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Donnons un sens à l'innovation

Interactions

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"The entire spectrum of possibilities is now open"

Géraldine Soulié, General Manager, responsible for the Campuses at Renew University, Godmother for the 2026 UTC Graduation Class



FROM THE PRESIDENT'S DESK

Ever since it was established, UTC-Compiegne has adhered to and upheld a firm conviction: innovation only truly comes into its own when it brings together different fields of knowledge and addresses the challenges facing Society. This 70th issue of Interactions illustrates this credo, from the training of our engineers to the research carried out with our partners.

The 40th anniversary of UTC's Department of Technology, Societies and Humanities (TSH) invites us to reaffirm a founding ambition: to train engineers capable not only of designing and implementing engineering concepts but also equipped to question the aims and consequences of their choices. In the face of wide-reaching ecological, digital and social changes, this ability to bring different perspectives together, to exercise critical thinking and to ask the right questions at the right moment is henceforward primordial.

Established in 1993, UTC's Costech laboratory takes this ambition a step further by fostering dialogue and exchanges between fourteen disciplinary specialities centred on technical issues. Understanding in order to act, acting in order to understand: this approach fuels research that is attentive to the practices and transformations of our Societies.

With the four new interdisciplinary research centres launched in 2026, we are giving fresh impetus to this dynamic. Artificial intelligence, healthy living and ageing well, decarbonisation, resource management: the first TWIN projects demonstrate how the convergence of disciplines opens up new avenues, serving the aims of personal autonomy or the monitoring of pollutants.

This same commitment drives our sustainable mobility projects, our international collaboration and the links between students and graduates. These pages describe a university that experiments, shares knowledge and acts collectively. My gratitude extends to to everyone who helps brings this ambition to life: combining scientific rigour, an open vista and the responsibility to develop solutions that will surely benefit Society at large.

Claire Rossi,
President of UTC

GRADUATION CEREMONY – CLASS OF 2026

"The entire spectrum of possibilities is now open"

Graduating in 1996 from INSA Rouen with a degree in mechanical engineering, Géraldine Soulié initially worked for automotive equipment suppliers before joining the Renault Group in 2002. She has held several senior positions within the company. Currently General Manager in charge of the ReKnow University Campuses, she has accepted to be Godmother of the Class of 2026 graduation ceremony.

The Campuses are located in Cléon, Flins and Lardy, close to the Renault Group's industrial manufacturing sites. What is their purpose of the Campuses? Their aim is to develop and transform skills in an immersive environment. They offer hands-on training covering, in particular, electrified powertrain technologies and 'operational excellence'," she explains.

Géraldine developed an interest in the automotive and mobility sector at a very early age, and it was only natural that, having graduated recently with a degree in mechanical engineering, she first joined the components supplier Bosch, present in France and Germany, and then Valeo, France. Six years later, she joined the Renault Group. "I have held several roles at the Renault Group: in procurement, quality, engineering, the Executive Office to the Chairman, and health and safety. In 2021, I was appointed General manager in charge of international labour relations, a role I held for five years before becoming, in June 2026, general manager of the ReKnow University campuses. Learning has always been my driving force: every experience has enabled me to progress, combining technical, operational and people-related challenges. They reinforce my conviction that an engineer must know how to combine expertise, open-mindedness, curiosity and have a positive impact – a vision that is fully in line with the ethos of UTC's degree programmes," emphasises Géraldine Soulié, who joined UTC's Academic Board in December 2023. "It was a role I particularly enjoyed, but one I had to step down from in May 2026 due to my new responsibilities. I am therefore delighted to be able to return to the UTC this year as Godmother of the Class of 2026", she explains.

What are the prime messages she can share with the young graduating engineers? "Firstly, to congratulate them on their success! This milestone marks a unique moment in their journey, one where an entire world of possibilities lies wide open before them. The education they have received at UTC-Compiegne, with its many areas of excellence and a strong international outreach, enables them to tackle the complexities of today's world with confidence. May they have faith in their strengths, particularly their boldness and courage, because, in a constantly changing context marked by uncertainty, these are essential qualities and a tremendous opportunity to contribute, with discernment and enthusiasm, to shaping the world of tomorrow – the world in which they will forge their own paths and in which future generations will thrive," concludes Géraldine Soulié. ■ **MSD**


GÉRALDINE SOULIÉ

"May young engineers have faith in their strengths, particularly their boldness and courage; these are essential qualities and a tremendous opportunity to contribute, with discernment and enthusiasm, to shaping the world of tomorrow."

Energy-efficient artificial intelligence for electric mobility

On October 2, 2026, the fifth edition of the Artificial Intelligence Forum was dedicated to the theme 'AI for electric mobility', with a particular focus on energy-efficiency.

This event aimed at fostering a constructive dialogue between the worlds of research and industry in order to explore new avenues for innovation is organised with the support of the UTC Foundation and the UTYC-SAFE AI Chair, in partnership with GIS S.mart*, which brings together 35 higher education and research institutions spread across mainland France.

Why this theme? "Initially, we planned to dedicate this edition to the topic of 'batteries and AI', but very quickly, together with my colleagues—including Benjamin Quost and Sébastien Destercke—we decided to broaden it to include electromobility, on order to cover the entire electric powertrain and engage a wider academic and industrial network", explains Nicolas Damay, one of the co-organisers and a lecturer-researcher at UTC's Roberval Laboratory.

Who were some of the speakers? "Notably, we heard Emmanuel Batista from Alstom, a partner company with whom we are working on batteries, with the aim of ensuring maximum durability. Alejandro Franco, for his part, advocates the use of AI, particularly to simulate complex physical models (based on validation data) in order to speed up simulations. Finally, Benjamin Quost is working with Renault on the energy optimisation of electric vehicles by combining physical knowledge (battery, inverters, motors) with complex environmental data," he emphasises.

What avenues have been outlined? "All the speakers emphasised the need for a measured approach. Emmanuel Batista suggested using AI to process large volumes of data from train fleets that are continuously monitored. He demonstrated that, if the problem is properly framed, a relatively simple neural network is sufficient to identify indicators of ageing, such as a battery's electrical resistance. Physics First is the watchword of 'Alejandro Franco. In his view, AI must be grounded in human and physical knowledge to be effective," he explains.

And everyone emphasised the role of humans, particularly during the round-table discussion. "Contrary to alarmist talk of autonomous 'superintelligence', humans remain, in the eyes of all the speakers, essential for properly defining the problem, guiding AI and seeking solutions. And when it comes to education, they all emphasise the importance of maintaining a solid foundation and a critical mindset amongst young people and operate on the principle that any solution must be explainable, substantiated and justified", concludes Nicolas Damay.

A successful event, given the highly specialised nature of the topic, with dozens of people attending in person – including PhD students – and over 1 000 views on the YouTube platform. ■ **MSD**

* Systems Manufacturing Academics Resources Technologies.



