Sebastien Gourvenec

Dr. Sébastien Gourvénec, Deputy R&D Program Manager, Total Research & Technology 76700 Harfleur, France

Chemist by training, Sébastien Gourvénec specialized in chemometrics in the early 2000's. He obtained his PhD in 2004 at the Vrije Universiteit Brussels (VUB) under the supervision of Prof. D.L. Massart. His research was about batch monitoring using chemometrics and NIR spectroscopy. Following his PhD, he moved to GlaxoSmithKline (GSK) at the research center of Stevenage (UK). He worked there as a PAT (Process Analytical Technogical) chemometrician in the Chemical Development branch. He then moved to Evreux (Fr), still in GSK, where he was developing and deploying PAT technology both in R&D and manufacturing. After a few years in GSK, Sébastien became team leader on spectroscopy and modelling in Total in Gonfreville (Fr) in 2011. He was responsible for all development and support of the NIR technology for the Refining & Chemical branch. Progressively he and his team were also helping out other branches of the Total group, becoming a central technical team on NIR and Raman spectroscopy. He also developed some expertise on data science and machine learning for industrial applications. In November 2018, he will move to the R&D of the Total group, where he will be in charge of Data Science and Artificial Intelligence.

From Chemometrics towards data driven approaches

Chemometrics has been applied over the years in different industries. More recently, the scope and the application of similar techniques has been broadened to follow the digital transformation of companies. Machine Learning, and Data Science overall, has been ramping up and is now widely used to build data-driven approaches that can be deployed industrially. They can bring many advantages and benefits and are not only covering the mathematical part of the problem.

Data quality and volume, algorithms and IT infrastructures are all aspects, among others, that are extremely important for the success of deployment. The link between chemometrics, which can be seen as a particular subset of the Data Science field, and artificial intelligence is made through examples and diverse use cases, especially in the oil and gas domain.