ACM Transactions on Internet Technology

Call for Papers: Special Issue on Next Generation Tactile Internet for Volunteer Computing

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Topics of Interest: Since the topic is timely and expedient, we are expecting a large number of submissions. However, the special issue aims to cover topics that include, but not limited to, the following:

- Volunteer computing vs cloud, grid, peer-to-peer, crowd, edge computing paradigms
- Volunteer computing with crowd of humans for problem solving
- Resource management and integration for volunteer computing and Future Tactile Internet
- Challenges facing, and solutions for, Tactile Internet
- Enabling technologies for big data IoT systems
- Network protocols and architecture design
- Big data processing on volunteer computing
- Performance design, modeling and evaluation of volunteer computing
- Security and Privacy of Tactile Internet
- Performance and scalability of volunteer computing -based IoT Systems
- Social and economic impact of Tactile Internet and voluntary computing on communities
- Green volunteer computing communication applications and services
- 5G technologies for volunteer computing
- Tactile Internet techniques for Real-time big data fusion
- IoT big data security over Tactile Internet and volunteer computing
- Optimization techniques for extracting the full potentials of volunteer computing -based IoT Systems

Overview: In recent years, Internet of Things (IoT) has emerged as an important research and development area. IoT is also a fast-growing industry built on the promise of ubiquitous connectivity enabling billions of devices to communicate with each other and to people alike – using diverse protocols and technologies that create complex configurations. The estimates for the number of IoT devices to ship by 2025 can vary widely – from more conservative six billion figure presented by the Linley Group to the breath-taking 200 billion projection provided by Intel. In a nutshell, IoT amalgamates the "sensing via environmental sensors", "processing via computing processors" and "communicate via connection mediums" to flourish the concept of "smart space". Sensors, in IoT, emit huge amount of data, computing infrastructure process that data, whilst the connectivity mediums are used to transfer data from the sensors to the processors and people (i.e., decision makers to process the data instantly and return results straightaway). However, the current computing infrastructure and connection medium will soon not be able to support all these requirements. The complexity and variety of data produced by these sensors will require "high" computational power for processing and "high" speed for fast transformation. Therefore, the integration of Volunteer Computing (VC) and tactile Internet deems appropriate for this purpose. VC allows citizens to volunteer their computing gadget and processors, to be "***used for free***", to process the required data, whereas the tactile Internet facilitates transfer data in "***extra-low-latency***" and "***ultra-high-speed***". These technical features help VC with tactile Internet stand out from the crowd of conventional decentralized/distributed computing paradigms (e.g., cloud computing that relies on pay fees for use, grid computing that is dedicated to a common goal and requires middleware libraries, peer-to-peer that is mainly used for sharing files between peers – not for computing purposes, and crowd computing which revolves around connecting large numbers of people distributed across the Internet to do a certain task that is hard for an individual user to do alone). Therefore, the use of VC with tactile Internet technologies together can benefit other areas such as Industry 4.0, Intelligent Transportation Systems (ITS), and so forth. In addition, communication networks, quantum computing, routing and energy efficiency, and real-time linked data for knowledge discovery are all areas that require further research and development. The aim of this special issue is to bring together contributions of researchers from academia and industry, software developers, scientists, and individuals who work on selected areas of tactile Internet and VC with big data and IoT, to share their recent findings within the research and industry communities.

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Important Dates:

- Submission deadline: June 1, 2020
- Author Notification: September 1, 2020
- Final Manuscript: December 1, 2020

Paper Submission: We seek submission of papers that present new, original and innovative ideas for the "first" time in [ACM Transactions on Internet Technologies (ACM TOIT)]. Submission of "extended versions" of already published works (conference papers) is not encouraged unless they contain a significant number of "new and original" ideas/contributions along with more than 50% brand "new" material. If you are submitting an extended version of an already published conference paper, you must submit a cover letter/document detailing (1) the "Summary of Differences" between the ACM TOIT paper and the earlier paper, (2) a clear list of "new and original" ideas/contributions in the ACM TOIT paper (identifying sections where they are proposed/presented), (3) confirmation of the percentage of new material, and (4) the original conference paper. Otherwise, the submission will be "desk" rejected without being reviewed. While submitting paper to this issue, please select "Next Generation Tactile Internet for Volunteer Computing" in the TOIT Manuscript Central port. Further submission instructions: please refer to http://toit.acm.org/authors.cfm