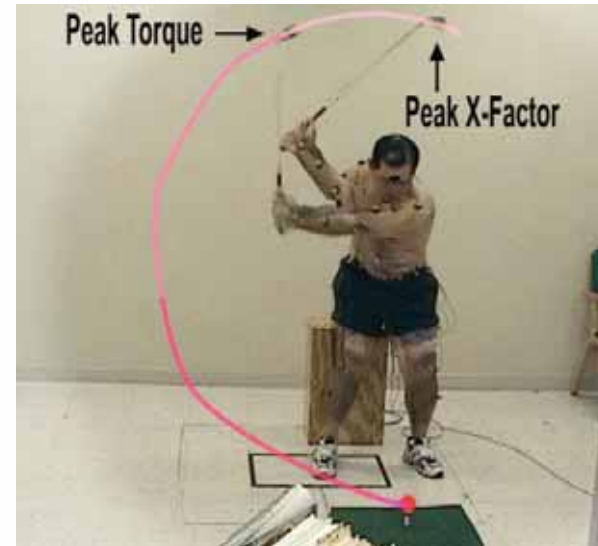
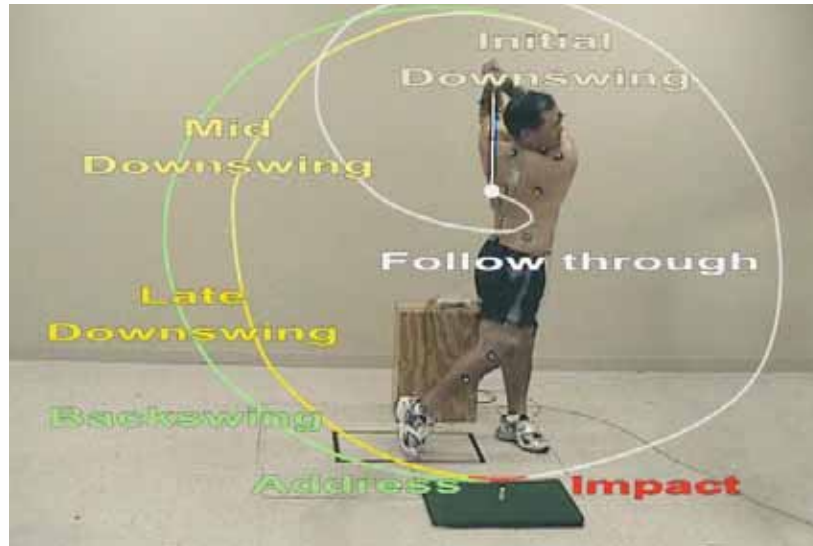
- *have a challenging goal*
- *are fun and engaging*
- *incorporate some form of scoring*
- *impart to the user a skill, knowledge or attitude that can be applied in the real world*



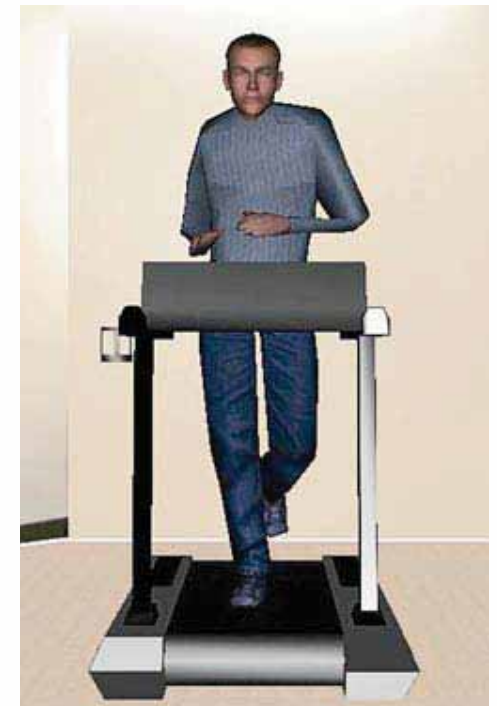
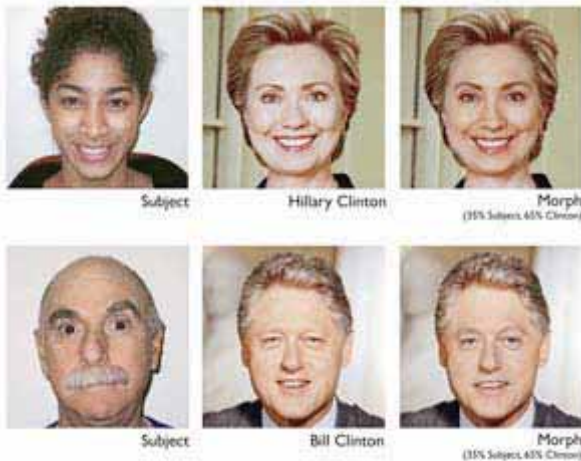


