Internet and Wireless Go Everywhere

Yrjö Neuvo

Aalto University

Abstract

As predicted by Moore’s law, the performance of microelectronics has increased exponentially over last several decades. During the last 25 years the performance has increased 10000 fold. What is not so obvious is that during the same time the wireless data speeds have increased by the same factor. The results of these developments are all around us. The number of mobile phone subscriptions is approaching World population, Internet usage continues to double every few years, search engines have penetrated our daily lives and social networks are fundamentally changing our personal communication patterns. In addition, there is a strong expectation that ICT will be a key element in solving our societal scale challenges like energy, climate change.

This presentation explores future avenues of technological developments in the ICT sector. Are there alternatives to silicon based microelectronics? Where and how can we get more wireless data capacity and speed? How does Future Internet look like? How do we create the large scale systems like smart grids, smart cities and smart health care? This all emphasizes the importance of collaboration in a global and cross disciplinary environment but does not substitute the traditional characteristics of good researchers like excellence, curiosity, hard work and entrepreneurial mind set.