

# 07 innovation through collaboration news

## **Mission:**

We scientifically  
research  
interactive  
communications  
through the  
investigation of  
alternative paradigms  
and through  
collaborative  
innovation.

## **Communication**

### **Project: ResearchHDiscovery**

Where research meets discovery in high definition. ResearchHDiscovery represents the next generation in collaborative research, opening virtual windows between university labs to discover new ideas and eliminate boundaries. As tomorrow's technology leaders integrate 2-way HD into their thinking, the inertia of knowledge & experience will carry forward with these researchers as they advance their ideas, innovations, and careers.

Phase 1 of the ResearchHDiscovery project was successfully launched in April 2007 connecting researchers at Carnegie Mellon University, Georgia Institute of Technology, Harvard University, Massachusetts Institute of Technology, Stanford University, and University of Washington using state-of-the-art 2-way high-definition videoconferencing equipment donated from supportive industry vendors and donated funds from public sources. Graduate students and professors at these universities are now actively participating in collaborative research projects. *See feature story on page 4.*

## **Public Safety**

### **Project: LifeLine**

Millions may be left homeless when disaster strikes. We are planning sustainable, scalable, collaborative environments for the homeless to reintegrate into society. *See page 3.*

## **Program 1: Researching Advancing Innovation**

Solving real-world problems by building collaborations between researchers across the nation in four applied areas:

### **Communication:**

Discovering new ideas at the boundary between two intelligent entities.

### **Public Safety:**

Developing interactive solutions to make the world a safer place.

### **Transportation:**

Researching alternative solutions to moving people and things.

### **Energy:**

Collaborating in the renewable energy sector in wind power and solar technologies.

## **Program 2: Grant Gifting Encouraging Innovation**

kynamatrix awards small grants to 501(c)(3) non-profit universities and high school programs to encourage collaboration advancing interactive technologies in arts, science, music, and literature.

# Program 1: Research Initiatives

## Energy

*Collaborating in the renewable energy sector.*

### Solar Cars

A central mission of kRN is to promote innovation through collaboration by building a network where ideas can be easily shared. One of the research projects at South Plantation High School's Environmental Science Magnet Program is building a solar-powered car. They plan to use this car as an outreach tool to further alternative fuel education in middle schools, universities, and community events. This summer, they entered the Dell-Winston School Solar Car Challenge and drove their solar car from Dallas to New York in an 8-day cross-country race. We are assisting them in connecting them to engineers for professional consultation.

### Renewable Energy

We seek to improve the Nation's energy research infrastructure by improving the methods of collaborative discovery. Partnerships with university and industrial scientists and engineers are a central operating approach at the Department of Energy laboratories. Scientific advancements in interactive communications will improve the effectiveness of these partnerships dramatically.



## Communication

*Discovering new ideas at the boundary between two intelligent entities.*

### ReseachDiscovery

We are currently connecting universities including Carnegie Mellon, MIT, University of Washington, and others in a collaborative communication program. This alliance will allow the best minds to network, brainstorm, and "think outside of the box."

This involves connecting people across distances and discovering innovative ways of sharing data and collectively solving the current issues that keep us from interacting more naturally with each other across distances.

By establishing two-way high-definition tele-presence audio/visual communication, innovative methods of sharing information can be explored.

*See feature story on page 4.*

### Virtual Personal Assistant

Automating repetitive tasks and allowing others to get answers to common questions.

Research areas include:

- Question/answer wizard optimizations
- Security spheres of trust
- Instant access
- Intelligent replay
- Visual of personal representation
- Sound links & voice activation
- Home/ Family/Office Applications
- Mobility

### Knowledge Share

We are investigating how to integrate existing knowledge solutions (such as forums, blogging, structured files, email, etc.) into an elegantly designed alternative paradigm which can be secure, organized, and simple to use.