WATCH THE LECTURES AND THE ROUND-TABLE DISCUSSION AT: WWW.YOUTUBE.COM/LIVE/YMFCG5L2EWS

SABINE BENSAMOUN, WINNER OF THE 2026 CHRISTIAN-ODDOU PRIZE

Sabine Bensamoun has been awarded the 2026 Christian-Oddou Prize, which is presented annually to an internationally renowned senior researcher in recognition of the excellence of his§her work in biomechanics. She was presented with this award at the 51st Congress of the Biomechanics Society, held in Montpellier from October 27-29, 2026. She also delivered a plenary lecture entitled 'From tissular mechanical properties to clinical applications', reflecting on her scientific career and the clinical applications of her research. Her work on pulmonary elastography will also be the subject of a paper in the international journal Clinical Biomechanics in 2027.

THE UTC-EDHEC BACHELOR'S DEGREE IN ENGINEERING AND DIGITAL MANAGEMENT (BIDM) CELEBRATES ITS VERY FIRST COHORT OF GRADUATES

Saturday October 10, 2026, the very first cohort of the BIDM, a dual degree programme offered by UTC-Compiegne and EDHEC Business School, celebrated the completion of their studies at a ceremony held on the EDHEC campus in Roubaix (North France). Launched with an innovative educational vision, this programme combines engineering, digital technology and management. By choosing to join this first double degree class, the students placed a bet on a new course of study, without being able to benefit from the experience of previous classes. Four years later, they are writing the first chapters of its success and paving the way for future generations. The ceremony featured speeches by Professor Claire Rossi, Director of UTC-Compiegne, who highlighted the boldness and complementary nature of this programme and Noémie Turlotte, a student from this first cohort, who received the Award for Excellence. In her speech, she spoke in particular about the "collective journey" experienced by the students, the challenges they had overcome and the pride they felt at having helped shape the identity of this new programme. This first graduation ceremony thus celebrated the students' commitment and the collaboration between UTC and EDHEC, united by a shared ambition: to train graduates capable of meeting the challenges raised by technological and managerial transformation.

MERESO : A NEW EUROPEAN PROJECT TO STRENGTHEN EURO-MEDITERRANEAN COOPERATION

UTC-Compiegne launched the European MERESO (Mediterranean Resilience & Strategic Objectives) project at the start of the academic year, funded by the Erasmus+ programme under the EU Higher Education Cooperation Partnerships (KA220) scheme. Coordinated by Alessandro Victorino, senior lecturer at the Heudiasyc laboratory (joint lab UTC-CNRS), this project brings together four partner institutions: UTC, the Galatasaray University (Turkey), the University of Genoa (Italy) and the National School of Computer Science (ENSI, Tunisia). MERESO aims to strengthen academic and scientific cooperation between Europe and the Mediterranean Region. The project centres on three priorities: developing synergies in research and education, encouraging the mobility of students and academic staff and promoting sustainable collaborations centred on pedagogical innovation, knowledge transfer and digital technologies. The inaugural meeting took place on October 2, 2026 at Galatasaray University, in Istanbul. It enabled the partners to define the project's governance, plan the various stages of implementation and launch the first joint initiatives. Through MERESO, UTC-Compiegne reaffirms its commitment to developing international partnerships and strengthening ties between higher education institutions on both sides of the Mediterranean. ■ PS



TSH* celebrates its 40th anniversary

*Technology, Societies, Humanities

Following extensive thought given to this matter, Guy Deniélou, Founder-Director of UTC, concluded that the university – which had incorporated the humanities and social sciences (SHS) from its very foundation – needed to make a qualitative leap and enter a phase of developing teaching and research in new fields. Thus, the forerunner of the Technology, Societies, Humanities (TSH) department was established in 1986. Among these imperatives, in his own words, were the obvious necessity and value of the humanities in the training of engineers and the significant potential for high-level training programmes as well as research areas at the crossroads of engineering and social sciences. He also perceived this as an opportunity to establish, following the example of Anglo-Saxon countries, genuine 'transdisciplinary' teams for teaching and research, which were virtually non-existent in France at the time. This was achieved in 1993 with the creation of the Costech (joint URTC -CNRS laboratory). The aim assigned was to achieve a balance between male and female students, which, in his view, fostered maximum creativity.

Facing contemporary crises: asking the right questions

Guillaume Carnino, a senior lecturer in the history of science and technology, has been Director of the TSH department since Autumn 2025.

A department established in 1987 that has continued to evolve ever since. It is currently organised around three key principles regarding the teaching curriculum. The first concerns the 'design' modules, the second the 'organisation and management' modules, and finally, the third, the 'communication' modules. "The aim of these priority modules is to encourage students not to limit themselves to a single field and to enable them to deepen their knowledge in these areas. This is particularly important as students are required to choose two TSH modules out of the six available each semester. These are not academic disciplines in the strict, classical sense of the word, for example. If we take 'design' as an example, we can approach it from the perspective of epistemology as well as through design itself. In terms of management, students can focus on either human resources management or economics and, finally, in the field of communication, they can choose from languages, information sciences or public speaking skills", he explains.

The UTC-TSH Department is yet again called upon to reinvent itself in the face of the upheaval caused by the advent and rise of AI, particularly generative AI. "The pervasiveness of AI is forcing us to innovate, particularly in our teaching methods. Until now, the great historical tradition of the humanities has been to produce written work not only in class but also at home. We operated on the principle that writing whilst thinking for oneself is how one learns to think. However, generative AI short-circuits this learning process and, as numerous studies show, jeopardises the very learning of autonomy and critical thinking," says Guillaume Carnino.

Which subjects are most popular amongst students at TSH? "At UTC, we have quite diverse student profiles – sociologically, culturally and economically – and this is reflected in the choice of modules, with students adopting different strategies. At UTC-TSH, we believe it is very important for engineers to adopt a humanities-based approach to understanding – and, why not, solving – a number of today's problems. Of course, there are always those who view the humanities from a purely utilitarian perspective. To caricature matters slightly, these people will be interested only in languages and management – which, in their eyes, are the keys to a successful career in the business world. But a significant proportion of the student body is increasingly aware of the environmental and social challenges facing the contemporary



GUILLAUME CARNINO



world,' he asserts. Himself a graduate of UTC, Guillaume Carnino turned to history very early on. Among the reasons? "I began studying science, naively thinking that it would help me understand the world. However, it didn't teach me much about the world I was living in. But it was with hindsight that I discovered that, to understand the world, approaching scientific and technology related issues through the humanities proved to be extremely useful. At UTC-TSH, we believe that many of the problems facing humanity today are framed. very poorly This is the case with the energy transition, for example and the stated goal of low-carbon energy. This issue is poorly framed because the history of energy shows that there has never been an 'energy transition' but only the addition of new energy sources throughout the industrial era. We consume more coal and wood today than in the 19th century, even though oil, gas and then nuclear power have been added to the mix. Hence the value of courses that scrutinise this trajectory and enable us to reflect on this issue in a different light. The approach favoured at UTC-TSH – and what we aim to teach our students, is how to ask the right questions', he concludes. ■ **MSD**

Costech : a strong interdisciplinary focus

Olivier Gapenne, a university professor in cognitive sciences and technologies – and more specifically versed in psychology – has been Director of Costech since September 2024. With a staff of nearly 60 – including lecturers and researchers, PhD students and postdoctoral researchers, not to mention associated researchers – Costech is now organised around four programme teams.

