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Leibniz Institute for High Performance Microelectronics

IEEE Outstanding Paper Award for IHP scientists

Prof. Peter Langendörfer and Dr. Wael Alsabbagh recognized for an outstanding article published in the IEEE Open Journal of the Industrial Electronics Society (OJIES).

Frankfurt (Oder). Programmable logic controllers (PLCs) are essential in critical infrastructure and industrial control systems. The growing demand for greater cost efficiency and productivity has prompted automation manufacturers to integrate PLC-based applications and systems with external networks, such as the Internet. Unfortunately, this connectivity has exposed systems to potential malicious attacks. Addressing this pressing issue requires a deep understanding of the vulnerabilities of today's industrial control systems, available countermeasures and mitigation strategies. Furthermore as potential attacks are getting more and more sophisticated future threats and countermeasures are of utmost importance. The award-winning article "Security of Programmable Logic Controllers and Related Systems: Today and Tomorrow" presents a detailed overview of all aspects of security for PLCs and related systems. This includes vulnerabilities, potential attacks and security solutions, and digital forensics. „Our article provides a comprehensive in-depth anlysis of vulnerabilities and threats of indudrial control systems, and discusses further research directions aiming at preventing attacks in the future successfully. The importance of our article is due to the fact that the security of industrial control systems can hardly be overestimated in the current situaion ", says Prof Peter Langendörfer, head of Cyber Physical System Engineering Department at IHP and Chair of Wireless Systems at BTU Cottbus-Senftenberg.

The Industrial Electronics Society promotes the engineering process of creating, developing, integrating, sharing, and applying knowledge about electro- and information technologies and sciences. The award was presented at the 50th IEEE Industrial Electronics Society (IECON) conference in November 2024. IECON aims to create an international forum for experts and practicing engineers to present the latest research findings and ideas on contemporary industry topics: smart grid resiliency, power electronics, controls, robotics, manufacturing, communications and other interdisciplinary areas.

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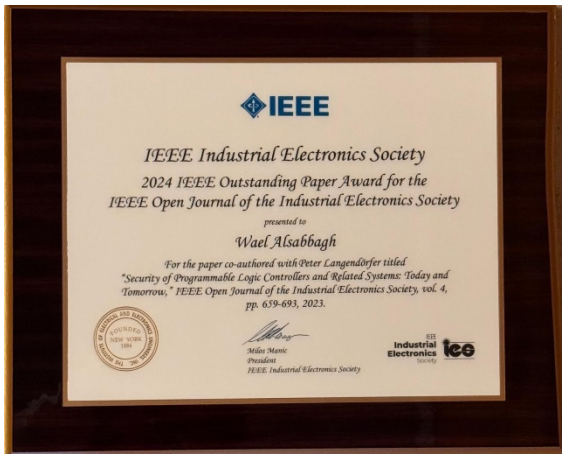

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About IHP:
The IHP is an institute of the Leibniz Association and conducts research and development of silicon-based systems and ultrahigh frequency circuits and technologies including new materials. It develops innovative solutions for application areas such as wireless and broadband communication, security, medical technology, industry 4.0, automotive industry, and aerospace. The IHP employs approximately 400 people. It operates a pilot line for technological developments and the preparation of high-speed circuits with 0.13/0.25 µm SiGe BiCMOS technologies, located in a 1500 m² DIN EN ISO 14644-1 3 certified clean room.

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