



Everyday Sensing and Perception

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Agenda

Introducing Intel Research

Motivation

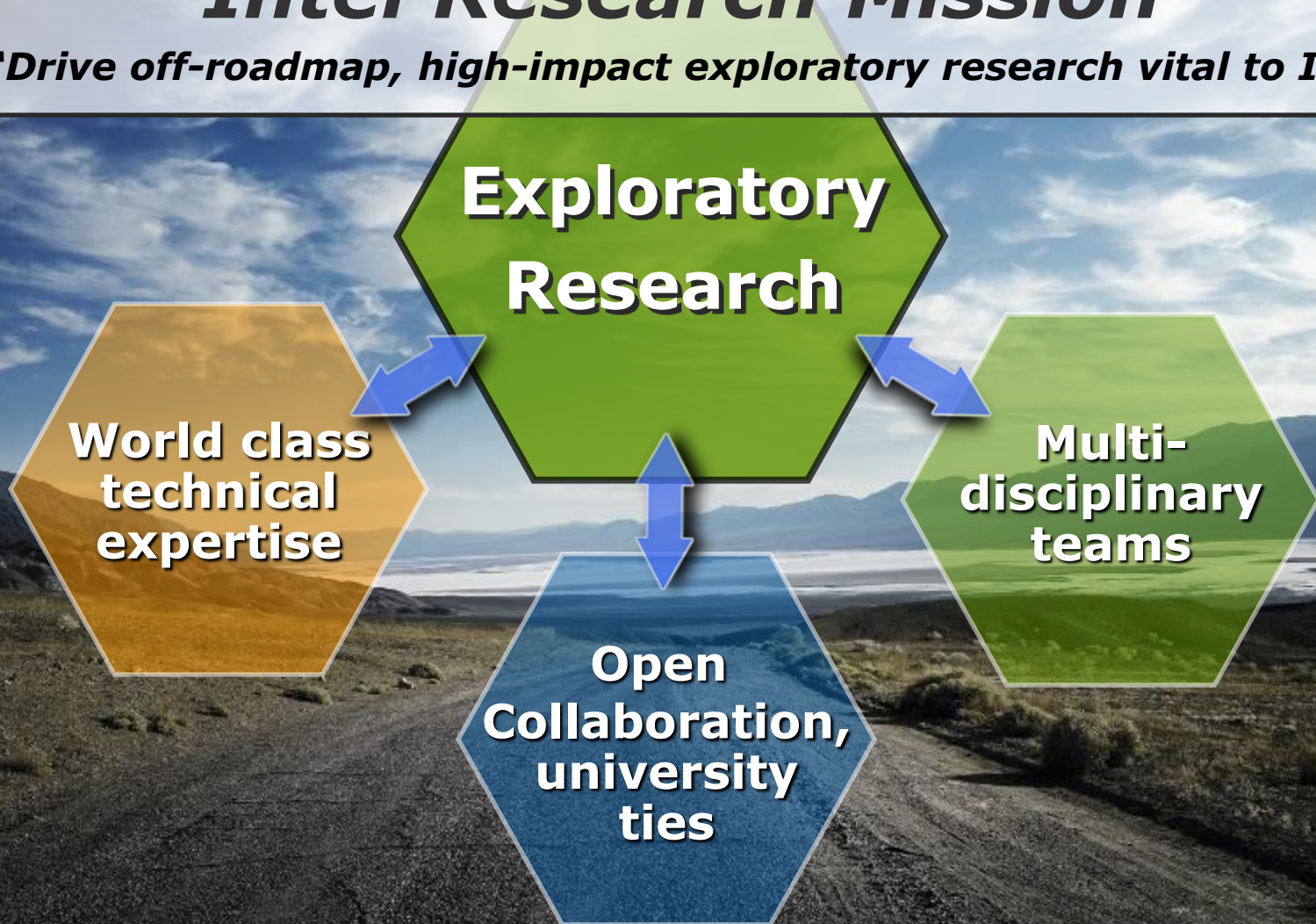
Everyday Sensing and Perception

Key Vectors and Example Projects

Question and Answers

Intel Research Mission

"Drive off-roadmap, high-impact exploratory research vital to Intel"