Established in 1993, primarily by philosophers and specialists in cognitive science, Costech (Knowledge, Organisations and Technical Systems) was, from the very outset, built around the following question: the technically constituted dimension of human cognitive faculties. "Following in the footsteps of Guy Deniélou, founder of the UTC, Bernard Stiegler, Costech's first director, had a very strong influence on the laboratory. It was he, and a few others, who championed the thesis that technology is 'anthropologically constitutive'. In other words, our cognitive and experiential capacities—in the broadest sense—are exercised only through technical supplementation. Contrary to the dominant discourse on the neutrality of technology, Bernard Stiegler synthesised work combining philosophy, in particular phenomenology, the philosophy of technology and, finally, palaeoanthropology. His work led him to conclude that technology has constitutive effects at both the individual and collective levels', he asserts.

This is the case, for example, with the technology of writing or printing. These technologies have profoundly transformed us, both individually and collectively, and have opened up a vast range of possibilities, such as scientific work.

A laboratory for the humanities and social sciences, Costech has since expanded into new disciplines. 'Today, we have fourteen different academic disciplines. These range from the philosophy of technology and cognitive sciences to epistemology, the history of technology, design, psychology, sociology, information and communication sciences, linguistics, political science, computer science and even economics and management. Furthermore, in many of the disciplines we practise, we adopt unorthodox approaches. 'In my discipline, for example, we have for a very long time adopted a paradigm known as enaction – a research programme that conceives cognition in terms of the organisation of living systems, rather than, as is more traditional, in terms of formal systems and the Turing machine,' explains Olivier Gapenne.

This makes it the most interdisciplinary laboratory in France dedicated to the study of technical phenomena. "For us, at Costech, it is a matter of studying technical phenomena through the lens of all disciplines," he adds.

Until 2024, Costech was structured around three teams: the CRED team (Cognitive Research and Enactive Design), the EPIN team (Writing, Digital Practices and Interactions) and, finally, the CRI team (Complexities, Networks and Innovation).

The unit was reorganised into programme teams, as of Olivier Gapenne's arrival in September of 2024.

"Before this reorganisation, team leaders were responsible not only for research activities and projects, but also for human resources, the team's budget, and so on. I wanted to relieve the researchers of these tasks so that they could focus on their research. Consequently, each team, led by a pair of scientific coordinators, is assigned a specific research question, with the aim of collectively developing a dedicated scientific programme. "In particular, they work on thematic areas such as 'narrative', 'democracies', 'possibilities', innovation and 'knowledge'," he explains.

A key principle guides research at Costech: doing to understand and understanding to do. "It is imperative that we continue to 'do'. Costech must remain a place where technical risks are taken. In other words, we must dare advocate technical proposals aimed at transforming or improving a particular situation or socio-technical environment. Taking risks in terms of conception or design, for example. 'Doing', whether through experimentation, modelling, simulators or the design of concrete objects or interfaces, is, in this respect, essential", he believes.

'Doing' is a means of putting discourses on technology to the test and of documenting the effects of usage to inform technocriticism/technoclinics when the toxicity of devices is proven. 'Doing' must also represent a means to explore viable and positive possibilities for our humanity. "We must therefore continue to nurture the reflective thinking and enthusiasm of the young research engineers we are training," insists Olivier Gapenne.



To embody this ambition, "the Costech research unit contributes to public and private partnerships, for example, through two chairs headed by Michaël Vicente and Thierry Gidel, and is involved in numerous initiatives, particularly at European level, such as the doctoral network led by David Flacher as part of the EU European Marie Curie programme, or through international partnerships within research networks in Norway on digital literacy (Serge Bouchardon), in Switzerland on gender (Delphine Chedaleux) or in the United States on AI applications in medicine (Marc Shawky)", concludes Olivier Gapenne. ■ **MSD**



Hutech : where engineers assume their responsibilities

Nicolas Salzmann, head of the Humanities and Technology (Hutech) programme, co-founded this programme in 2012 alongside Véronique Cherfaoui and François-David Sebbah. Until now, each intake had comprised 24 students. This number has risen to 48 for the start of the 2026 academic year.

A sign of its success, Hutech has attracted more than 2 000 applications from around the world this year. What were some of the reasons behind the launch of this unique pathway to enrolment at UTC? "The idea was to capitalise on the coexistence at UTC-Compiegne of engineering sciences (code named SPI) and the humanities and social sciences (SHS) – which analyse the effects of Technology on Society – at UTC-Compiegne. But the relative juxtaposition (on the one hand we create, on the other we reflect on the effects) remained unsatisfactory in our view", explains Nicolas Salzmann, himself a graduate of UTC, majoring in Mechanical Engineering and the Humanities.

Societies are constantly being reshaped by technology, whether in our lifestyles, our working practices or our relationships with others and with ourselves. "Technology is not neutral; it impacts on Society, to a greater or lesser extent. It is therefore a question of training engineers capable of understanding these dynamics of reshaping. To say that technology is not neutral means that engineers cannot hide behind the notion of future 'good' or 'bad' use that would depend solely on users, which would absolve them of any political responsibility in the shaping of human Societies. Technologies inherently embody uses and values. Choosing to develop one is to serve those values and promote those uses', he adds. "For example, generative AI is structurally based on data plundering (theft), on monstrous calculations (<e call it colos-dirty* pollution) to simulate thought (epistemic disaster, post-truth). As for the argument about saving time, this is clearly an endorsement of the values of productivism," says Nicolas Salzmann.

What are the key features of this programme? "In addition to the core engineering modules, from the very first semester we offer a significant proportion of teaching that analyses how science works and the effects of technology (this is what we call 'technocriticism'). But the synergy between the social sciences and humanities (SHS) and engineering (SPI) is merely a means to an end, the ability to look after society: what we at Hutech call a 'technoclinical' approach, supported by specific methodologies and tools developed through our R&D. Taking the example of generative AI: once we have criticised the very principles of these technologies, the clinical approach may involve recognising that the adoption of these tools is a symptom – that of a degraded working environment. On the one hand, amongst workers: those who no longer hope to create a fine piece of work, nor to develop themselves; and, on the other hand, in the world of education, for example, where a sixth-former or university student no longer sees that their task is to produce themselves, rather than producing documents. In education, the document is merely a means to an end; once written, it is discarded. A student who uses generative AI confuses the means with the end. What has led them to this? How can we protect them from it? A clinical approach will focus on restoring conditions conducive to the formation of the mind, to the libido sciendi', he explains.