Process and approach to preserve the history of digital games





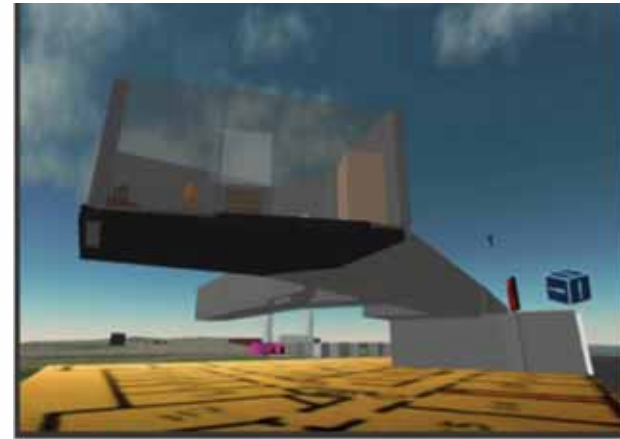
Personalization and Emotion for Persuasion, Risk, and Reward





Human- Machine Interaction
Emotional determinants
Personal vs. Product basis for interaction

- **SPEED Limits**
 - To develop a digital 3-D world that will nest a reconstruction of an international exhibition of art, architecture and design galleries
 - To create and examine the fusion of virtual and real exhibits on the pivotal role played by speed in modern life



Life Squared - Animating the Archives with the Dante Hotel



- **Sensornets**
 - To develop virtual sensornets, which will allow scientists to construct instruments for measuring what is happening in virtual worlds, allow users to control and monitor what is being recorded, and provide an elegant and simple privacy mechanism.

stanford virtual worlds group



- Beautifying the Virtual World – one tree (or a million) at a time
- Dryad
 - Intuitively create and share 3D models for trees in the virtual world



- To learn how the virtual world medium influences individual communication and interaction
- How it influences the development of legal regimes to govern virtual communities



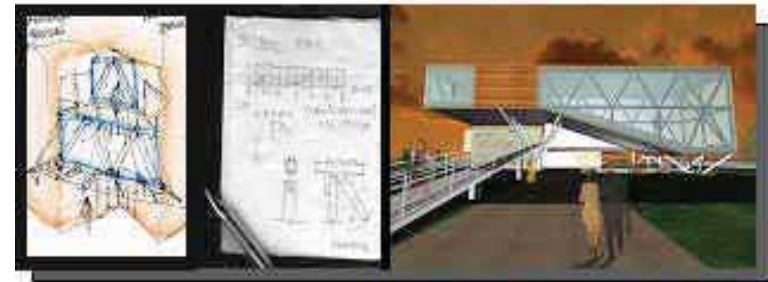
Exploring the Virtual in the Physical and the Physical in the Virtual

- To explore the virtual-physical-social interplay
- Investigate how social experiences and interactions in physical places are augmented with layers of digital information and how those in virtual places are augmented with layers of physical information



Multimodal Learning Experience Mediated by the Future Interactive Paper TextBook

- Study the continuum between learners' dialogue and paper and pencil sketching
- To develop a model of the future interactive paper textbook
- Which will create and capture sharable and reusable items in context
- For example, to capture questions and thoughts of the textbook's users and to communicate between the learner and the instructor, expert or author.



