

Dissertation press release

8.5.2020

## Living at the Edge: Enabling Internet of Things applications between fog and cloud

<b>Title of the dissertation</b>	Enabling Internet of Things Applications: An End-to-end Approach Esineiden Internetin sovellukset: päästä päähän -lähestymistapa
<b>Contents of the dissertation</b>	<p>Each of us is surrounded by smart objects such as cameras, lighting sensors, smartwatches, and smart keys. These devices are connected to the Internet (and each other) and form the so-called IoT (Internet of Things). To date, there is a massive amount of IoT devices deployed in different fields - such as intelligent transportation, smart cities, and the industrial Internet - and generating an immense amount of data. IoT devices are resource-constrained in terms of available energy, memory size, and computation capabilities. This calls for the design of intelligent solutions that make IoT secure, safe, and easy to use, while supporting a myriad of IoT applications.</p> <p>This dissertation addresses the requirements of a secure and dependable IoT ecosystem. We propose a light-weight mechanism to securely configure IoT devices before taking them into use. Next, we design different data collection protocols that operate under challenging constraints of limited availability of wireless bandwidth and computational capabilities. These protocols operate at the fog, that is, as close to the end users as needed. Finally, we present a data reduction mechanism that reduces the amount of sensory data at the edge of the network, closer to the users, prior to transmitting it to the cloud for further processing. Our solutions are light-weight and energy-efficient in sustaining an ever-growing IoT.</p>
<b>Field of the dissertation</b>	Computer Science
<b>Doctoral candidate</b>	Pranvera Kortoçi, MSc
<b>Time of the defence</b>	10.06.2020 12:00 – 16:00
<b>Place of the defence</b>	via remote technology
<b>Opponent</b>	Professor Maria Papadopouli, University of Crete, Greece
<b>Custos</b>	Professor Mario Di Francesco, Aalto University School of Science, Department of Computer Science
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