> *"Hutech is aimed at young people interested in technology insofar as it must serve Society."*

The organisation of the course? "In practical terms, at Hutech, where the course spans three years, we ask students to choose their future elective major a little earlier, which allows them to focus on the sciences and technical subjects that prepare them for it and to leave a little more room for the social sciences and humanities and clinical methodologies. They can also start their specialised courses a little earlier, and their studies are completed in five years, just like for other engineering students," emphasises Nicolas Salzmann.

What are the profiles of A-level students interested in the Hutech pathway? "Hutech is aimed at young people interested in technology insofar as it should serve Society. "Initially, before the recent baccalaureate reform, we made a symbolic gesture of opening it up to economics and arts streams as well. With the new baccalaureate, most candidates have chosen to take at least one elective specialty in the humanities or arts in their 1re year. They have also discovered philosophy and express the wish, overall, to pursue an engineering degree without abandoning the humanities,", he asserts.

In a way, Hutech embodies the essence of UTC-Compiegne: "When its founder, Guy Deniélou, called for an end to the absurd separation between the humanities and so-called hard sciences, he wasn't just advocating interdisciplinarity, but about equipping ourselves to assume fully the responsibilities of an engineer", concludes Nicolas Salzmann. ■ **MSD**

* Play on words from "Colos-sale" = colossal in French

Phiteco : how technologies are transforming thought

Charles Lenay, tenured professor of Science, Epistemology and the Philosophy of cognitive technologies, conducts research notably into perceptual substitution and assistive devices for people with visual impairments. He is in charge of Phiteco, one of the very first minor programmes created at UTC-Compiegne.

Established in 1987 by Véronique Havelange, the minor course and the Philosophy-Technology-Cognition (Phiteco) seminar have been led by Charles Lenay and his colleagues ever since. In practical terms? "Engineering students can, in addition to their specific main degree programme, undertake supplementary training which will be recorded on their degree certificate,", he explains. This minor was created as part of a European programme involving, alongside UTC-Compiegne, several universities such as those in Bilbao, Liège and London, amongst others.

"At UTC, within the framework of this minor, we focus on cognitive sciences. These are sciences centred on understanding what thought and knowledge are. However, many disciplines – such as philosophy, psychology, linguistics and neuroscience – claim to know what knowledge is and offer a variety of different perspectives on this concept. The combination of all these disciplines forms what is known as the cognitive sciences", explains Charles Lenay.

What makes the Phiteco minor course at UTC unique? "We operate within a technical environment that has led us to make the following assumption: we cannot understand human cognition unless we understand how it is modified, transformed, produced and shaped by history through our being surrounded by technical devices. Within the field of cognitive science, we believe – and this is what sets us apart – that technology is constitutive of human experience. We say that technology is anthropologically constitutive (TAC). 'This TAC thesis is fundamental to both Phiteco and Costech,' he emphasises.



A minor course that has been highly popular with students since its inception. "In order for students to have "Phiteco" listed on their degree courses certificate, they are required to choose five modules dedicated to philosophy and cognitive sciences, including several compulsory modules, amongst which the famous Phiteco seminar. This is a major event held in January, during the first week of the intersemester break. During this week, students are exposed to research as it is being carried out," says Charles Lenay. The next Phiteco will therefore be devoted to the infrastructures of knowledge[1]. The seminar will likely also include a tribute to the late Gunnar Declerck. ■ **MSD**

[1] https://www.agence-aped.fr/pepr/pepr-ebiocarb/

Living in the Hauts-de-France region in 2050

At the invitation of the Hauts-de-France Regional Economic, Social and Environmental Council (CESER) of the French Hauts-de-France region, students from UTC-Compiegne have been working on the question of how it will be like, living in the Region in 2050. Valentine Lannuzel and Tom Padovani, second-year students on the Humanities and Technology programme, form one of the two Hutech pairs set up for this occasion.



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Why this involvement? "By involving students, the CESER wanted to bring a fresh perspective to its forward-looking work. Initially, they wanted to gather personal accounts from the students, but we preferred to explore the subject in greater depth in order to demonstrate our methodological rigour and showcase the Hutech programme", says Valentine Lannuzel.

For almost three months, they conducted research into the issue of population (un)settling for good in the Hauts-de-France Region, based on a forecast by the National Institute of Statistics and Economic Studies which estimates that the region could lose nearly 600 000 inhabitants by 2070. "We first wondered whether the cause lay in the housing crisis. However, there are 229 000 vacant homes in the region. The explanation lies more in connectivity. Rural or peri-urban areas without rapid access to major cities are suffering from 'technological relegation'. For households, the time and cost of transport eat into the savings made on rent, and this is precisely what we call the 'flow barrier'. For example, as it has a direct link to Paris, Compiegne is a well-connected town, which is not the case for most towns in Hauts-de-France", says Tom Padovani.

Subsequently, this forward-looking work led Valentine and Tom aimed at envisaging the cities of tomorrow, outlining a number of innovative solutions. "We don't want to promote greater connectivity: more train lines, motorways, and so on. That's the standard reflex in public policy. Instead, we're drawing on the concept of 'the 15-minute city', as theorised by Carlos Moreno. According to him, we need to make cities more liveable and ensure that the six essential functions are accessible within a quarter of an hour (by sustainable transport) from home: living, working, shopping, healthcare, education and personal fulfilment", explains Valentine Lannuzel. They are now expanding on this analysis by cross-referencing the" flow barrier" bottleneck with three other systemic dimensions: ecology, energy and finance. ■ **MSD**

CENTRE FOR INTERDISCIPLINARY RESEARCH

Innovative projects

Four Centres for Interdisciplinary Research (CRI) were launched in April 2026. These CRIs are organised around four main themes: 'AI and technological systems', 'Living well and ageing well', 'Decarbonisation of Society and systems' and, finally, 'Resource management (water, air, soil)'. Three projects – 'AMPIRE', 'Monitoring PFAS' and 'DASVIDANIA' – have already been selected following the first call for proposals.

AMPIRE
Developing a smart prosthesis to promote independence

How can we improve the comfort, reliability and everyday usability of lower-limb prosthetic devices? Led by Khalil Ben Mansour, head of the BioMovE research area at the UITC-BMBI laboratory, and Malek Habak, a lecturer-cum-research scientist at the Roberval laboratory, the interdisciplinary AMPIRE project combines biomechanics and materials engineering to better understand prosthetic walking and pave the way for smart prosthetic devices tailored to each patient's needs. Selected as part of the 'Living Well and Ageing Well' CRI, it is based on a collaboration with the Le Belloy functional rehabilitation clinic.

Starting with patients' needs

The origins of AMPIRE (Instrumented Prosthetic Gait Analysis for Rehabilitation), was a real-world encounter. "A week before the call for proposals, Malek and I had visited a specialist rehabilitation centre. The centre wanted to benefit from our expertise in motion analysis. When we came across the theme 'Living Well and Ageing Well', we immediately thought of the challenges of mobility and independence faced by people with amputations," explains Khalil Ben Mansour.

