

***i-lands*: Improved Living Environments through Synergies of Ubiquitous, Evolvable & Intelligent Technologies**



Islands in the sky by *ani-r: <http://ani-r.deviantart.com/art/Islands-in-the-sky-118340482?q=boost%3Apopular+islands&qo=12>





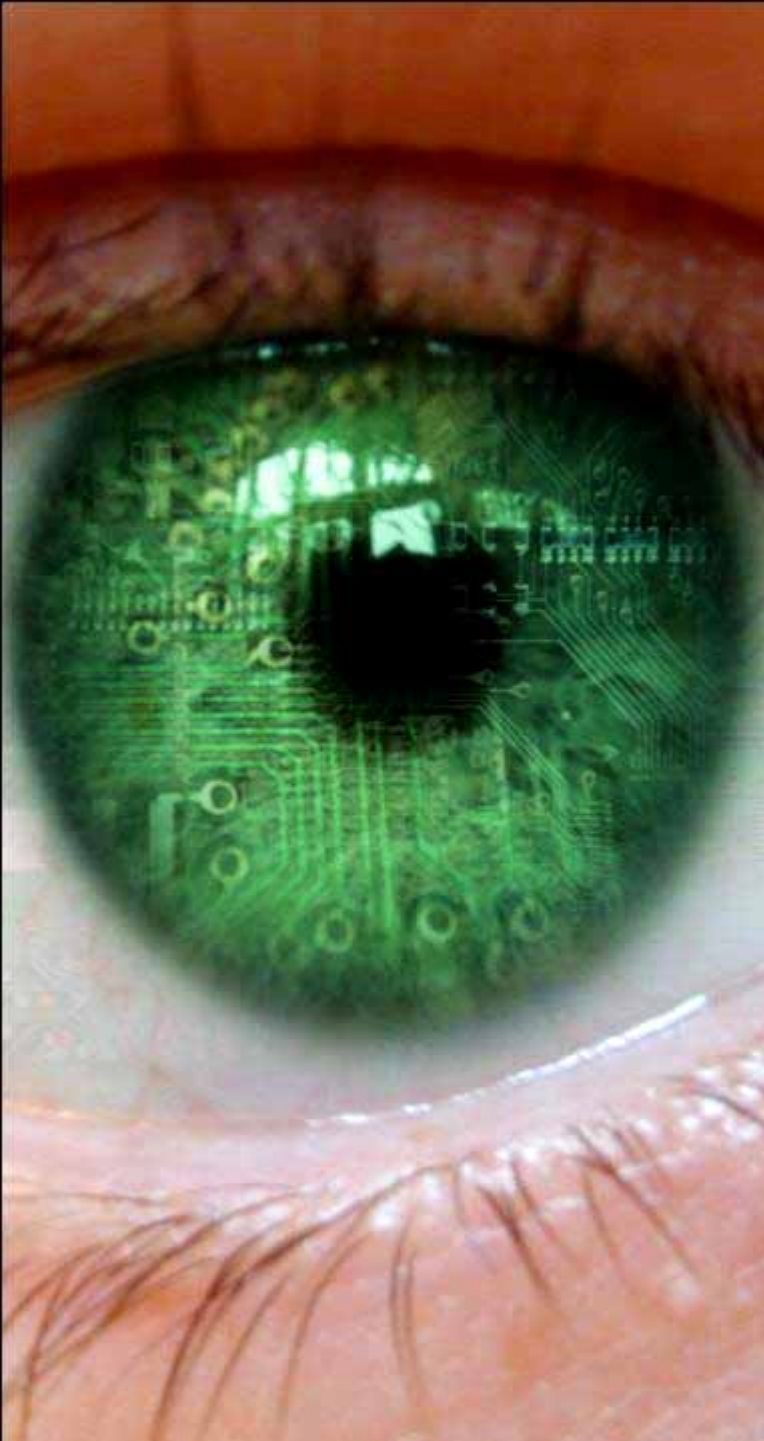
Brief Explanation

- Interconnected living environments of different scale
 - ▶ From small scale
 - room, home, office, car, etc.
 - ▶ To medium scale
 - block of flats, school, hospital, airport, etc.
 - ▶ To large scale
 - urban / rural areas
- Embodying synergies of ubiquitous, evolvable, intelligent technologies
- ▶ ***Aiming to improve quality of life***



Ambition

- Establish an **open infrastructure** of such technologies
 - ▶ seamlessly encapsulated, at various scales, in different combinations
- Smart spaces as **distributed, pervasive cognitive systems**
 - ▶ evolution, intelligence, learning, introspection, sensing, acting
- **Symbiosis and symmetric interaction** of physical and virtual
 - ▶ robots as physical avatars
 - ▶ events/actions in the virtual world trigger reaction/motion in the physical world
- Paradigm shift: **ensemble engineering**. From
 - ▶ applications to application ensembles
 - ▶ systems to system ensembles
 - ▶ environments to environment ensembles



Impact

- Improve quality of life by seamlessly **supporting and augmenting human activities** in a continuous way, with emphasis on
 - ▶ Safety and security
 - ▶ Privacy, trust, social awareness
 - ▶ Inclusion, engagement and participation
 - ▶ Adaptation and personalization
 - ▶ Quality of human experience
 - ▶ Knowledge sharing, communication and socialization



Integration

Contributions from:

- Ambient intelligence and ubiquitous computing
- Intelligent and cognitive systems
- Software-intensive systems
- Pervasive interactive environments
- Adaptive systems
- Resilient and fault tolerant systems
- Reasoning about knowledge, action, time and space
- Network, data and system security
- Computational vision and signal processing
- Multi-modal interaction
- Social computing



Plausibility

- **Incubation** during 2 FET Projects
 - ▶ FET BEYOND-THE-HORIZON (Contract No. 006622) "Anticipating Future and Emerging Information Society Technologies"
 - <http://beyond-the-horizon.ics.forth.gr/>
 - ▶ FET InterLink (Contract no. 34561) "International Cooperation Activities in Future and Emerging ICTs"
 - <http://interlink.ics.forth.gr/>
- ▶ with the participation of ERCIM (<http://www.ercim.eu/>) and the mobilization of a large and **multi-disciplinary international research community**



Comments

- Highly complex problem
- Major societal impact
- Very large scale, long-term effort, involving diverse scientific domains
- (Partial) Relationship to other flagship ideas:
 - ▶ Internet science (seamless communication, ubiquity)
 - ▶ Robot companions (co-existence in ambient environments)
 - ▶ Social computer (personal / social interaction, knowledge gathering and exchange)
 - ▶ Simplicity in ICT (engineering ensembles)

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