

Dr. Ivan Castillo

Talk Title: From Insight to Action: AI-Powered Decisions in the Chemical Industry



Ivan Castillo is a Senior Data Scientist for the Chemometrics, AI, and Statistics group within the Technical Expertise and Support (TES) organization at Dow. Since joining Dow in 2011, Ivan has integrated artificial intelligence and machine learning technologies with chemical engineering principles to support a wide range of projects across businesses and functions. These projects include unplanned shutdown investigations, accelerated catalyst aging, kinetics model improvements, customer technical service support, plant start-up assistance, advanced control and optimization enhancements, capacity improvements, cycle time reduction, and fouling mitigation.

In addition to his technical contributions, Ivan teaches and coaches advanced data analytics and statistical methods to enable data-driven problem solving and promote the adoption of analytics across Dow.

Ivan holds a Ph.D. in Chemical Engineering from the University of Texas at Austin, an M.S. in Electrical Engineering from Universidad de los Andes (Bogotá, Colombia) with an emphasis in control and automation, and a B.S. in Electrical Engineering from Pontificia Universidad Javeriana (Bogotá, Colombia). His research interests include fault detection and isolation, machine learning applications in chemical manufacturing, optimization, and process control.

Ivan has been recognized with eight Technology Center Awards, generating over \$210MM NPV10 in value. He currently serves on the AIChE Program Committee Executive Board (EBPC) and as Director for the Fuels and Petrochemicals Division (F&PD). In 2021, Ivan received the AIChE Herb Epstein Award for Technical Programming. He is co-author of more than 25 internal Dow technical reports, 40+ external journal publications, 38+ conference presentations, and holds three patents.