

The IFAC Industry Committee invites you to a virtual discussion panel in its new IFAC INDUSTRY CONNECT series:

### “Machine Learning and Control”

**Panelists:** Sébastien Boria, Lane Desborough, Biao Huang, Alf Isaksson and Greg Stewart.

**Moderator:** Moncef Chioua

**The webinar will be held on Oct 25, 2021 at 14:00 UTC (16:00 CEST, 10:00 EDT).**

In the last couple of years, the academic community has produced an exponentially growing number of publications on the topic of machine-learning-based control, monitoring and fault detection and isolation. How is industry reacting to these research developments? In this virtual panel, we will discuss the use of novel machine learning approaches to solve control-related challenges in various industry sectors. The panel will reflect on (1) to what extent is machine learning used in industry; (2) what are the gaps between machine-learning-based and classical approaches to control solutions for industry implementation; (3) what types of challenges are more suitable for machine-learning-based solutions; and (4) what does it take to move a prototypic ML solution to production? The panelists are renowned experts in process industries, aerospace, automotive, robotics, and other industry sectors.

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IFAC INDUSTRY CONNECT webinar series is a program of virtual panel discussion events to be held throughout the year. These events will be free for all registrants, have no academic style publication requirements and are designed to match interests of engineers and managers in industry.

Each IFAC INDUSTRY CONNECT is a one-hour virtual panel with a few participants discussing a topic proposed by the control community and selected by an advisory group. The events are recorded and the recordings and related information are made available on IFAC's social media sites including the IFAC YouTube channel.

#### **Registration Link:**

[https://us02web.zoom.us/webinar/register/WN\\_nUOBeUJCS\\_u0-QE0aa7ImA](https://us02web.zoom.us/webinar/register/WN_nUOBeUJCS_u0-QE0aa7ImA)

## Panelists:



Sébastien Boria holds an M.Eng. in mechatronics and an M.Sc. in control. He joined Airbus Defense & Space in 2003 where he is a model integrated computing architect. Sébastien works on the integration of algorithms and solvers into machines, robots, assembly lines and engineering tools. He is currently working on embedded software stack including autonomous decision capabilities on satellite demonstrator. He is also participating to Rob4FAM, a joint LAAS CNRS and Airbus robotic lab.



Lane Desborough is the founder and CEO of Nudge BG, an engineering consulting services and algorithm development company focused on modelling, simulation, and control of physiological systems such as automated insulin delivery for people living with insulin-requiring diabetes. Lane has 30 years of experience in automation and simulation across a wide range of industries. His early academic work on controller performance assessment has received wide attention in academia and industry.



Biao Huang holds a Ph.D. from the University of Alberta where he is currently a Full Professor, and NSERC Senior Industrial Research Chair. He is an IEEE Fellow, Fellow of the Canadian Academy of Engineering, and Fellow of the Chemical Institute of Canada. He is a recipient of numerous awards including Alexander von Humboldt Research Fellowship, Best Paper award from IFAC Journal of Process Control, APEGA Summit Award in Research Excellence, AsTech Outstanding Achievement in Science & Engineering Award and Bantrel Award in Design and Industrial Practice. His research interests include process control, data analytics, machine learning, Bayesian

inference. He has applied his expertise extensively in industrial practice.



Alf Isaksson holds a MSc (1983) and PhD (1988) from Linköping University with research focus on Process Control. Promoted to full professor at Royal Institute of Technology (KTH) in 1999, He joined ABB Corporate Research Sweden in 2001. From 2012-19 he was responsible globally for Control research in ABB, including many projects on data analytics and machine learning. Since 2020 He is Corporate Research Fellow for Automation and Control. He was Adjunct Professor at Linköping University in 2006-2015. Since 2021, he is Adjunct Professor of Automatic Control at KTH.



Greg Stewart holds a B.Sc. in Physics and a M.Sc. in Applied Mathematics from Dalhousie University, and a PhD from University of British Columbia in Control Engineering. Fellow of the IEEE and IFAC, received the IFAC Industrial Achievement Award 2017, twice received the IEEE Control Systems Technology Award in 2002 (papermaking) and in 2012 (automotive), the IEEE Transactions on Control Systems Technology Outstanding Paper Award. 46 patents, more than 57 technical publications, and designs residing on over 300 industrial installations.

## Moderator:



Moncef Chioua is an Assistant Professor of Chemical Engineering at Polytechnique Montréal. He was a member of the process data analysis and optimization research group at ABB Corporate Research Germany between 2008 and 2020 and of the process control research group at PAPRICAN, (now FP- Innovations) from 2003 to 2004. He is a member of the Executive subcommittee of the IFAC Industry Committee.