Research areas include:

- Manipulation of knowledge structures
- Integration with mobility solutions and existing knowledge representations
- Accessibility issues
- Graphic design and kinetic typography
- Optimal verbal & visual languages
- Security spheres of trust
- Transactional approaches to data collection & storage
- Learning behaviors and social acceptance
- References to published papers

## Public Safety

*Developing interactive solutions to make the world a safer place.*

### Animal Rescue

When a loved pet goes missing, life would be easier if we could track its whereabouts via GPS tracking. We are researching the area of utilizing a combination of GUID, GPS, cellular, and high-density nano-battery technologies to track the real-time position of objects such as small, lost pets.

### Floating Technology

Homes built below sea-level are prone to flooding. Perhaps these home should be rebuilt as houseboats. Research areas include: hull construction and maintenance, access methods, anchorage, emergency preparedness, weight distribution and measurement, communications and energy.

### Unmasking the Masked

Police find existing software difficult to use as a forensic tool. kynamatrix Research Network is researching the existing challenges and innovating interface designs and methods including accelerated delivery (internet and wireless technology). Scientific research will also aid in the development of new software to render a human face hidden behind certain types of masks.

### ProximityOutreach: LifeLine

Creating collaborative outreach centers solves some real world issues. By bringing together existing service organizations side-by-side, the needs of their recipients are met more effectively. The designs incorporate the most advanced technologies available. Modular versions of LifeLine centers across the nation could assist the many people who become temporarily homeless when a natural or man-made disaster strikes. LifeLine centers help homeless people reintegrate with society. People in need would enter a centralized, integrated "mall" and, like a workflow system, receive health and hygiene attention, clothing and food, an energy-efficient living space, a mailing address, a recreation pass, job training and networking, day care, library access, transportation access, and spiritual counseling.

### Safety Awareness

We are researching innovative methods of communicating to the public regarding safety awareness in the areas of fire prevention, teen driving, and wilderness training.

## Transportation

*Researching alternative solutions to moving people and things.*

### Unlocking Gridlock

Morning and evening around the globe gridlock happens. Perhaps staggered start times and new interactive communications technologies can help alleviate congestion. Travelers can learn of alternative routes and travel times by coordinating with a central database and distributed alert systems.



### TransTube

In the strategic planning phase, this project involves the investigation of alternative goods delivery systems to reduce the amount of traffic on public roads. Currently, products are transported by road-bound vehicles. Imagine ordering a product and having it delivered within a few minutes. Our alternative and transparent solution enables products to be delivered into planned communities by pneumatic-tube transfer systems (similar to those found at a bank drive-thru), thus saving time, energy, and transportation costs. If we can get a 750,000 pound plane in the air, then we can deliver a bag of kitty litter, a gallon of milk, or a hot meal with efficient ease.

## Six U.S. Universities Commence Collaborating Through 2-way HD

ResearchHDiscovery Project Fosters Collaborative Relationships, Research, and Innovation

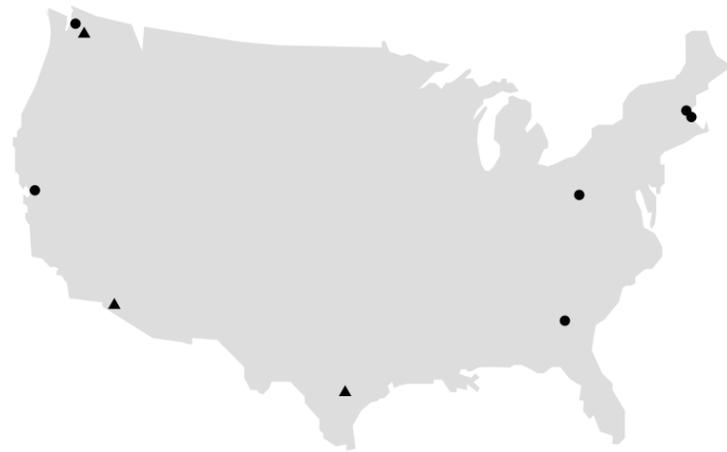
Researchers at Carnegie Mellon University, Georgia Institute of Technology, Harvard University, Massachusetts Institute of Technology, Stanford University, and University of Washington commenced collaborating face-to-face in April 2007 via 2-way high-definition videoconferencing.