Engaging the Research Community Worldwide

- ★ Close University Collaboration (Labs)
- ★ Deep University Relationships (Focus Schools)
- ★ Joint External Research Projects (Research Councils)





Things
Essence of
your life

“Essential”

Essential Computing

***Simplifying and enriching all
aspects of work and daily life***

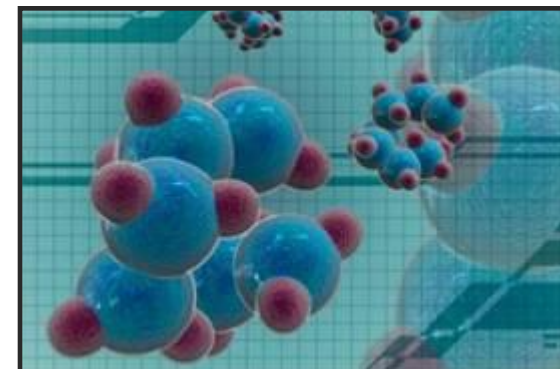
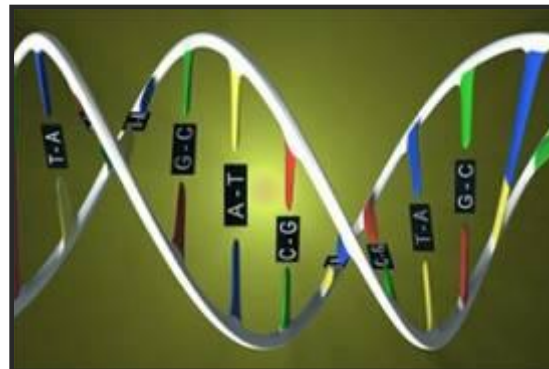
Computers Excel at Analytical Tasks



- **Automation of Detailed Tasks**

- **Complex Analysis and Optimization**

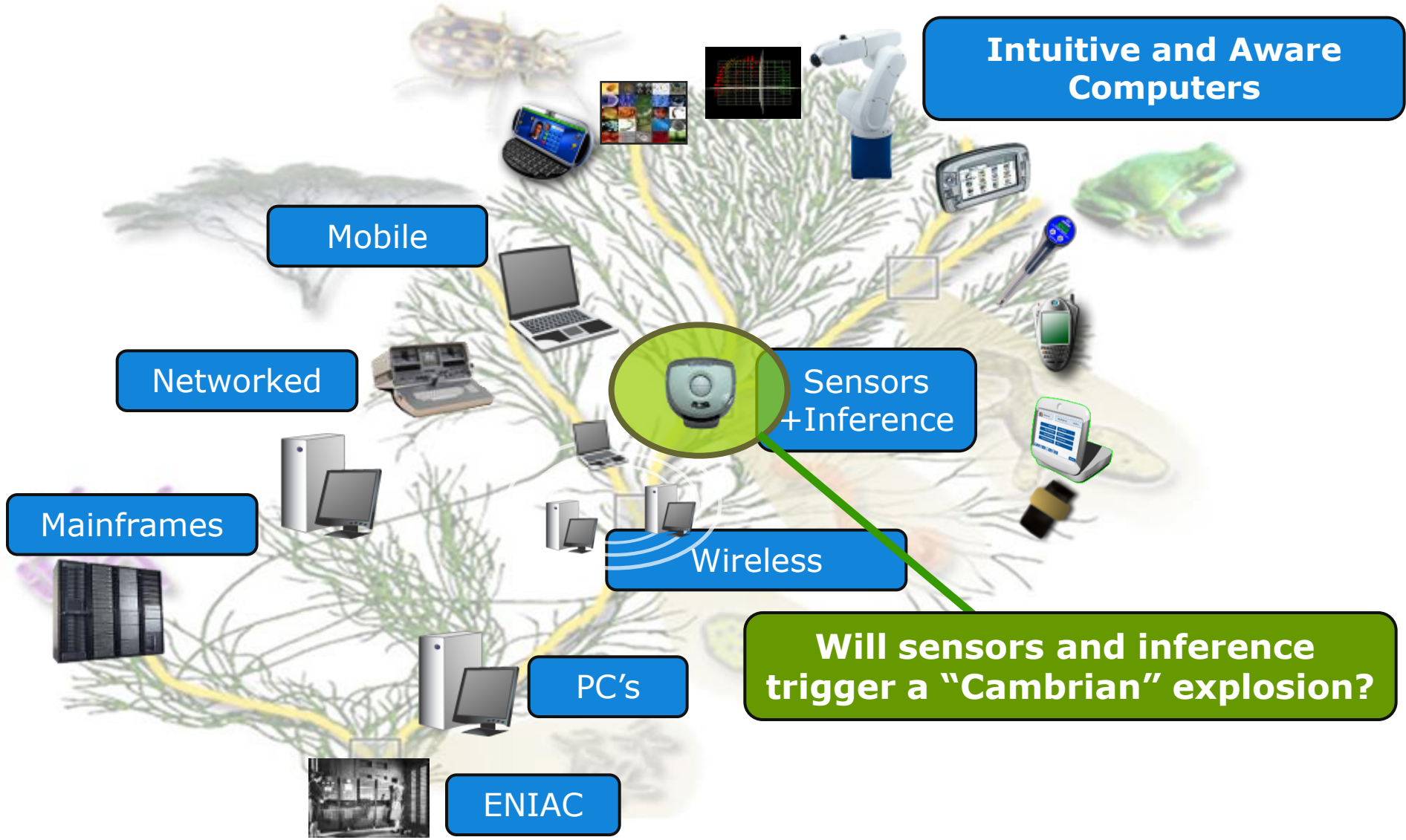
- **New Understanding -- Modeling and Simulation**



