

Industrial Internet Security: What Can Control Do?

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Abstract

We will first review the emergence and development of industrial internet, which is revolutionizing the industry and our life. After discussing the industrial internet architecture, we will reveal the inevitable underlying vulnerabilities via analyzing the specific features. We will get back to the fundamental control layer of industrial internet, and explain its importance of converging security and safety via concrete examples. We will demonstrate how various core control devices and protocols are insecure. Moreover, we discuss how to protect industrial internet through the most recent research.



Peng Cheng is currently Dean, and Changjiang Chair Professor for college of control science and engineering, Zhejiang University. His research interests include industrial internet security, cyber-physical systems, and cloud networking. He has been awarded National State Science and Technology Progress Award, Natural Science Award of Ministry of Education, Youth Science Award of the Ministry of Education, CAA Science and Technology Progress Award. His research received TDSC'24 best paper runner-up award, ACSAC'23 distinguished paper award, IEEE INFOCOM'14 best demo award and IEEE ICC'14 best paper award. He was awarded China Youth Science and Technology Award, FYT Foundation Young Teacher, JSPS Invitation Fellowship, IEEE ComSoc Asia Pacific Outstanding Young Researcher Award. He serves/served as Associate Editor of IEEE Transactions on Cloud Computing, IEEE Transactions on Control of Network Systems, Guest Editor of IEEE Transactions on Automatic Control, and vice directors of CAA Committee for Industrial Control System Security, and CAA Committee for Process Control.