

First CyLab Mobility Research Summit, July 1, 2008.

(Martin Griss: The following is only partially edited. Many ideas that need further examination)

Summary:

Our first Mobility Research Summit was a great success. The attendance and participation exceeded our expectations.

We had nearly 20 people from many companies including Adobe, Bosch, Cisco, Google, HP, Intel, Microsoft, Motorola, Nasa-Ames, SAP, Sun, and Yahoo. These included principal engineers, senior directors, VPs and business developers.

From Pittsburgh: Priya Narasimhan (co-director), Steven Smith, Roger Power and Gene Hambrick. Also had three faculty on phone (Dan Siewiorek, Asim Smailagic, Norman Sadeh).

From Silicon Valley: Jim Morris, Martin Griss, Ray Bareiss, Tony Wasserman, Khalid Al'Ali, Ed Katz, Patricia Collins, Todd Sedano.

We were pleased with the energy, enthusiasm and range of ideas and key issues surfaced, such as our model for dealing with IP and approaches to build and nurture local community. Some valuable suggestions:

- Africa is a primary emerging market with a radically different mobile user experience.
- Manufacturing and health care are opportunities.
- Run topical workshops, tutorials and speakers series.
- Create and advocate open platforms for context, privacy, and identity.

Most people liked the half-day format, would come again and want to be involved.

Actions (see below for details)

1. Clarify MRC Business and IP model(s).
2. Initiate community events, seminars and speaker series.
3. Hold more workshops and summits
 - a. Perhaps meet in Pittsburgh in Fall.
 - b. Some felt that most of Silicon Valley participants could not travel to Pittsburgh, due to schedule and travel restrictions.
 - c. Smaller discussion groups; more informal time for random discussions; larger space

Details: We received a many thought-provoking suggestions

Clarify the MRC business and IP model.

How should MRC proceed to get support and avoid fragmenting, doing contract research, or taking forever to settle IP issues?

1. Be like Switzerland, pre-competitive and neutral.
2. Work on standards and platforms, e.g. privacy, Peoplefinder.
3. Refine and articulate IP model(s)
 - a. Media Lab model: Pay us \$200K/year, get a periodic show/tell of all the projects. Share non-exclusive licenses to everything.
 - b. Consortium model. Fund real research areas. Non-exclusive licenses for all.
 - c. Pre-competitive: Choose projects all would like to see happen but none can do now.
 - d. Open model – all open source/open license work
 - e. CyLab model - 4 participation levels with different annual costs and different benefits. IP is owned by CMU/CyLab, and selectively grants Internal Use Licenses depending on level.
 - f. Intel Lablets manage IP well
 - g. Consider Java Community process as model
4. Broker and advocate internships.
5. Proactively build a vibrant community.

Most interesting topics (triggered by faculty presentations):

- Anything that intersects with a user (individual or social). Novel interactions.
- Thoughts about long term and larger deployment, e.g. ridesharing.
- Mobile assistant, context-aware performance support
- Natural language translation
- Mobile development platform
- Sensor Andrew, Andrew.Net
- "Open Privacy" "Open Context"
- Locating people and products; People Finder

Suggest that we focus more on:

- End-to-end design, particularly the UI (get HCII involved)
- The (social) impact of Millennials (mobile power users) entering the enterprise workforce. Will mobility have more of an impact in the enterprise given the mobile-nature of Millennials.
- Novel device interfaces (physical & software); scalability & deployment issues
- Integration of mobile phones with sensor networks?
- Lower level aspects like routing
- More on identify management and portability
- Clarify MRC assumptions of what "mobile" is, and what assumptions we think will change or be different. Will these issues still be there in N years? What is the device that people will use/encounter?

