Ákos Milánkovics

EIT Digital Budapest DTC

PhD topic: Energy efficient ad hoc sensor networks

PhD supervisor: Dr. Sándor Imre, BME

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'The EIT Digital helped me to become a more aware and more valuable research engineer who understands current and future challenges as well as business opportunities in the industry.'



Achievements & further plans

I started my PhD studies in 2012 at the Budapest University of Technology and Economics, at the Department of Networked Systems and Services, and joined EIT Digital in the same year. In 3 years, I have completed my doctoral studies, finished most of my I&E studies and joined an R&D company as a research engineer. I plan to graduate in the following years as I write my thesis parallel to my researcher job. I have written several journal articles and participated in conferences where I presented my results of my research topic, which is the **energy efficiency of wireless sensor networks**. At one of my recent conferences I have been awarded with the best student paper award.

Energy efficiency – which is in the centre of my research – in sensor networks can drive the utilization and adoption of these technologies much further, while simultaneously creating a huge market for such solutions.

Educational status at Spring semester of 2016:

Reserach topic

SMy research topic is wireless sensor networks, which has tremendous market opportunities, and there is much room for new, innovative ideas. Currently, I am participating in the development of a customizable wireless sensor network solution for the following application areas: smart metering and smart home, environmental-, medical- and production-monitoring.



This research area is currently very popular, but the challenges of energy efficiency, auto-discovery, adaptive routing and automatic fault correction in machine-to-machine networks need better solutions. In my research I mainly concentrate on the energy efficiency of wireless sensor networks to create more energy efficient communication protocols and achieve longer battery life in the sensor nodes.



I also focus on radio technologies, and I would like to create an indoor and an outdoor radio propagation model for the 433 MHz ISM band. In my conference papers I presented the benefits of using data aggregation combined with Forward Error Correction in wireless sensor networks to lower the energy usage of the whole network, which may extend the battery life of the nodes by years. In the future I am going to extend my research to UWB and positioning.



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