

## Event-based PID Control

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**Abstract:** For some industrial processes a small stationary control error or smooth oscillations of the process output around the set-point do not constitute hard design constraints but, however, the reduction of the information exchanged between the agents that take part in the control loop (sensors, controllers, actuators) is one of the tightest requirements.

This is especially true when wireless sensors and actuators are employed, as the reduction of transmissions increases the lifetime of the batteries. With these demands, one of the most convenient strategies is the use of event-based sampling and control approaches. As PID controllers are the most employed in industry, during last years event-based PID controllers have been widely investigated. In this talk the main contributions will be reviewed and the main practical issues will be highlighted, showing that this kind of controller can be successfully applied by still exploiting the typical knowledge of industrial operators.

**Antonio Visioli** is a full professor of Control Systems at the Department of Mechanical and Industrial Engineering of the University of Brescia, where he is the head of the Industrial Control research group.

His research interests include industrial controllers, mechatronics and robotics, dynamic inversion based control, fractional control, anesthesia control. He has authored and coauthored three research monographs, more than 240 papers in international journals and conference proceedings and he has participated in many national and international projects. He is a senior member of IEEE, the vice-chair of the IFAC Technical Committee on Education, a member of the Technical Committee on Education of the IEEE Control Systems Society, a member of the subcommittee on Industrial Automated Systems and Control of the IEEE Industrial Electronics Society Technical Committee on Factory Automation, and a member of the national board of Anipla (Italian Association for Automation).

He has also served as IPC member of many international conferences and, in particular, he has been the general chairman of the IFAC Conference on Advances in PID Control (Brescia, 2012) and of the IFAC Workshop on Internet Based Control Education (Brescia, 2015). He has also been the IPC chairman of the Second and Third Edition of the International Conference on Event Based Control, Communication and Signal Processing (Krakow, 2016 and Funchal, 2017), and he is the IPC chairman of the IFAC Conference on Advances in PID Control (Gent, 2018).