The 2-way high definition video and audio experience opens virtual windows between university labs connecting professors, researchers, and colleagues. They can regularly brainstorm, develop and review inter-university graduate programs, and manage relationships with students and advisors while never leaving campus. Research labs can also take advantage of the innovative systems to reduce travel costs, as well as study the behavioral and social aspects of high definition video communication.

As part of the ResearchHDiscovery project, kynamatrix granted each university lab a high definition video communication system from LifeSize Communications, installation and support services from GBH Communications, and a 37" HD display from Polaroid.

The project was launched at Stanford by representatives from kynamatrix, LifeSize, and GBH who conducted ribbon cutting ceremonies with each university via the gifted systems.

The participating universities recognize the significance of the project:



**ResearchHDiscovery™**  
Where research meets discovery in high-definition.

## ● Participating Universities

### University of Washington

This gift will make a very important difference in the development of collaborative research in the department! We very much appreciate it.  
-Judy Ramey  
*Chair of the Department of Technical Communication*

### Georgia Institute of Technology

This equipment will help to maintain active collaborations across several major universities and provide opportunities to establish more meaningful interactions with colleagues with similar research perspectives. We also expect it to provide connection between our student populations as well.  
-Gregory Abowd  
*Associate Professor, School of Interactive Computing and GVU Center*

### MIT Media Lab

This system will be instrumental in connecting with our collaborators throughout the world. Design research is often highly visual, spatial, and inspired by compelling and iconic imagery. Thus this system will aid in the exchange of ideas, both verbal and graphic. The use of high-resolution technologies will make international collaborations only a problem of aligning schedules and not of the vividness of the ideas.  
-William Mitchell  
*Professor, MIT Media Lab*

### Carnegie Mellon University

This gift will be one more tool for us to explore as we collaborate across disciplines and distances. We believe that powerful display devices will help us "really see" what is being talked about, and we plan to study the effects of this tool on our design process and the quality of collaboration. We're very excited!  
-Dan Boyarski  
*Professor of Design and Head, School of Design*

### Stanford University

We plan to use this system for graduate education and doctoral research. For education, student-teams working in globally distributed design courses are expected to benefit from the use of full scale, high definition, and communication media. The expected impact is increased creative interaction and precision innovation by these teams as they work on corporate sponsored projects. For research, distributed design team activity will be recorded and used as sample data in several ongoing design-thinking research projects aiming at understanding the complex factors that affect the quality of team interaction and its impact on innovation. The improved fidelity of the system will provide us with recordings of much higher quality than we have been able to record in the past. In turn, the system is expected to improve communication between distributed researchers in the academic network. The net impact should be to accelerate our understanding and management of design innovation.  
-Larry Leifer  
*Professor, Center for Design Research*

### Harvard University

Globalization has become common in design practice in the fields of architecture, landscape architecture, urban design and planning. Participants from all over the world interact on a daily basis to produce and implement visions for our buildings, landscapes and cities. These practices demand new ways of interacting among the many participants involved. We look forward to experimenting with the kynamatrix Research Network as a way of introducing our students to the emergent digital tools and environments that can best support these new practice modes.  
-Dan Schodek  
*Professor, Graduate School of Design*

## ▲ Project Sponsors

### LifeSize

The ability for people in different locations to communicate via high definition video communications is testimony to how technology can have a positive impact on knowledge sharing. We are honored to be part of this innovative project and by working together with kynamatrix and GBH, we will bring advancements to the world of academics that previous videoconferencing systems simply could not achieve.  
-Craig Malloy, CEO

### GBH

The ResearchHDiscovery project is one of the most exciting explorations of the potential of high definition videoconferencing technology underway today. As the leader in this field, we see our donation to this innovative program as both an obligation and an opportunity. We are honored to be partnered with both kynamatrix and LifeSize in forwarding collaboration between these leading universities.  
-Von Bedikian, President

### kynamatrix

The ResearchHDiscovery project represents the launch of a new era in collaborative research, opening virtual windows between university labs to discover new ideas as boundaries are eliminated. We foresee the project adding value to academic research across the nation, reducing the need for travel and saving energy, and we are immensely grateful to LifeSize and GBH for their generous support in bringing our vision to reality.  
-Alyce Hoggan, Executive Director

