The 15th IEEE International Workshop on Factory Communication Systems

The 15th IEEE International Workshop on Factory Communication Systems (WFCS 2019) was held in Sundsvall, Sweden, home of the forest industry, from 27 to 29 May 2019. The conference attracted more than 50 academic and industry delegates from 15 countries. Prof. Mikael Gidlund from Mid Sweden University and Prof. Thilo Sauter of Danube University, Austria, served as general cochairs for WFCS 2019.

Over the years, the WFCS conference has become one of the most relevant IEEE technical events about industrial communication systems and technologies. The WFCS gives researchers from academia and experts from industry the opportunity to share their knowledge and ideas on the latest technology advancements in trends such as Industry 4.0, the Industrial Internet of Things (IIoT), and cyberphysical systems, among others. Preserving the heritage of previous editions of the WFCS, this year’s conference scope and program placed well-established topics side by side; for instance, fieldbuses with real-time Ethernet networks, wireless industrial communications with emerging research trends involving industrial cybersecurity, and software-defined networking with time-sensitive networking.

This year’s WFCS meeting was hosted and cosponsored (in conjunction with the IEEE Industrial Electronics Society) by Mid Sweden University, and the conference venue was located at the Quality Hotel in Sundsvall. WFCS 2019 attracted 42 paper submissions from 19 countries, including Austria, China, Egypt, Finland, France, Germany, Iraq, Italy, Japan, Lithuania, Luxembourg, The Netherlands, Portugal, South Korea, Spain, Sweden, The Democratic People’s Republic of Korea, Turkey, and the United States, which demonstrates growing interest for the event, both from within and outside the EU area.

At the end of the detailed, rigorous reviewing activity, 17 contributions were accepted for presentation as regular papers and 13 were accepted as works in progress (WIP), which gave presenters the opportunity to discuss preliminary research results and ideas during the sessions.

A hot topic in industrial communications is 5G, which was reflected in this year’s keynotes. We were fortunate to have three outstanding industry keynote speakers at WFCS 2019. Dr. Magnus Frodig, head of Ericsson Research, gave the inspiring talk “5G—Full-Fledged Factory Fabric” and presented the current status of 5G while pointing out some future challenges. Dr. Alf Isaksson, from ABB Corporate Research, presented “Towards Wireless Process Control,” highlighting the need for reliable wireless communication to provide fast wireless control in process automation.

The third keynote speech, given by Dr. Kia Wiklundh, Qamcom Research and Technology AB, highlighted the interference challenges that occur from using wireless technologies in licensed and unlicensed frequency bands, which is even more evident for massive IoT and 5G networks.
As part of the conference program, attendees made a 2-h field trip to the Östrand pulp mill, which recently made a Swedish Krona investment equivalent to half a billion U.S. dollars. The world’s most modern pulp mill, Östrand’s operations feature the latest automation equipment (Figure 1). The renowned 100-year-old Hotel Knaust was the site of the conference dinner, during which the Best Paper Award and Best WIP Award were announced (Figure 2). The Best Paper Award was given to Gianluca Cena, Stefano Scanzio, Lucia Seno, and Adriano Valenzano for “Optimal Retransmission Allocation for EDF-Based Networked Real Time Applications.” The Best WIP Award went to Amal Alrish, Yuriy Zaccchia Lun, Alessandro D’Innocenzo, and Fortunato Santucci for “Systematic Derivation of Accurate Analytic Markov Channel Models for Industrial Control.”

The 16th WFCS conference will be held in Porto, Portugal, 27–29 April 2020.

—Mikael Gidlund and Thilo Sauter
WFCS 2019 General Chairs

Prof. Mo-Yuen Chow Delivered a Distinguished Lecture at Chuo University, Japan, 26 February 2019

Dr. Hideki Hashimoto, on behalf of the Department of Electrical, Electronics and Information Technology at Chuo University, Japan, invited Dr. Mo-Yuen Chow, IEEE Fellow, and director of the Advanced Diagnosis, Automation, and Control Laboratory at the Electrical and Computer Engineering Department, North Carolina State University, Raleigh, to deliver a Distinguished Lecture (DL) to the faculty and students of Chuo University. The title of his lecture was “Advanced Microgrid Management System: Centralized Versus Distributed and the Role of Batteries.” Prof. Chow is a Distinguished Lecturer of the IEEE Industrial Electronics Society (IES), and his presentation was cosponsored by the IEEE IES Distinguished Lecturer program.

The advanced microgrid, the theme of the seminar, is expected to be an important element of smart grids in the future due to its automation, interoperability, and distributed energy resources hosting functions. Prof. Chow is researching a microgrid management system (MGMS) with energy-optimizing functions to make this advanced microgrid feasible. During his talk, he explained the concept of MGMSs and the application examples of state-of-the-art centralized and decentralized MGMSs. From time to time, Prof. Chow offered explanations and examples so that students who were not well versed in power application could understand the concepts by intermingling explanations from information engineering and control engineering viewpoints (Figure 1). A question-and-answer session was held after the presentation and active discussions took place with all the participating members, including students. This DL was attended by

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