What People do Everyday



Opportunity in Essential Computing



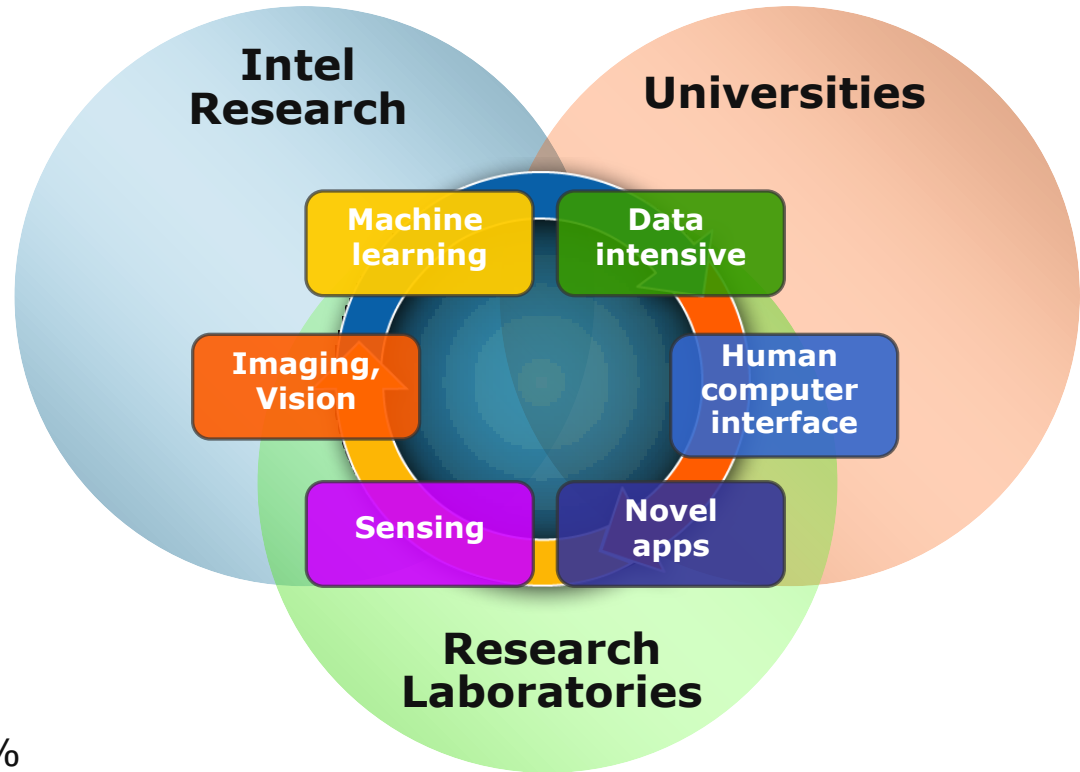
Everyday Sensing and Perception (ESP)



