Pervasive Computing Open Night
11th December, 2014

All our Students are Invited!!

17:00  Doors open
       Opening

17:30  Welcome
       Pervasive Computing Research Areas
       Bachelor Thesis Topics
       Master Thesis Topics

18:00  Explore
       Meet Research Staff
       See Live Demos
       Learn about our Research Projects
       Discuss Thesis Topics

       Bring your ideas about Thesis topics!

       Enjoy Snacks and Drinks!

21:00  After Hours
       JKU Mensa Fest

in conjunction with JMU MASTERDAY
SCHWERPUNKT SETZEN, KARRIERE STARTEN.
**Novel In-Car Interaction**

**Gesture control**
- PrimeSense Camino
- Asus Xtion
- Microsoft Kinect
- LeapMotion
- Capacitive proximity ("Theremin")
- Touch displays (Smartphone, Tablet)

**Social-inspired Driving**
- CAN-Bus, OpenXC, GPS, Mobile data (Smartphones)
- Driving inspired by biology
- Collective systems of vehicles
- Experience sharing, negotiation

**Physiological sensing**
- ECG/HRV
- Thermal imaging (pulse, emotional state, etc.)
- Sitting postures/patterns

**Haptic interaction**
- Tactile feedback (vibrations) in seat, safety belt, steering wheel, gear stick
- Pressure sensing

Gesture execution areas of car-control functions (density plot).

Tactors in seat and safety belt.

**Previous work:**

Contact: Andreas Riener, riener@pervasive.jku.at, Tel. 4473
Previous work:

Contact: Gerold Hoelzl, hoelzl@pervasive.jku.at, Tel. 4771

Observing, Collecting, and Utilizing Knowledge in Sensor Rich Environments
Attention Recognition

Attention Theories
- Single Channel Theory
- Early / Late Selection
- Feature Integration Theory
- Perceptual Load Theory
- Capacity Theory
- Multiple Resource Theory

Attention Modeling
- Overt Attention
- Covert Attention
- Goals and Plans
- Pop-out Effect

A directed-effort-based attention model for pervasive displays: (1) incoming stimuli are filtered according to top-down and bottom-up processes (as in the Salience-Effort-Expectation-Value model); (2) succeeding stimuli enter and alter the motivation chain and influence the distribution of attention resources; (3) a realization of plans are expressed in observable behavior; and (4) behavior changes can be tracked, quantified, and interpreted. This is a totally dumb sentence I add here, with the intent of testing your attention. I am sure you do not read this - if so, send me an email.

Previous work:

Contact: Alois Ferscha, ferscha@pervasive.jku.at, Tel. 4762

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Institut für Pervasive Computing
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www.pervasive.jku.at
Socio-inspired ICT

ICT with Social Capabilities
- Social Adaptiveness, Self-Organization
- Cooperation, Competition
- Conflict Resolution Negotiation
- Decision Making
- Reputation
- Collective Awareness
- Attraction/Repulsion Flocking/Foraging
- Morphogenesis/Chemotaxis

ICT with Cognitive Capabilities
- Attention, Perception, Meaning
  - Belief
  - Expectation
  - Trust
- Experience Forgetting, Forging
  - Empathy
  - Narration
- Goal Oriented Behavior

Money
- Unit of account
- Store of value
- Medium of exchange

Non-Monetary
- Currency
- Social Capital
- Cultural Capital
- Symbolic Capital
(Pierre Bourdieu 1983)

Governance of Commons
- Overruling, Enforced Governance
- Mechanisms of conflict resolution that are cheap and of easy access
- Self-determination of the community recognized by higher-level authorities
- Stable local common pool resource management
  (Elinor Ostrom 1990)

Information Eco-systems
- Information
- Overload
- Attention
- Economics
- Value Sensitive Recommenders

Previous work:
A. Ferscha, K. Farrahi, J. van den Hoven, D. Hales, A. Nowak, P. Lukowicz, D. Helbing
Socio-inspired ICT. The European Physical Journal Special Topics, Springer, Vol. 214, No. 1, pp. 401-434, 34 pages,
DOI: 10.1140/epjst/e2012-01700-6, November 2012.

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Your are contributing to a scientific research project. Your interactions are recorded!

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Novelty Propagation

Information Spread in (not so) Smart Cities

193.468 Smart Agents
- Local Interaction Model
- Persuasion Model
- Memory Model
- Space and Mobility Model
- Trust Model

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Social Density Prediction

Crowd Recognition with Wearable Sensors during Mass Events

- Collaborative Crowd Sensing
- Crowd Density Analysis
- Hot Spot Detection
- Crowd Steering
- Behavioural Change
- Crowd Safety

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Forgetting

Computer Recall

Mind the Gap!

Human Recall

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Complex Socio-Technical Systems

A complex world ...