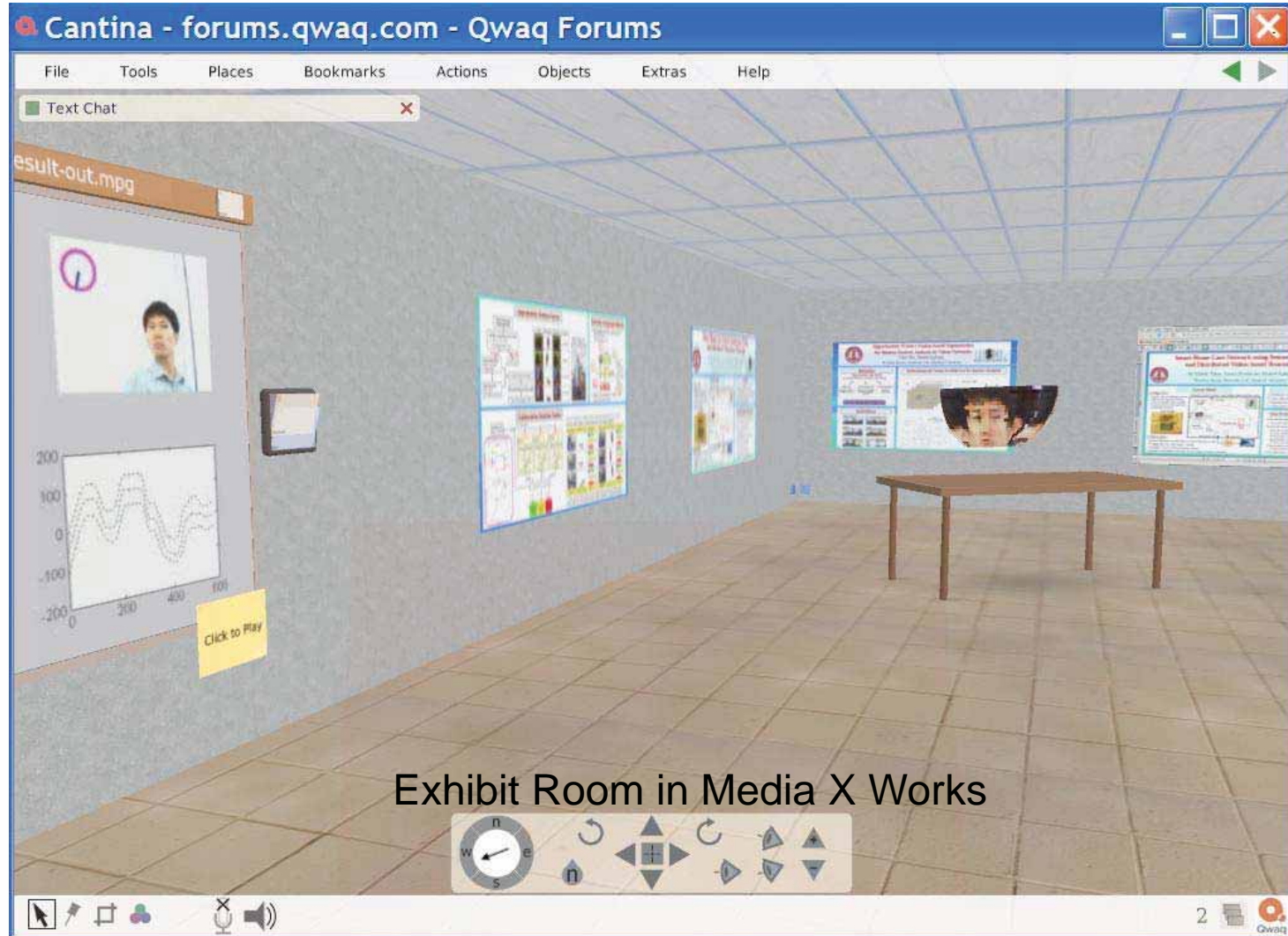