“Drive fundamental research advances that enable computing systems to become aware in everyday activities and environments”

Requirements for broad use:
Accuracy, Coverage (variety, environment), Energy-Efficient, Privacy Preserving

Achieving “90% accuracy for 90%”



ESP: Making computing systems aware of their users and context in everyday activities and environments

Elements of Everyday Sensing and Perception

Happy; should stop eating sugar

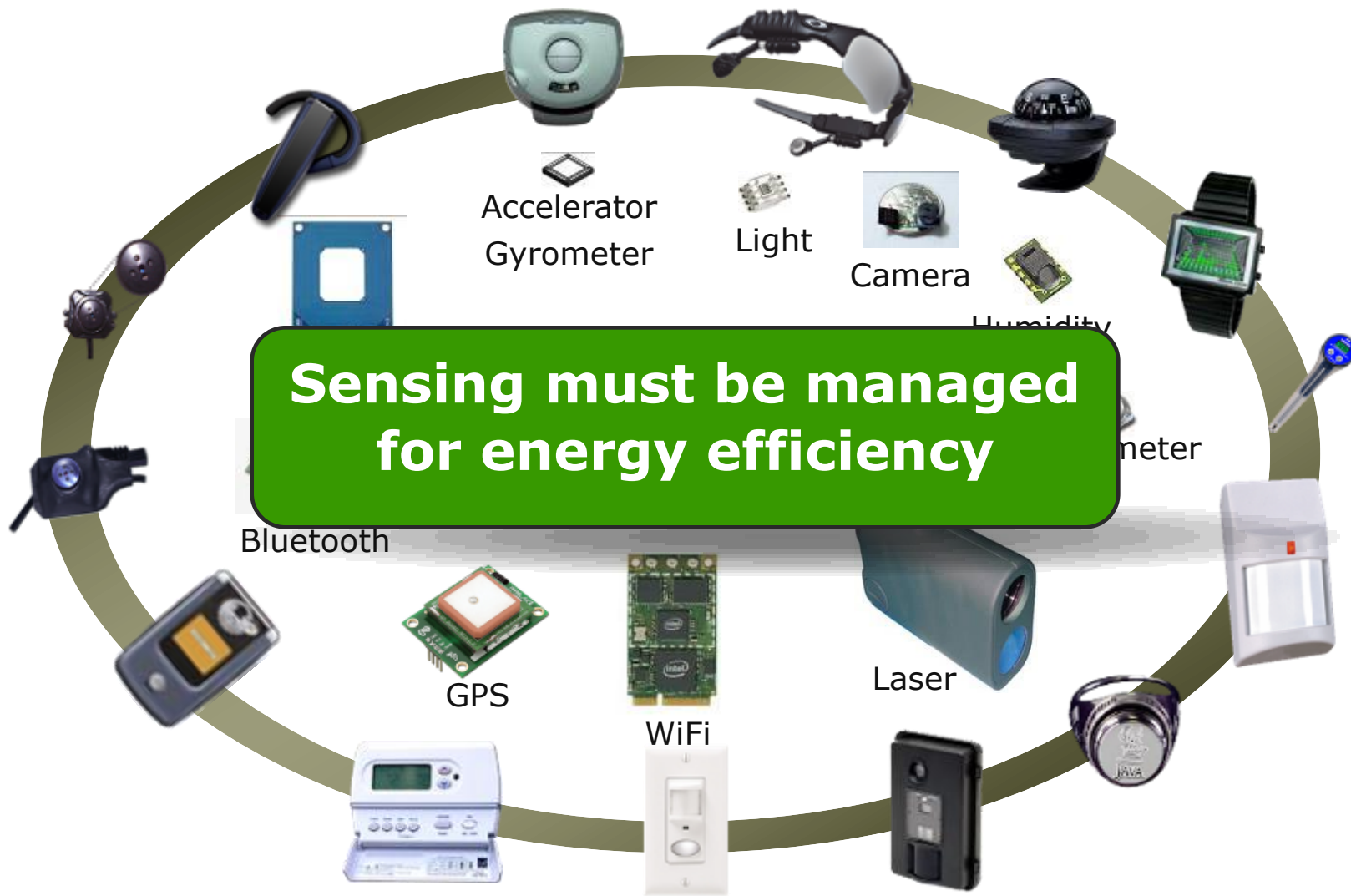
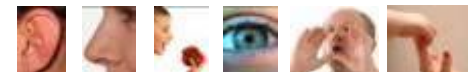
Reminders: Yoga class, reserve table at Wang Bao He

