

Process Control and Artificial Intelligence: Challenges and Opportunities

Karim Davari Benam¹, Hans Alvar Engmark¹

Abstract

Process performance in industrial systems is built on decades of practical engineering experience, operational learning, and established control theory. This real-world experience is essential for understanding complex process behavior and ensuring safe, stable, and efficient operation in both brownfield and greenfield projects.

In recent years, digitalization and Artificial Intelligence have introduced new tools that support and accelerate engineering workflows. However, their value is only realized when combined with domain knowledge and hands-on experience from real industrial applications.

In this presentation, we will share perspectives from practical project execution within process performance and discuss how AI-enabled tools and digital workflows can be used in an efficient and targeted way to support engineering decisions, simulation activities, and system development.

The focus is on how experience from real industrial projects enables the effective use of new technologies and support robust and practical solutions in complex process environments.

¹ Department of Process Performance, ABB AS, Oslo, Norway