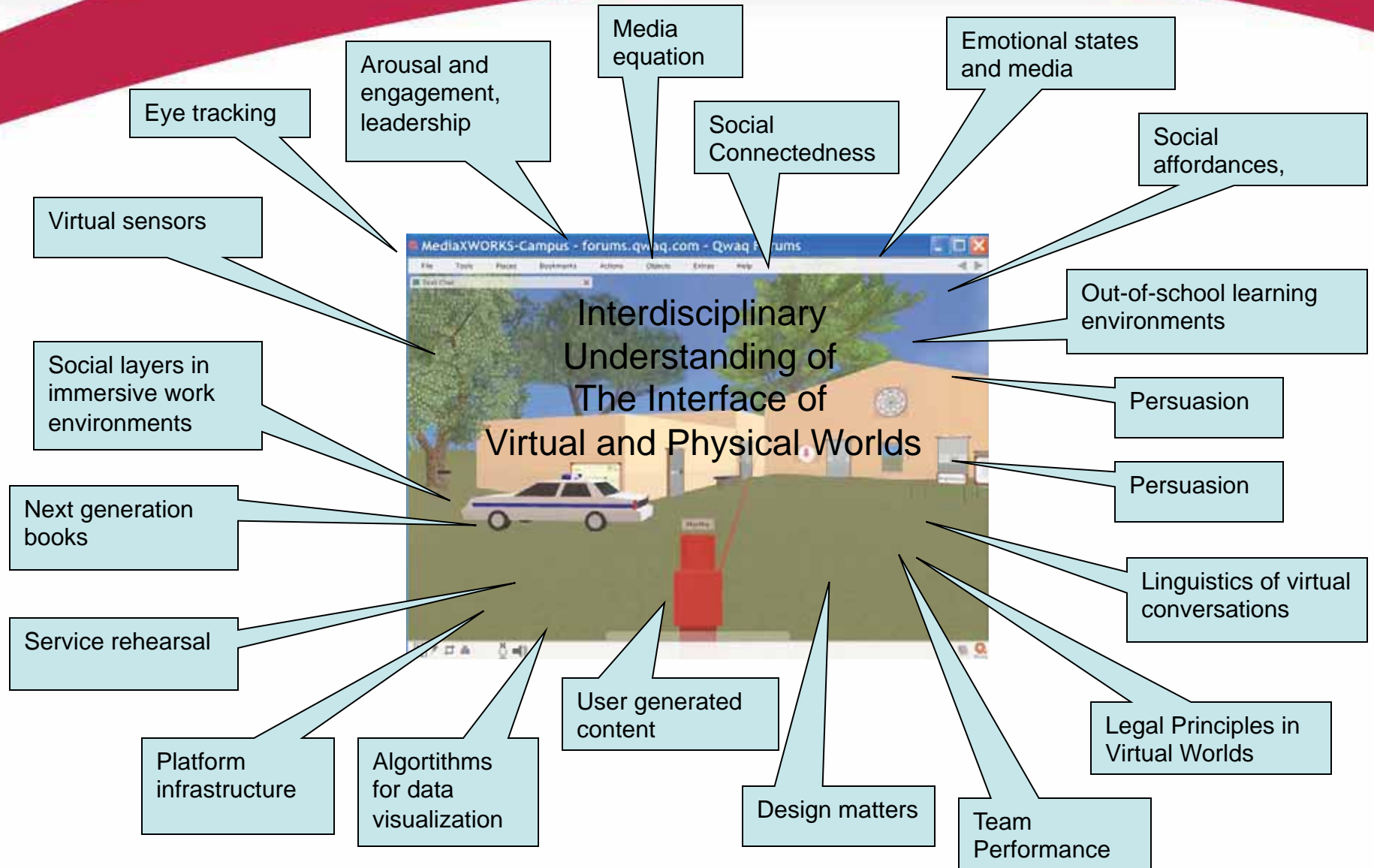


