

Research Areas - Tampere

Proposals are encouraged in the following areas:

Contextual and cognitive user interfaces

More information than ever before is now available on the user context for mobile devices and services. All the available information on user context (where, when and with whom is the user trying to interact, what is happening around the user, etc.) should be utilized to improve user interfaces and user experience. The following areas are of high interest:

- Modelling of a single user, user state, communication behavior and context
- Data collection and analysis of user behavior and context
- Tangible and physical-world interaction solutions
- User acceptance of contextual sensing and adaptive applications

New forms of communication, content and sensing

The way we are communicating and the content that we are consuming has changed because of available technology and trends in society. What will be new developments in communication and new forms of content driven by new technical development or societal trends (eg. economic development, sustainability, ...)? What will revolutionize the way we communicate and the content that is important to us?

- Context aware media delivery
- User-created 3D content
- Representation of 3D environments
- Understanding of human and societal behavior for the new forms of communication
- Audiovisual sensing and registration of the surroundings
- Context sensitive playful experiences, for example in edutainment and gaming

Scaling Up the Context Ecosystem

We expect a rich and competitive ecosystem for contextual internet services to emerge over the next few years. In this ecosystem, the balance between privacy and new economic opportunities will be more complex than in the current Internet, because the new dimensions of context information (location, social context, activity, mode of transportation, etc.) are both more sensitive to the user and more valuable for business. We seek new models and approaches to manage this trade-off in a predictable way, putting users in control while also creating value within new business models and value chains. Furthermore, we anticipate that innovation in the underlying methods and infrastructure will be required to tackle computational challenges that arise when scaling up this ecosystem to millions of users and thousands of service providers.

- Predictive modelling of large scale context data
- Distributed sharing and recognition of context data

Device and inter-device architectures for future multimedia

Mobile, CE and PC devices can collaborate and share data, information, functionalities, processing resources and services to create new user experiences. Current interoperability between devices is based on a particular transport (or protocol) and target specific vertical solutions. Examples of current solutions are UPnP/DLNA and USB device classes. We are looking for proposals for inter-device architectures in the higher level of abstraction that are agnostic to transport layer and applicable across different domains (e.g. home, car, nomadic).

- Common solutions bridging in-device and inter-device services and computation
- Programming models for heterogeneous, parallel distributed architectures
- Mapping of computation kernels and tasks to various processing resources
- Programming models, methodologies and tools to leverage both in-device and inter-device computation and services