# Program 2: Grant Gifting

kynamatrix provides small grants to encourage the study of interactive communications. For the period August 2006 through July 2007, kynamatrix awarded a total of \$15,500 in support of the following research projects:

- Recipient:** South Plantation High School, Magnet Program  
**Award** \$500  
**Collaboration** Solar Knights
- Recipient:** Massachusetts Institute of Technology- Media Lab  
**Award** \$1000  
**Collaboration** The Emotion Machine: Applications to Language Learning
- Award** \$1500  
**Collaboration** Urban Pixels
- Award** \$1500  
**Collaboration** Periodic Table of Transportation
- Award** \$500  
**Collaboration** Alternative Vehicle Drive Units
- Award** \$500  
**Collaboration** Design for Dissent
- Award** \$500  
**Collaboration** Urban Scale Split-Active Wheel Robot
- Award** \$1000  
**Collaboration** Knowledgeable Software
- Award** \$1000  
**Collaboration** Enriching EM-ONE
- Award** \$1000  
**Collaboration** Faculty Support
- Recipient:** Carnegie Mellon University - School of Design  
**Award** \$1000\*  
**Collaboration** Emergence 2007
- Award** \$1000\*  
**Collaboration** Interactive Data Navigation
- Award** \$1000\*  
**Collaboration** Communication During Wide-scale Emergencies
- Award** \$1000\*  
**Collaboration** Visualization Tool for Collaborative Work
- Award** \$1500\*  
**Collaboration** Faculty Support
- Recipient:** University of Washington - Department of Technical Communication  
**Award** \$1000  
**Collaboration** Extending and Productizing WebLab UX

\* Pilot grant gifting program managed by kynamatrix Research Network.  
Requests for grant information should be directed to: [grantinfo@kynamatrix.org](mailto:grantinfo@kynamatrix.org)

# About

## What is kynamatrix?

kynamatrix Research Network is a framework for innovation through collaboration. We are a volunteer-operated nonprofit scientific research organization founded in 2004. Our mission is to promote innovation, research, and scholarship in the area of interactive communication and multidisciplinary collaboration.

The name, pronounced "kinna-MATRIX," is a combination of "kyna" (meaning "intelligent; kinetic") and "matrix" (meaning "a network of intersections")

## Principles

We believe that collaboration is the key to innovation. It is in the intersection between two intelligent entities where new ideas are born. Our mission is to research and discover new forms and methods of interactive communication. This involves rethinking the existing paradigms by seeking alternative, seamless, and transparent technologies.

We hold to the following values: integrity and honesty, passion for innovation, scientific exploration and knowledge, appreciation for alternative perspectives and paradigms, charity, ethics, creativity, intelligence, simplicity, eco-friendly, equal opportunity, diversity, family, hard work, and the satisfaction of discovery.

## How can I help?

You can make a difference by donating either financially or by volunteering your time and effort. As a registered 501(c)(3) charity, donations to kynamatrix are deductible under IRC 170. To volunteer, donate, or learn more, please visit our website at [kynamatrix.org](http://kynamatrix.org). Alternatively, you may mail a check (payable to "kynamatrix Research Network") to:

kynamatrix Research Network  
16541 Redmond Way Suite 513  
Redmond, WA 98052-4492

(Be sure to include your name, address, city, state, zip for donations requiring a receipt.)

Your donations help innovative research become a reality. By supporting kynamatrix Research Network, you help make technology more transparent for our whole community.

## Public funding supports our research initiatives

*Make a donation today or inquire about our volunteer programs at: [www.kynamatrix.org](http://www.kynamatrix.org) Join us to discover and build the future.*