Exhibit Room in Media X Works





Media X Workshops and Round Tables

Multitasking

Social Connectedness in Ambient Intelligent Environments

Time Wasted or Won: Transit Ecologies in America

Immersive Consumer/Curator Collaborations

Total Engagement: Using Games and Virtual Worlds to Change the Way People Work and Businesses Compete

Video Telepresence for Informal Collaboration

Remote Collaboration in Mixed Media Mixed Reality

Augmented Decision Environments

A Road Map for Virtual Worlds in Health and Medicine

Analytics for Social Media and Virtual Worlds

Catalyzing Innovation and Collaboration with Social Media Communities

Semantic Integration

Data Visualization: Theory and Practice

Collaborative Visualization for Collective, Connective and Distributed Intelligence

Technology Transfer for Silicon Valley Outposts

The Secret Sauce of Innovation: Developing and Unleashing Exceptional Innovators

Velocity and Effectiveness in Knowledge Transfer

Access to unlimited brain cycles
from thought leaders in all fields at Stanford University

Chao King, President of **Konica Minolta** Technology USA.

- “Through our participation in Media X at Stanford University, we know that the best and the brightest at Stanford University will be engaged in developing insights that we can use to solve our most pressing issues,” says “We know that the collaborative and multidisciplinary brain trust available through Media X will focus on our problems and that we can be involved with the process.”

Ann Bamesberger, Vice President of the Open Work Services Group at **Sun Microsystems**.

- “Sun Microsystems joined Media X for two important reasons. The research sponsored by Media X is on target with the basic questions Sun’s researchers are exploring. These questions are on the horizon now, but they will soon be on our desktops. Additionally, the Media X community – the scholars, the students, and the member organizations – are key for Sun Microsystems’ new products, and we put a high priority on having a close relationship with our partners.”

Rajiv Taneja, Senior Director of Applications and Software Research at **Motorola**, Sunnyvale

- “At Motorola, we rely on cross-functional teams to move ideas quickly from concept to prototype to product.”
“We were drawn to Media X as a research partner with a compatible culture for collaboration across disciplines, allowing us to integrate research insights from Stanford into key topics of interest to Motorola. The interdisciplinary environment of Media X lets our research teams interact with the country’s top intellectuals in a meaningful and effective way.”

Scott Hartman, President of CHR Corp. and Past President of **NACS**, The Association for Petroleum and Convenience Retailing; Michael Davis, **NACS** Vice President of Member Services

- “We have to engage the best scientists we can find to bring their perspectives on the challenging problems, such as our energy policy ‘mess,’ global warming and economic hardships for our nation and world.”
- “Through NACS’ relationship with Media X, our Technology Council is able to tap into Stanford thought leaders in the many diverse fields whose insights are needed to solve such problems.”

Lawrence (Larry) Rowe, President of **FX Palo Alto** Laboratory

- “Our membership and interaction with Media X has provided extraordinary benefit for our research directions on distributed collaboration and interactive multimedia documents, both of which are studied at Stanford through Media X initiatives. Our employees attend the seminars, workshops and other meetings held by Media X and return with energy and insight.”

Participate in the Media X Community

<http://mediax.stanford.edu/>

- chouse@stanford.edu
- marthar@stanford.edu

- Membership
- Visiting Researchers
- Research Initiatives
- Workshops
- Seminars
- Wallenberg Summer Institute

