



# chist-era



## European Coordinated Research on Long-Term ICT and ICT-Based Challenges

### Call 2018 Topics

The CHIST-ERA ERA-NET is a consortium of research funding organisations supporting joint transnational research on multidisciplinary ICT and ICT-based challenges with the potential to lead to significant breakthroughs. The consortium is itself supported by the European Union’s Future and Emerging Technologies programme (FET). In the Call 2018, to be published in October 2018, two new and emerging topics are addressed.

#### Analog Computing for Artificial Intelligence

Analog computing, which was initially the mainstream approach in computing, has seen its progress outpaced by the huge investments in digital computing following Moore’s law during almost five decades. However, with the end of Moore’s law, there is room again for more varied computer architectures including analog ones. These can enable fast, energy-efficient computing for specific applications and thus become attractive again. Furthermore, the field of Artificial Intelligence, which is progressing fast, addresses signals which are intrinsically analog (image, sound, speech, proprioception, etc...) and increasingly relies on neural networks which naturally lend themselves to analog computing. In this context, analog computing becomes appealing for running Artificial Intelligence applications locally on personal devices, and more generally in an energy-efficient way, and new approaches of analog computing needs to be explored in that direction.

**Application sectors:** All application sectors of Artificial Intelligence, especially in portable or autonomous devices



**Keywords:** Analog computing; Artificial Intelligence; neural networks; neuromorphic; low-power ICT (Information and Communication Technologies); resource-efficient ICT





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## Intelligent Computation for Dynamic Networked Environments

Novel intelligent coordination strategies are needed in the new era of computing abstractions prompted by the generation of large data volumes and by the software needs of resource-constrained and mobile devices. This trend is foreseen to exacerbate in smart environments powered by post-5G networks. Processing will have to be delegated along the network path, including current fog nodes, edge servers or cloud datacentres. Hence, the need for ubiquitous solutions that dynamically orchestrate computing tasks among these planes. The aim is to provide full context-awareness in the distribution of resources while addressing potential security and service dynamicity issues.

**Application sectors:** Intelligent data processing; smart cities and spaces; connected and green transportation; software engineering; software-defined networks; information-centric networks; fog, edge and cloud computing

**Keywords:** Computing offload; fog computing; edge computing; cloud computing; processing coordination; IoT (Internet of Things)

## CHIST-ERA Conference 2018

June 19-21, Helsinki, Finland

The *CHIST-ERA Conference 2018* in Helsinki (Finland), 19-21 June, brings together prominent scientists and representatives of CHIST-ERA in order to identify and formulate promising scientific and technological challenges at the frontier of research with a view to refine the call text.

### Participate in the definition of the Call 2018

In addition to introductory keynote talks by internationally renowned scientists, the conference proposes facilitated breakout sessions to brainstorm on the call content. This event represents a unique opportunity for the scientific community to participate in scoping the call topics and to network with potential partners.

#### Info and registration:

<http://conference2018.chist-era.eu>

#### Call Information

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