

# Keynote: Cyber Physical Systems, a Chance for European Future

**Fabien Clermidy (CEA Tech, F)**

## Abstract

Cyber-Physical Systems (CPS) can be defined as Systems being able to interact with their environments thanks to sensors and actuators. Their promise is huge, as they will probably be a revolution in the way we communicate with the increasing number of “things” in our today life while becoming closer to natural behavior.

As such, CPS will impact the whole European industry: new transport capacities thanks to autonomous driving will change our habits while robots or cobots will enter in our day-to-day life as well as in industry4.0. Even so-called traditional industries such as avionics, aerospace or defense will deeply change with the massive arrival of CPS.

But CPS will come with many challenges in their computing requirements: while demanding more performance in real-time for fast events reaction, it will embed Artificial Intelligence for delivering more services but at low-power consumption for increased autonomy while keeping the full system at low-cost. Moreover, the challenges of reliability and security must be addressed for its massive adoption. However, these characteristics are mostly the same than previously aimed for embedded systems in transport and Internet-of-Things, two domains where Europe has always shown its excellence in research and industry.

In this talk, I will show how Europe can use its assets to become a worldwide leader in CPS and what are the challenges we must face together for achieving this goal.

Of course, the way is still long, but if we set-up good collaborations, there are many reasons that CPS will be a chance for European future.

## Curriculum Vitae



Fabien Clermidy leads the microelectronic digital architecture and design activities at the research technology division of CEA.

In this position, he develops the computing strategy for High-Performance Computing, Artificial Intelligence, cybersecurity and Cyber-Physical-Systems in relation with system developments in automotive, factory of future, avionics or defense and new nanotechnologies such as 3D stacking, new embedded Non-Volatile-Memories or photonic.

Fabien Clermidy has been working in CEA since 2000, holding different positions as project leader and manager of different teams. He is also a senior expert with a Ph'D supervisor degree and has published more than 80 papers in the greatest conferences such as ISSCC or DAC.