Session 3	Artificial Intelligence in service of biomanufacturing
Pitch Title	Digital Twins and Soft Sensors for Bioprocesses
Company	SECO Lab. - University of Mons
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Keywords feedstock	Biomanufacturing, process measurements,
Keywords technology	artificial neural network, process optimization, Digital twins
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Abstract:

Optimizing biomanufacturing processes depends significantly on conducting small-scale wet laboratory experiments to identify the specific manufacturing conditions that result in the highest process yield and the best product quality. One way to reduce the number of wet laboratory experiments is to rely on digital twins, which are up-to-date representations of the real physical asset in operation.

In addition, digital twins help to better understand the process and anticipate the effects of changes made in one process step to another, hence targeting a global process optimization rather than an isolated optimization of each operation.

This topic is also linked to Bioindustry 4.0, which requires digital twins to design advanced monitoring and control soft tools for bioprocess optimization. These goals can be achieved by using approaches that combine artificial neural network modeling and mechanistic modeling, which are also the topics of this talk.