This line of thinking echoes the personal experience of Malek Habak, who spent several months in a rehabilitation centre following an accident. There, he interacted with amputees and observed the difficulties associated with wearing their prosthetic devices, particularly chafing, discomfort and the regular adjustments required for the devices. "This experience gave me a better understanding of the challenges patients face on a daily basis and strengthened our determination to develop an approach that links the mechanical functioning of the device to the wearer's comfort," he emphasises.

Regaining functional mobility is not simply a matter of having such a device. Asymmetrical weight-bearing, compensatory movements, instability and increased energy expenditure can complicate movement, particularly during everyday activities. The challenge is therefore to gain a better understanding of these difficulties in order to promote more fluid, comfortable and independent mobility.



Two PhD theses, a shared ambition

To address this challenge, AMPIRE brings together the complementary expertise of the UTC-BMBI and UTC-Roberval laboratories via two PhD theses, designed as two parts of a single project.

Within the BMBI Lab, the research led by Khalil Ben Mansour focuses on the functional analysis of walking. "We want to understand how an amputee adapts to their device, looking beyond mere criteria of speed or symmetry. We are seeking to identify biomarkers of movement fluidity that can characterise the quality of walking, including real-life situations: turning, climbing stairs or getting into a car." This research will notably utilise wearable inertial sensors and non-linear analysis methods. It will enable the development of a composite score incorporating fluidity, stability, energy expenditure and mental load, followed by the creation of personalised simulations to optimise the interaction between the deviced and the patient's motor strategy.

At the Roberval Laboratory, Malek Habak is working on the design of an instrumented device or socket-mounted device. The aim is to integrate sensors capable of measuring parameters such as deformations, temperature and pressure, in order to better characterise the mechanical stresses and interactions between the body and the device. "We want to develop a prototype self-instrumented

composite device that provides information on its behaviour under real-world conditions. This data could help to improve its design, reliability and comfort of use," he explains.

The originality of AMPIRE lies in the combination of these two approaches. Biomechanical analyses will help identify the relevant indicators to be measured within the device. In turn, the data from the sensors will help refine gait models and guide the design of the device as well as the positioning of the sensors.

"At present, in-depth study of gait kinetics often relies on specialised equipment that is costly and difficult to access outside dedicated facilities. Our aim is to develop tools that will, in the long term, enable us to better assess gait using data collected directly by the instrumented device," explains Malek Habak. This approach could thus facilitate patient monitoring outside the laboratory and bring scientific assessment closer to real-life conditions.

From proof of concept to the smart prosthetic device

In the short term, the project aims to validate biomarkers of fluidity, build a database and produce a prototype of an instrumented prosthesis. In the longer term, the knowledge gained could contribute to the development of a personalised digital twin, followed by smart prostheses incorporating on-board sensors and, ultimately, feedback tailored to the patient.

For Khalil Ben Mansour and Malek Habak, the challenge therefore goes beyond mere technological performance: the aim is to link the mechanical properties of the device to the functional experience of the amputee. Advanced discussions are currently underway with several functional rehabilitation centres with a view to establishing long-term collaborations and preparing for future validation stages.

With AMPIRE, both the BMBI and Roberval teams aim to bring biomechanics and materials science together to open up new prospects in terms of personalised prosthetics, comfort and independence for amputees. ■ **MSD**

Monitoring PFAS *(per- and polyfluoroalkyl substances)* *Combining analytical innovation and public policy*

Respectively a lecturer-cum-research scientist specialist in urban planning in the Department of Urban Engineering at the URC-Avenues Lab and a research engineer at the Enzymatic and Cellular Engineering Laboratory (UTC-GEC), Selma Baati, who works on urban water management practices and Franck Merlier, who specialises in high-resolution mass spectrometry, led the project on PFAS monitoring, which was selected during the first call for proposals for TWIN 2026.

A project entitled 'Monitoring PFAS: combining analytical innovation and public policy", forms part of three CRIs as it addresses issues relating to resource management – in this specific case, water – the use of AI and, finally, the decarbonisation of Society.

How did the project come about? "Initially, before the CRIs were established, Carine Henriot, Nassima Voyneau and Nathalie Molines from Avenues, Rachid Djellali from the BMBI and I envisaged submitting, as part of a call for projects from the 'Foundation for Medical Research', the ExpoPFAs project, which aimed to better understand exposure to these contaminants in the Creil-Montataire industrial area and their potential health effects. This was a highly interdisciplinary project, as it involved UTC-GEC for analytical chemistry, UTC-BMBI for biological modelling and, finally, UTC-Avenues for geography and social vulnerabilities. The arrival of Selma Baati enabled us to broaden the scope of the issue and successfully submit the proposal in response to the first call for proposals,' explains Franck Merlier.

A welcome addition to the team, bringing fresh expertise. "Indeed, I have been interested for some time in information infrastructures – that is, all the systems used to generate information on the management of water and sanitation services. The aim is that the use of this data can help to transform urban water management practices and, more generally, change our relationship with the environment," emphasises Selma Baati.

Two PhD theses have thus been launched as part of TWIN 2026. The first, supervised by Franck Merlier, is devoted to the 'development of AI agents for analytical prediction and the automated identification of emerging contaminants using LC-HRMS or liquid chromatography coupled with high-resolution mass spectrometry'; the second, supervised by Selma Baati, is entitled 'Production and uses of environmental and health data in the context of regional governance. The case of the Oise catchment area'.

Monitoring PFAS, which are regularly detected in water resources in the Hauts-de-France region, is of prime importance. "This monitoring is not straightforward because there is a disconnection between the complexity of this family of persistent contaminants—which transform in the environment—and what current methods are capable of detecting and tracking. This raises, first and foremost, a question of knowledge: what are we actually capable of characterising?" adds Selma Baati.

Currently, regulations require the monitoring of only 24 PFAS. There are, however, thousands. A recent study has, for example, shown that, out of a sample of eggs analysed across the region, 60 per cent were contaminated with PFAS.

"One of the project's initial objectives is to assess what high-resolution mass spectrometry can offer in terms of PFAS detection. We are particularly interested in two families of pollutants that are very prevalent in the Hauts-de-France region: the polar metabolites polar pesticide metabolites, linked in particular to chloridazone breakdown products, such as desphenyl chloridazone – the



CENTRE FOR INTERDISCIPLINARY RESEARCH

toxicity of which remains poorly understood – as well as per- and polyfluoroalkyl substances (PFAS), often referred to as 'forever chemicals'. With this PhD research, we will broaden the scope of our investigation to include molecules other than those defined by regulations – molecules that we will classify using AI. This will enable us to speed up processing times and increase the number of PFAS identified with certainty," says Franck Merlier. Indeed, when it comes to the risk of contamination, water is a key public health issue.