Time to switch to news channel

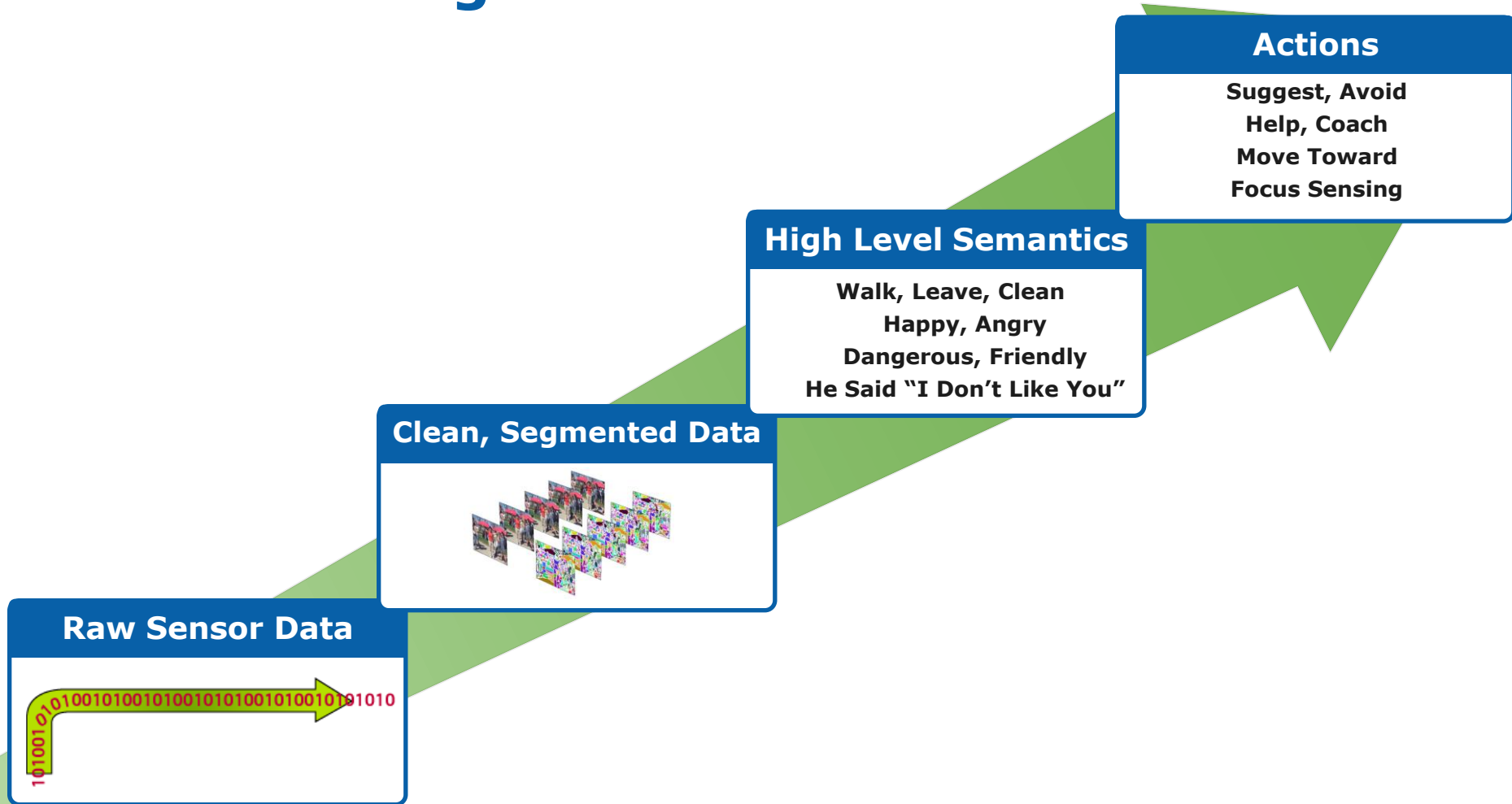
Should I model or enroll in medicine



ESP Challenge: Efficient Sensing



ESP Challenge: Deriving High Level Understanding

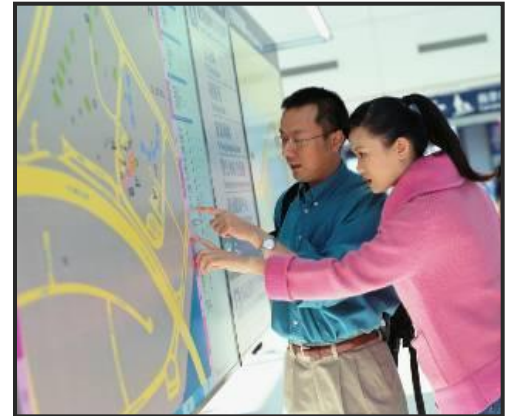


Everyone wants to have FUN

Aware of activity, environment, mood, likes and dislikes

- Activities: motion, sound, images
- Mood: speech, motion, or physiological
- Likes: above+actions (purchases, views, conversations)

Actions: Advise, Suggest, Funny Comments, Pick music, Point out, buy gifts, other "smart" applications



Nurture your Knowledge and Growth

Understand Interests and Motivation;
Goals and current Capabilities

- Interest from read/browse/talk, repetition
- Like and Motivation from emotional response
- Goals from conversation – or direct interaction

Action: Teaching What you want to learn, Right level, Right way that you can learn, and When you are ready

Action: Understand Conversation Dynamics and Coaching

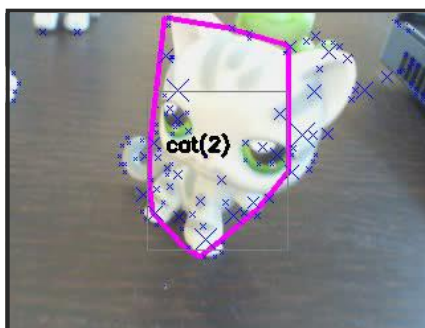


Living in a Material World

Understand physical objects and dynamics

- Recognition – “Can you get my X?”
- Pickup and Move – Safely
- Gentleness, Power, Grace, and Cute!

Action: Catch me, arrange that, carry me, dance!



Let's Go Places

Understand Location and Physical Context – “Coordinates”;
“Starbucks”; “In a crowd”; “Meeting a blind date”

