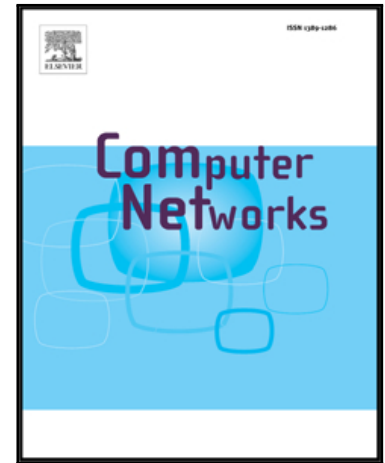


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## Cyber-Physical Systems Clouds: A Survey

Rihab Chaari<sup>a,b,\*</sup>, Fatma Ellouze<sup>b,c</sup>, Anis Koubâa<sup>b,d</sup>, Basit Qureshi<sup>d</sup>, Nuno Pereira<sup>f</sup>, Habib Youssef<sup>e</sup>, Eduardo Tovar<sup>f</sup>

<sup>a</sup>University of Mannouba, National School of Computer Science and Engineering (ENSI), Tunisia.

<sup>b</sup>Cooperative Intelligent Networked Systems (COINS) Research Group, Riyadh, Saudi Arabia.

<sup>c</sup>University of Sfax, ReDCAD Laboratory, B.P. 1173, Sfax-Tunisia.

<sup>d</sup>Prince Sultan University, Saudi Arabia.

<sup>e</sup>University of Sousse, PRINCE Research Unit, Sousse, Tunisia.

<sup>f</sup>ISEP/IPP, Polytechnic Institute of Porto, Porto, Portugal.

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### Abstract

Cyber-Physical Systems (CPSs) represent systems where computations are tightly coupled with the physical world, meaning that physical data is the core component that drives computation. Industrial automation systems, wireless sensor networks, mobile robots and vehicular networks are just a sample of cyber-physical systems. Typically, CPSs have limited computation and storage capabilities due to their tiny size and being embedded into larger systems. With the emergence of cloud computing and the Internet-of-Things (IoT), there are several new opportunities for these CPSs to extend their capabilities by taking advantage of the cloud resources in different ways. In this survey paper, we present an overview of research efforts on the integration of cyber-physical systems with cloud computing and categorize them into three areas: (1) remote brain, (2) big data manipulation, (3) and virtualization. In particular, we focus on three major CPSs namely mobile robots, wireless sensor networks and vehicular networks.

*Keywords:* Cloud Computing, Cloud Robotics, Cloud Sensors, Vehicular Cloud Networks

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\*Corresponding author

Email address: rihab.chaari@coins-lab.org (Rihab Chaari)

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