"It also plays a part in the circulation of these substances within the environment. Our initial premise was that, to improve the monitoring of these contaminants, it was not sufficient simply to improve detection methods. This also raises a second question: what becomes of the knowledge and new data generated on PFAS? How can they be integrated into existing monitoring systems? The PhD thesis linked to UTC-Avenues focuses on the practical monitoring of PFAS. It will involve tracking the data's journey: how are they produced, using which tools, and how frequently? How are they validated and processed, and how do they circulate between the various stakeholders – analytical laboratories, local authorities, water operators, etc.? We will then examine how the data is utilised by these stakeholders to inform decision-making. Our aim is to understand the entire socio-technical system involved in the environmental and health monitoring of PFAS, in order to analyse the conditions within which we shall need to integrate analytical innovations," concludes Selma Baati. ■ **MSD**

DASVIDANIA
AI for an autonomous acoustic drone

Jean-Daniel Chazot, a tenured professor in the Department of Mechanical Engineering at the UTC's Roberval Laboratory and a contract lecturer attached to UTC-Heudiasyc together with Jean-Daniel Chazot, a member of the resident « Acoustics and Vibrations » team and Jossué Cariño Escobar, a robotics engineer working on aerial drones, led the DASVIDANIA project, which was selected during the first call for proposals under the TWIN 2020 programme.

"An initial collaboration with Pedro Castillo of Heudiasyc and Sorbonne University, as part of a Cifre PhD funded by CETIM, has brought the fields of acoustic imaging and drone control closer together. This has resulted in the development of an autonomous drone demonstrator capable of iteratively detecting acoustic sources, from the loudest to the faintest," explains Jean-Daniel Chazot.

A successful experiment, carried out by a single PhD student, which both teams wished to continue. The call for proposals for TWIN 2026 programme therefore came at just the right time, and DASVIDANIA (Acoustic Drone for Autonomous Surveillance and Detection Powered by Artificial Intelligence), as part of the CRI 'Artificial Intelligence and Technological Systems', was proposed to combine expertise in acoustic imaging with that in drone control in order to improve the performance of the current drone.

Two PhD theses have been launched; one, supervised by Alessandro Victorino and co-supervised by Jossué Cariño Escobar, focuses on developing a robust adaptive control system for a drone using an AI-based disturbance compensation approach; the second, co-supervised by Jean-Daniel Chazot and Gautier Lefebvre from UTC-Compiegne, as well as by François Ollivier from the Sorbonne University, is dedicated to optimising a drone-mounted microphone array aimed at tracking an acoustic target and to "noise cancelling" acoustic measurements in the presence of airflow.

"One of our objectives is to develop an autonomous drone equipped with an acoustic array and to integrate AI into it in a specific way. At UTC-Heudiasyc, we had already begun using neural networks for drone control, but we wanted to go further and integrate other AI methods, not only for the acoustic sensors but also for the control system. The idea is to design a robust adaptive controller fed in part by acoustic data. Thus, knowledge of wind direction, velocity or strength will enable us to improve control efficiency and ensure greater stability for the drone," says Jossué Cariño Escobar.



What role does AI play in optimising the acoustic antenna? "From an acoustic perspective, we want to take things further. Currently, the demonstrator is in an indoor flight chamber; the aim with DASVIDANIA is to develop a drone capable of flying outdoors, where it will be subjected, in particular, to wind noise that will degrade its acoustic performance. Not only the wind, but also air turbulence caused by the drone itself will disrupt the noise we wish to measure and potentially drown out the signal to be detected. The 'The idea is to detect wind noise – its direction and intensity – and then substract this noise from the measured signal. Until now, we have relied on conventional noise-cancelling techniques. In this project, we have decided to incorporate AI trained using experimental data collected in an anechoic chamber. 'This will enable us, in a second phase, to substract wind noise from in-flight acoustic measurements,' explains Jean-Daniel Chazot.

This work is being carried out in collaboration with the Sorbonne University. "They have extensive expertise in acoustic measurement antennas. In particular, they have developed the antenna system based on ultra-lightweight MEMS microphones that we will be using in this project," adds Jean -Daniel Chazot.

DASVIDANIA is of great importance for improving the drone's performance in terms of detecting, locating and tracking an acoustic source. What are some potential applications? "There are many, and they can address both civilian and military challenges. The acoustic drone could, for example, be used to detect a gas leak in industrial networks or to locate people in distress," says Jossué Cariño Escobar.

Jean-Daniel Chazot adds: "The drone could also tackle the worrying issue of intrusive drones flying over sensitive sites such as airports or nuclear power plants or even detect and eliminate invasive alien insects such as the Asian hornet." ■ **MSD**

ECO-MOBILITY

ECOTRAIN, a successful venture

Professor emeritus Walter Schön and Mohamed Sallak, a tenured university professor at UTC, are both specialists in operational safety at UTC-Heudiasyc. They worked on the éCOTRAIN project, a project led by Philippe Bourguignon, a member of the IMT Albi-Carmaux Scientific Council until 2022. In 2025, they were joined by Joëlle Al Hage, a senior lecturer at UTC-Compiegne.



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A winner bet since in April 2026, a prototype was successfully tested at Saint-Pierre-des-Corps, a location where all railroad connected tests are carried out.

The project is funded by France 2030 and operated by Ademe, involving four industrial partners, Stratiforme Industries, Socofer, Clearsy and Syntony, and, in addition to UTC-Compiegne, an academic partner, IMT Albi-Carmaux. This project was launched in 2023 for a duration of four years, and an initial prototype was first tested on a 10-kilometre stretch in the Albi region from 2025. The trial proved successful, as the shuttle was presented at the Élysée Palace in November 2025 as part of the 'Fabrique française' initiative. This project is of immense environmental and social significance.

Indeed, many local rail lines have been closed due to a lack of profitability, resulting in the certain areas becoming isolated; and, in those where such lines remain, they represent not only a significant economic cost but also an environmental one, as 42 % of trains run on diesel. The aim of the ÉCOTRAIN project was to develop electric, battery-powered, autonomous, i.e., driverless, shuttles, which, crucially, require no maintenance of ground-based signalling systems and can travel an average of 70 km. "Conventional trains are guided by track-side signalling, namely by beacons located on either side of the track, which requires costly maintenance. In contrast, the small ÉCOTRAIN shuttles are guided by satellite (GNSS). Approximately 16 metres long and weighing between 10 and 12 tonnes – compared with the 50 tonnes of a conventional TER – they will have 32 seats. Automated operation will thus ensure a high frequency of service – we are aiming for services every half-hour – with timetables tailored to schoolchildren and workers, a 'stop-on-demand' system… These shuttles, by opening up previously isolated areas, could also revitalise them both economically and demographically. Furthermore, their lightweight construction and the options being considered for track design – notably the use of next-generation rails – will ultimately enable a drastic reduction in implementation and operating costs, whilst natively incorporating the issue of their "recyclability", explains Mohamed Sallak.

What is the UTC's specific role? "We were not involved in setting up the project, but we have been invited members since its launch in 2023. Operational safety and security constraints are of paramount importance when transporting passengers. Recognised for our expertise in these fields, we are conducting research on this project – primarily in collaboration with Syntony – into the operational safety assessment of satellite positioning (GNSS) to guarantee the accuracy and integrity of the shuttle's position using relevant metrics. We have also integrated sensors such as lidars, for example, to ensure continuous positioning – when the train is in a tunnel, for instance – but also to improve obstacle detection. This has proved a success, as in April 2026 a prototype was successfully tested at Saint-Pierre-des-Corps, a town in the Indre-et-Loire Department, in the Centre-Val de Loire Region of France.