Find a way – across a crowded room, square, Mall, City

- Avoid obstacles, Navigate, Multi-modal transport

Understand Movement rules (Don't hurt others things, Obey traffic laws – when appropriate!)

Action: Direct, Move, and Adapt



ESP: Computers helping in Everyday Activities



Mash Maker: The Web, the way You Want it



Customized web pages by adding Widgets

Add visualizations, data from other sources, transformations...

Open and Extensible

Use a simple Open API to write new widgets to enhance pages in new ways

The Mashups come to You

Mash Maker suggests mashups it thinks you will like on its toolbar

Facebook | All Friends | Mozilla Firefox

Build your own trip - SFO to PVG - Mozilla Firefox

File Edit View History Bookmarks Tools Mash Help

http://www.expedia.com/pub/agent.dll?tovr=-1294657289

labs! legroom New Timeline Timeline on expedia economy legroom

Expedia

Home Flights Hotels Cars Vacation Packages Cruises Activities

Start search over

Change your search

Departure airport: SFO (San Francisco)

Destination airport: PVG (Shanghai)

Departing: (mm/dd/yy) 3/20/2008

Returning: (mm/dd/yy) 3/26/2008

Airline: No Preference

Class: Economy / Coach

Nonstop flights only

Refundable flights only

Go

Change Travelers

1 Adult

Change travelers

- Indicates flight is operated by another airline. Move your mouse over the icon for details.

