

THE MONTHLY LIST

MARCH 2019



LIST SUPPORTS CERATIZIT IN ITS DIGITAL TRANSFORMATION

Drawing on the expertise of the Luxembourg Institute of Science and Technology (LIST) in Data Analytics and Artificial Intelligence, CERATIZIT is stepping up its transformation towards Industry 4.0.

In January 2019, Luxembourg company CERATIZIT and LIST signed a two-year partnership agreement. Backed by its expertise in Data Analytics and Artificial Intelligence, LIST will be assisting CERATIZIT with the digital transformation of its development and manufacturing processes with the support of the Luxembourg Ministry of the Economy as part of financial aid to further R&D.

Digital transformation is crucial for CERATIZIT which is striving to provide customers with ever more efficient solutions in the field of carbide cutting tools with a view to consolidating its position as one of the world's leading companies. Through the digitization of its processes, it will be able to leverage new, smarter control models, allowing it to achieve its goals. The Big Data collected on the processes, using ultra-precise 3D optical measurement systems, will make it possible to perform new types of analysis, such as provisional models on parts distortion during manufacturing. This will allow for the significant, continuous improvement of existing processes drawing on self-learning techniques.

To assist CERATIZIT, LIST aims to draw on the latest Data Analytics and Big Data architecture technologies. Together, the partners will explore various avenues with a view to improving product quality, increasing productivity and pushing technical boundaries. They will also review in detail the design of a new architecture to facilitate the collection, storage, use and recovery of Big Data generated during the manufacturing process, which, given its volume, requires a specific type of structure. Big Data gathered in this way can be used to automate, optimize and enhance the reliability of manufacturing processes. Different statistical analytics and Machine Learning approaches will therefore be used.

While CERATIZIT is building and strengthening its position as leader in its core business through its digital transformation project, LIST is fulfilling its own goal of stepping up adoption of artificial intelligence technology for Data Analytics in Luxembourg companies and institutions. This partnership is a new cornerstone in the close relationship binding the two entities in the transformation towards Industry 4.0 that represents for the industrial the promise of true flexibility in manufacturing, mass customization, greater speed, better quality and improved productivity.

Photo from left to right: Anusha Choory Balaji, Jean-Pol Michel, Uzma Iffat, Mohammad Ghoniem, Benoît Otjacques and Samuel Renault

OTHER HIGHLIGHTS



@ Amélie Philibert

International

RESEARCH LUXEMBOURG DELEGATION IN QUEBEC

During the last week of February 2019, LIST took part in a “Research Luxembourg” delegation visiting Quebec, Canada, with the aim of strengthening the links between both regions in the fields of research and innovation. LIST’s CEO Dr Thomas Kallstenius took part in the delegation with its counterparts from University of Luxembourg, Luxembourg National Research Fund, Luxembourg Institute of Health, Luxembourg Institute of Socio-Economic Research and Euraxess Luxembourg. Together, they visited various institutions such as University of Laval in Quebec City, Polytechnique Montreal, the University of Montreal Hospital Centre and the Fonds de recherche du Québec.

[Learn more at www.list.lu](http://www.list.lu)

Luxembourg

TEN CANDLES FOR “MASTER IN INFORMATION SYSTEMS SECURITY MANAGEMENT”

On 31 January 2019, LIST and the University of Luxembourg celebrated the tenth anniversary of the “Master in Information Systems Security Management” (MSSI) in the presence of students, alumni and professors. Within the partnership initiated in 2006, the two institutions are training IT security management professionals from all sectors. An expert in security and risk management at LIST, Nicolas Mayer is one of the two Heads of the Master programme. The LIST researcher teaches classes on risk management and ISO/IEC 27001, his role also including recruitment, programme management and student supervision. [Learn more at www.list.lu](http://www.list.lu)



@ University of Luxembourg

Environment

LIST VITICULTURE WARNING SYSTEM PRESENTED TO THE LUXEMBOURG WINE GROWER COMMUNITY

At the annual assembly of the Luxembourg wine grower community that took place on 6 February 2019, LIST presented its latest research results in viticulture. First, its researchers could understand how climate change will affect viticulture at both national and European level and develop adaptation strategies. Second, as part of a collaboration with the University of Trier aiming at establish a warning system for the vine disease Peronospora by means of drones and remote sensing, they could already monitor disease development in an experimental vineyard using a hyperspectral camera carried by an unmanned aerial vehicle. [Learn more at www.list.lu](http://www.list.lu)



Scientific Excellence

INNOVATIVE STRATEGY FOR REVERSE ENGINEERING OUTLINED AT SCM-9

LIST materials scientist Jessica Desport presented the Young-Scientist-Award Lecture (YSAL) at the plenary opening session of the Ninth International Symposium on the separation and characterization of natural and synthetic macromolecules (SCM-9) that was held on January 2019 in Amsterdam, Netherlands. First nominated and further selected as talented researcher by the organizing committee, she introduced an exclusive approach addressing the tricky characterization of very high mass macromolecules (>1MDa). This piece of work, developed with her colleagues, provides a powerful avenue to achieving non-targeted analysis of formulated polymeric materials: a LIST “know-how” greatly strengthening the Characterization Platform capabilities. [Learn more at www.list.lu](http://www.list.lu)



WHERE TOMORROW BEGINS

Located at the heart of Belval’s Research & Innovation Campus, LIST can easily connect its 600-plus specialists in materials, environment and IT, including its many PhD students, through a broad range of joint research projects, programmes and partnerships with virtually all of Luxembourg’s other major research players. At Belval, the University of Luxembourg, LIH, LISER, Technoport, Luxinnovation and the Luxembourg National Research Fund are all within arm’s reach.

CONTACT

Luxembourg Institute of
Science and Technology

5, avenue des Hauts-Fourneaux
L-4362 Esch-sur-Alzette

Tel.: +352 275 888 1
communication@list.lu