It is located immediately east of Tours and is best known for Saint-Pierre-des-Corps railway station, a major TGV hub serving the Tours area, where all rail-related trials are carried out. Don't they say that the most reliable train is the one that's standing still? Indeed, the rail sector is one where striking a balance between safety and availability is a major challenge. The former requires that all necessary safeguards be validated. The latter can only be ensured through the robustness of the former. Safe and reliable trains: this is what was demonstrated during the tests. Today, the pre-commercialisation phase of the ÉCOTRAIN has been launched with the aim of starting to run shuttle services, at speeds of 70–100 km/h, by 2030", he explains.

To carry out the pre-commercialisation phase, a company called ÉCOTRAIN, chaired by Philippe Bourguignon, has been founded. "The funding requirements are by no means insignificant. At present, the company is seeking funding from local authorities, particularly those facing isolation or the risk of line closures due to low profitability. But this is a product that should also attract international interest. If orders are received in sufficient volume, the industrialisation phase should commence", he explains.

This project does not stop there, as the partners are currently working on a freight equivalent based on a shared technical platform. "The aim will be to develop lighter shuttles, weighing around 5 tonnes, for micro-freight – that is, the transport of goods over the last few delivery kilometres," concludes Mohamed Sallak. ■ **MSD**

COMPETITION

The wonderful, fragrant adventure of L'Oréal Brandstorm

Among more than 8 900 participants in France alone, three female students reached the final of the 2026 L'Oréal Brandstorm competition, an international innovation competition for young people aged 18 to 30, the international final of which took place in June at the VivaTech trade fair.

The underlying principle of the L'Oréal Brandstorm competition is to work in teams of three on a challenge set by L'Oréal, then to come up with an innovation and present it to various judging panels. This year's theme was to reinvent luxury perfume. "Right up until we qualified for the Top 10, everything was done remotely. We were supported in particular by coaches from L 'Oréal to prepare the project and our presentations, as well as by lecturers and guest speakers from UTC," explains Juliette Francony, 23, a UTC student majoring in Mechanical Engineering adds. "After qualifying for the Top 10, we were fortunate enough to visit Le Visionnaire, L'Oréal's headquarters in Paris, to present our project. We were then selected for the French Top 5 and took part in the final in Clichy." With her team, code-named "Imperceptible" – which also includes Julie Balageas and Millena Krotin – she focused her project on making perfume accessible to people with disabilities.



Accessibility as the main guideline

To make their perfume bottle accessible, they redesigned the pump so that it could be operated in different ways, including with the hand, elbow or even the chin. The aim was to make using the perfume more accessible whilst retaining the luxury experience and associate aesthetics. "We also developed several 3D-printed prototypes to assess the actual ergonomics of our new bottle. We put a lot of work into the marketing and launch of the product, as, coming from an engineering school, this was the aspect we were least familiar with at the start of this adventure," adds Julie, a 21-year-old also Mechanical Engineering student. "The Brandstorm theme -as I saw it -+inspired me greatly; perfume is a field in which I have a keen interest. Initially, I didn't expect the great adventure we've been on either; it was more of a personal challenge to try to come up with a concept that could address an existing problem. This project has strengthened my desire to continue my studies in the field of design and production." ■ **KD**

COMPREHENSIVE, HIGH-CALIBRE SUPPORT

UTC-Compiegne, and in particular its design programme, supported 16 students from all disciplines during the intersemester break and then throughout the semester as they took part in this competition. This took the form of lectures and tutorials on public-speaking, marketing analysis, creative workshops, realistic drawing and rendering, design, and an introduction to the L'Oréal world. "This support was provided with the help of L'Oréal, and in particular by Pierre Voisin, talent acquisition specialist, Sarah Dubus, a graduate in industrial design engineering and Sara Mendoza. This work culminated in the selection of one of the teams coached by UTC. Finally, the students' participation, supervised as part of a teaching and research project, was awarded ECTS credits and is an integral part of their degree programme. Few universities do this, and it is one of UTC's strengths," adds Emmanuel Corbasson, lecturer and researcher in the Mechanical Engineering Department and head of the IDI programme.

PREVENTION

A vibrant Pink Week at UTC

October 4-11, 2026, UTC once again rallied behind Pink Week. Runs through the town, bra collections, Pink Zumba, wellness sessions and sewing workshops – these were just some of the activities and events organised, in particular, by UTC's student societies.

Pink Week, which began on 4 October with the run and walk 'Compiègne en rose', is the event organised by UTC to mark Pink October. A week of awareness-raising where everyone is invited to come together for a wide range of activities. "Our main aim was to raise students' awareness of screening, particularly for breast cancer and to collect as many donations as possible for the fight against cancer. As well as our information stand at Le Pic in the morning, at lunchtime and in the evening, there were activities, workshops on how to perform a breast self-examination and collect donations," explains Robin Briche, a computer science student and member of the UCC Association (United Against Cancer), whose aim is to mobilise the campus around prevention, raising awareness and fundraising to combat cancer, through various events throughout the year.





Sewing workshop and poetic stroll

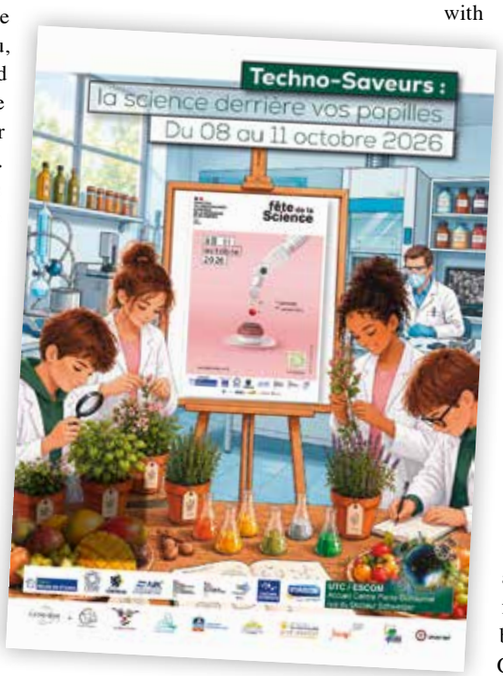
On Thursday evening, there was 'Zumba rose' followed by a 'pink aperitif' ('Apé'rose'), in partnership with the Crous, and, once again, a collection of donations. The Pikécoud association, for its part, organised a workshop to make and donate small heart-shaped cushions to women who have undergone breast cancer surgery. Placed under the arm, the cushion is designed to relieve post-cancer pain by reducing tension caused by the surgery. All the cushions were donated to the Onco-Oise charity and the oncology department at the Saint-Côme Polyclinic. Another highlight was the 'umbrella patrol' on Wednesday 7 October – a small travelling theatre troupe which, with humour and poetry, breaks down taboos and raises public awareness of the importance of organised breast cancer screening. There were so many opportunities to get involved, to get active, to look after oneself and, above all, come together – staff, students and sportspeople alike – for a fantastic week of engagement. ■ **KD**

SCIENCE FESTIVAL

Techno-flavours: the science behind our taste buds

UTC-Compiegne and ESCOM organised the Science Village for the 35th edition of the Science Festival, which took place from October 8-11. This free event, open to all, featured stalls, workshops, exhibitions and a series of talks dedicated this year to food, exploring the links between science, taste, cooking and health.

