
W2: *Intelligent Event Recognition and Alarm management in Industrial Processes*

Dr. John William Vásquez

Efficient event recognition and alarm management are essential for ensuring safety, reliability, and productivity in mining and metallurgical operations. Traditional monitoring systems often suffer from high false alarm rates and poor adaptability, leading to operational inefficiencies and increased risks.

This workshop introduces the fundamentals of V-nets, a powerful formalism for modeling complex event sequences in industrial environments. It also explores how artificial intelligence techniques can enhance fault detection, alarm prioritization, and predictive diagnostics in real-world processes.

This workshop is divided into two parts:

- Part 1 focuses on the foundations of V-net modeling, discrete event sequences, and the principles of intelligent event recognition.
- Part 2 explores practical applications of V-nets and AI methods for fault diagnosis, alarm system optimization, and predictive maintenance in mining and metallurgy.

Dr. John William Vásquez

Dr. John William Vásquez is a renowned expert in electronics, industrial automation, and fault diagnosis, with over 20 years of experience in both academia and industry. He holds a Ph.D. in Engineering from Universidad de los Andes (Colombia) and Université de Toulouse (France). His work focuses on mechatronics, robotics, and industrial system safety, with a strong emphasis on intelligent fault diagnosis. Currently a Senior Researcher and Peer Evaluator for Minciencias, he also serves as a professor at Universidad Industrial de Santander, where he leads impactful R&D+i projects that connect academia, industry, and government. In 2016, he received the Colombian Innovation Award from ECOPETROL–INNPULSA for his outstanding contributions to technological innovation.