## Innovation begins with questions

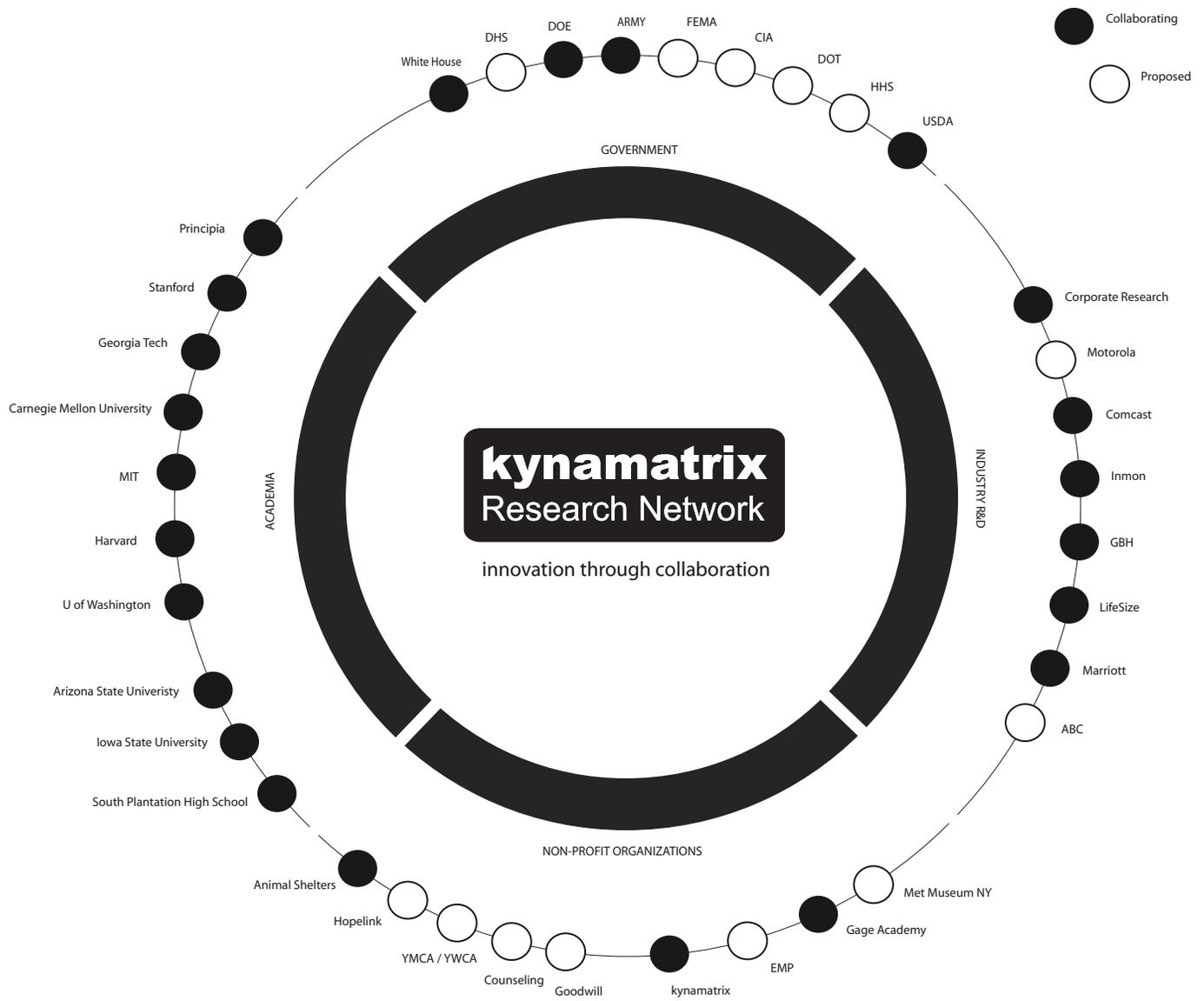
*How do we make technology transparent?*

*How can researchers across the nation interact face-to-face without travel?*

*What if we could order something and have it delivered in minutes?*

*How can we be more effective in helping the homeless?*

*Can we reduce energy consumption, gridlock, and harmful emissions?*



The chart above depicts the collaborations and strategic alliances between researchers in four quadrants; connecting industry, government, academia, and nonprofits.

*"You never change things by fighting the existing reality. To change something, build a new model that makes the existing model obsolete."*  
 -Buckminster Fuller

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501(c)(3) nonprofit organization

**LEADERSHIP**

kynamatrix is governed by volunteer officers, Board of Directors, and an Executive Director.

**2007-08 Board of Directors**

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*Executive Director, President*

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