Some issues/questions we should consider

- What is MRC growth plan (~ 5 years)
- Who should we hire next
 - Social scientists (real ones, not just “socially-aware” CS)
 - Business and business process experts
 - Designers
 - Medical-informatics
 - Lawyer?
 - Image manipulation (e.g., see HP application for cosmetics matching)
- Need some carrier cooperation and participation (we need data plans, get applications “on deck”; what do they need)
 - Must get involved for large scale pilots, data costs
 - Which? How?
- What services on device vs. those in cloud
- Benchmark research relative to commercial systems (e.g., language translation)
- Is browser access enough? - need some "push" (e.g. SMS most common)
- Must do mixed initiative and collaborative systems, can be individual/autonomous (e.g., performance support for complex problems)
- Think about important business domains (e.g. Manufacturing, Health), where corporations would be willing to sponsor big projects
- How much context can we handle? Will this stretch AI/reasoning capabilities?
- What to do about the multiple development toolkits and platforms (e.g., Java ME not enough)
- What is a "large" pilot – how many people and devices
- What is focus? Applications or platform; too many topics
- Should we focus on needs and capabilities of "top markets", or should we focus on developing countries, different needs; look at disruptive innovation in emerging markets
- Today's SmartPhones = yesterdays laptops, tomorrow's feature phones
- What are the technical gaps
 - Semantics + models
 - Context aware apps
 - with person
 - without person, e.g., objects, RFID, vehicles, ...

Projects/Themes/Opportunities

Discussion suggested many different areas to consider, will need to refine and focus:

- Think Africa, not only China.
 - CMU already has connections and interests: Zambia, Rwanda, South Africa
 - Other companies: HP, IBM, Nokia, Google
 - ICTV group in Pittsburgh
 - Africa has 6.5% CAGR
- One Laptop per Child *should become* One cell phone per child

- (see Intel's ATOM processors - laptop power on phones)
 - SMS dominates developing world, not HTTP/Browser model
 - In Africa, think about Food, Water, Agriculture as major application areas
- Big business opportunities:
 - SAM (social network, advertisement supported, mobile)
 - Manufacturing
 - Logistics, performance support, semantics, robotics
 - Healthcare and medicine
 - Business apps, mobile professional, logistics
- Platforms
- Social Networks
- Ridesharing
- Automotive
- Identity and Privacy - Outside US may be easier or harder,
 - Privacy harder in EU
 - Easier in developing countries
- Context-awareness
 - Need standard context aware platform
 - Phone adjusts itself to match/complement owner's behavior
 - Privacy
 - Mobile platforms
- Business device management
- Campus security
- Wii -iPhone - hackable platforms, gestural interfaces, etc.
- Business/consumer crossover (what devices, applications help work life balance)
- Automotive (mobile can't be just on cell phone)
 - Safety
 - Sensor integration
 - Support with platform
 - ~ On star ++
- Mobile gaming
- GIS
 - Have some kind of standard platforms
 - See GeoPriv: <http://www.ietf.org/html.charters/geopriv-charter.html>
- Energy management
 - Sensor network platform, E.g. Sensor Andrew (distributed/wireless measurement), power management in building
- Imaging
 - 3d visualization
 - multiple viewers, stitch together, multiple access/bandwidth
- Ridesharing; Mass transit (? Bombadier?)
- Video analytics

Community building

1. Leverage local activities: Mobile Monday, WCA, SVC wireless, Telecom Council, etc.
 - a. Help informal communication and connections
 - b. Hijack Timothy Chou's quarterly series?
 - c. Coordinate with “Mobile Monday” events (see <http://www.mobilemonday.us/>, already have a monthly meeting, at different locations in Bay Area; or coordinate with WCA or SVC wireless.
2. More interns, student presentations, at next summit(s)
3. Create one-day tutorials, lots of preparation, not just a workshop or seminar, need deliver perspective and “state of art” analysis; coordinate with working groups of CMU + Industry
 - Privacy, Identify
 - Africa
 - Ridesharing (e.g., see summary of July 2 event at <http://dynamicridesharing.org>)
 - Context
 - Sun Spots (e.g. July 19th on campus hands on lab and tutorial)
 - Industry perspectives