

Care colleghe e cari colleghi,

il Prof. Sumi Helal della University of Florida, in vista presso il nostro Dipartimento in questi giorni, terrà un seminario al quale siete tutti caldamente invitati a partecipare

Mercoledì 28 settembre alle ore 17:30 in aula A2 (o appena finirà il Consiglio, se per quell'ora non sarà terminato)

Link Teams per partecipare a distanza:

https://teams.microsoft.com/l/meetup-join/19%3ameeting_MDhhMjk3MTktZDUwMy00ZmJkLThlNmYtZjM3ZWQyZWY3ZDFj%40thread.v2/0?context=%7b%22id%22%3a%22067e7d20-e70f-42c6-ae10-8b07e8c4a003%22%2c%220id%22%3a%226f5d4368-7146-452e-a22d-2bddec73eea%22%7d

dal titolo:

Edge Intelligence in Large Scale IoT Deployments

ABSTRACT

Recent advances in IoT and pervasive and ubiquitous computing provide a glimpse into the future of our planet and reveal exciting visions of smart many things: smart cities, smart homes, smart cars, in addition to smart spaces such as malls, workplaces, hotels, schools, and much more. Driven by a technological revolution offering “low-power many things and wireless almost everything”, we could, in only a decade, envision and prototype impressive smart space systems that improve quality of life, enhance awareness of resources and the environment, and enrich users’ experience. But prototyping is one thing; actual large-scale deployments are another. The massive scale of sensors and IoT devices that will be deployed in highly populated smart cities of the future will be mind-bugling. Without a carefully-thought ecosystem and a scalable architecture in place, it will be extremely difficult to manage or program such an expanding and massive IoT. In this talk, I will present our recent work on Cloud-Edge-Beneath (CEB) architecture and delineate the role of edge intelligence in achieving scalability. I will introduce sentience-efficiency (a new paradigm for realizing aggressive energy savings) and show how it is paramount to energy-efficiency. I will then present CEB’s bi-directional waterfall optimization framework and show how it supports sentience-efficiency. I will then present an event-driven programming model based on CEB and show how the model and CEB, combined, foster a much-needed IoT programmability ecosystem. I will present a validation study demonstrating CEB’s scaling behavior in face of IoT expansions (horizontal (sensors) and vertical (applications)) and under dynamically increasing loads. Finally, I will present our ongoing project in which edge intelligence exploits deep reinforcement learning towards the same goals set forth by CEB.

BIOSKETCH

Sumi Helal is a Professor in the Computer & Information Science and Engineering Department at the University of Florida, USA, and Director of its Mobile and Pervasive Computing Laboratory. He co-founded and directed the Gator Tech Smart House, a real-world deployment project that aimed at identifying key barriers and opportunities to make the Smart Home concept a common place (creating the “Smart Home in a Box” concept). His active areas of research focus on architectural and programmability aspects of the Internet of Things (IoT), IoT architectures, IoT edge intelligence, and pervasive/ubiquitous systems and their human-centric applications. Professor Helal served as the Editor-in-Chief of IEEE Computer (2015-2018), the Computer Society’s flagship and premier publication. He is Fellow of the IEEE, Fellow of the IET, Fellow of the AAAS, Fellow of the AAIA, and an elected member of Academia Europaea. Contact him at sumi.helal@ieee.org

Saluti

Osvaldo Gervasi