San Francisco, CA (SFO) to Shanghai, China

All Results	Air China	Singapore Airlines	Philippine Airlines
Nonstop	---	---	---
1 stop	from \$1205 see below	from \$1205	---
2+ stops	from \$1077 see below	from \$1077	from \$1439

Note: The prices shown below are estimated and an itinerary requires paper tickets that may be required.

1 Choose a departing flight

Sort by: Price Duration

Class: Economy / Coach

from \$2535 Roundtrip

1:40 pm Depart San Francisco (SFO) Arrive Shanghai (PVG) 9:05 pm Duration: 16hr 25mn

legroom: 30-32

from \$1205 Roundtrip

2:50 pm Depart San Francisco (SFO) Arrive Shanghai (PVG) 10:30 pm Duration: 16hr 40mn

legroom: 34,

from \$1971 Roundtrip

8:00 am Depart San Francisco (SFO) Arrive Shanghai (PVG) 4:30 pm +1 day Duration: 17hr 30mn

legroom: 31-34,

from \$1971 Roundtrip

7:15 am Depart San Francisco (SFO) Arrive Shanghai (PVG) 4:30 pm +1 day Duration: 18hr 15mn

legroom: 31-34,

PRICE NOTE

For your convenience, we've added estimated price hints to some of these

Expedia with legroom

san francisco bay area apts/housing for rent classifieds - craigslist - Mozilla Firefox

File Edit View History Bookmarks Tools Mash Help

http://sfbay.craigslist.org/apa/

62C8FE65-4EBB-45E1

labs! Find Address Things near each on Yelp Google Maps Note New Mini Map v2.3 phone

search for: in: apts/housing for rent Search only search titles

rent min max 0+ BR cats dogs has image

[Wed, 19 Mar 11:17:46] [free credit reports]

[stating a discriminatory preference in a housing post is illegal]

[housing forum] [success story?]

[AVOIDING SCAMS & FRAUD]

[PERSONAL SAFETY TIPS]

Wed Mar 19

/ 2br - two bedroom apartment - (fremont / union city / newark) pic

Yelp Listings:

15 reviews

Gyro Express

Cuisine: Greek and Mediterranean

us a couple times how the food was (g

0.8 Miles

7. Cafe Bueno Sera

Category: Italian

address: 4425 bidwell drive at sund... Fremotn ca US

\$1750 Spacious, Bright, Freshly Painted, Farming Studio - (USF / panhandle) pic

\$1150 / 2br - 2 bedroom 1 bathroom in Antioch - (pittsburg / antioch) pic

\$1355 / 1br - Great Apartments and Friendly service! At Archstone San Jose! - (san jose west) img

Yelp Listings:

2. El Amigo Burrito

Category: Mexican

4485 Stevens Creek Blvd
Santa Clara, CA, 95051
(408) 248-3113

Good solid REAL authentic Mexican food. I have eaten Mexican food for many, many years from San Antonio to Houston to Chicago to various California

0.2 Miles

3. Aroy-Dee Thai Restaurant

Category: Thai

375 Saratoga Ave
San Jose, CA, 95106

29 reviews

Yelp with craigslist

Mash Maker: Technology Preview!



Intel® Mash Maker

- Browser extension developed by Intel Research and Software Solutions Group
- To be unveiled at Web 2.0 Conference on April 22, 2008

Includes support for Internet Explorer and Firefox

- Advanced widgets, visualizations, data from other sources, open extensible API

You're invited to the future of the web
MashMaker.Intel.com

Summary

Exploratory Research and Engagement with
the Research Community

Essential Computing

Everyday Sensing and Perception – driving
exciting advances in awareness which
enables new capabilities

For More Information

IDF Sessions

- FUTS005 Biosensors and Information systems: Changing the paradigm for biomedical research and practice
- FUTS006 Rise of the Collective: Addressing the Needs of New “Communities” in the Age of the 3D Internet

IDF Demos (Showcase Area)

- BU025 Composable Computing
- BU029 Personal Robotics
- BU028 Electronic Biosensor Arrays

See www.intel.com/research

Questions?

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