More than 40 workshops and lectures were on the programme for the 2026 Fête de la Science, spread over more than 3 000 m² at UTC. Among the talks in the Science Village was one entitled 'The other side of our plates: true stories that will surprise you', given by Karim El Kirat, a member of the UTC's BMBI laboratory and head of organisation for the Science Festival within the university's Scientific, Technical and Industrial Cultures (CSTI) division. "'There is, in fact, a whole team behind this, comprising students handling logistics and organisation, project manager Aurélie Salin, and Sylviane Héau, who plays an active and enthusiastic role on the organising committee for the UTC Science Festival. All of UTC's departments and laboratories are also pulling together to ensure this event remains a celebration", explains Karim El Kirat. Another talk, held on Saturday, October 10 and Sunday 11 and entitled "From peelings to biogas: the magic of anaerobic digestion", was presented by Xiaojun Liu, Thierry Ribeiro and Sorosh Samiei from UTC's TIMR laboratory (process engineering). They demonstrated how vegetable peelings can be turned into green energy. Through anaerobic digestion, microorganisms produce biogas and a natural fertiliser. Their 'Interreg FWVL OBIWAN' project, which brings together UTC-Compiegne, the CNRS in Lille, Certech (Belgium) and Ghent University (Belgium), aims to transform this organic waste into biofuels (biomethanol). UTC Director ¨Professor Claire Rossi has also imagined and implemented the workshop 'Combining pleasure and health taking fibre!' to explore the secrets of dietary fibre, its health and digestive benefits, and baking tips to try at home.



Nursery school pupils and interactive experiments

"This year, for the very first time, we organised a Science Festival specifically for nursery school children (middle and senior nursery classes) on Monday October12, featuring workshops on magnets, Scratch, electricity, buoyancy, insects… We welcomed 293 children from the Compiègne area, divided into 21 groups. They got hands-on with fun experiments which, we hope, will spark their interest in science," adds Karim El Kirat. Among the workshops on offer at this 35th edition was one led by Audrey Drelich from the UTC-TIMR Laboratory, entitled "Manufacturing secrets and scientific recipes in your bathroom", and 'When drones feed the future', led by Sergio Urzua Correa from the UTC-Heudiasyc Laboratory, on how drones will help feed the world tomorrow and how aerial technologies will contribute to 'smarter' forms of agriculture. Members of the Biocodex laboratory came to talk about the 'scientific flavours'… of medicine, opening the doors to pharmaceutical research through a series of interactive experiments. Mohammed Benali from ESCOM enabled young and old alike to discover, through simple experiments, how science reveals the tastes, colours, smells and benefits of natural ingredients such as propolis, rosemary and coffee. ■ **KD**



BIRD BEAKS AND SMURF FOAM

Timothée Baudequin, from the BMBI laboratory at UTC and a member of the Oise Bird Protection League, came to talk about what birds eat. "Fruit, insects, seeds, meat or even fish – birds eat everything… but not with the same beak!" Thanh Loan Nguyen, from ESCOM, came up with the idea of taking real jelly Smurfs and melting them in the microwave with lemon juice to create a super-viscous blue potion. By mixing this potion with bicarbonate of soda, the viscous liquid disappears as if by magic, giving way to a mountain of foam as soft and light as a cloud. The The Atomes Crochus association, for its part, offered experiments insp9ired by the world around us, our everyday environment, our kitchens… but also by questions we might sometimes ask ourselves, such as: can you cook an egg without heat? Can you light a candle without a flame touching the wick? Lucas Lardot from the waste management department of the ARC (Compiègne Regional Authority) led a wonderful awareness-raising session on composting organic waste. "Composting is about turning your kitchen and garden waste into a fantastic natural 'fertiliser'. Fruit and vegetable peelings, fallen leaves… All of this becomes a useful resource instead of ending up in the bin! The result: less waste, richer soil, healthy plants and a small but concrete step for our planet."

PATENT

DuraLayer, a promising innovation

Timothée Baudequin and Jean-Philippe Tosiani, a lecturer-cum-research scientist and a postdoctoral researcher respectively at UTC's BMBI laboratory, work primarily on biomaterials and tissue fabrication (BioFab), one of the laboratory's four scientific research prioritised fields. Timothée Baudequin is also the coordinator of the DuraLayer project, funded by the ANR*, which is dedicated to the development of a biomimetic dura mater substitute. This project culminated in September 2025 with the filing of a patent. (*ANR - national research funding agency

Following a degree in materials mechanics engineering, Timothée Baudequin turned his attention, during his PhD, to biological applications in the field of healthcare. His work focused, in particular, on the development of biomaterials, the interaction between cells and biomaterials, as well as tissue engineering.

His interest in the issue of the dura mater? "The surgeons I was working with during my PhD on biomaterials had mentioned the high risk of infection faced by patients when cranial prostheses come into contact with a synthetic dura mater. Years later, I realised, whilst looking at a microscopic image of the dura mater, that it had exactly the same structure as a biomaterial I'd worked on during my PhD. These are polymer fibres, the same size as collagen fibres, produced using the electrospinning technique. However, whilst reviewing the scientific literature, I found that thousands of articles concerned the use of electrospinning for bone, compared with barely a dozen for the dura mater," he explains.

Although this issue has been studied for several decades and substitutes already exist, their use is by no means risk-free. Hence the need to develop innovative alternative solutions to improve patients' well-being and, in particular, to avoid lengthy hospital stays.

Appointed senior lecturer, Timothée Baudequin decided to carry out preliminary research on the dura mater between 2020 and 2022, funded by a 'young researcher' grant from the UTC's Research Directorate and a 'PEPS' project from the CNRS. Following his promising results, the ANR took over in 2022 with a Young Researchers' grant totalling nearly 290 000 euros over three years. The icing on the cake is that Jean-Philippe Tosiani was awarded a grant from the French Ministry of Higher Education and Research for a PhD thesis on this subject.

What is the aim of this thesis? "The dura mater is the outer layer of the meninges. It is a semi-rigid membrane, the function of which is to protect the brain. As existing substitutes are not without risk, we decided to explore new avenues. The aim was to develop an electrospun, biomimetic and biocompatible dura mater substitute", explains Jean-Philippe Tosiani.

In practical terms? "Right from the start, we realised that electrospinning could provide a good basis for developing an innovative polymer thanks to its biomimetic properties. The next step was to define the correct parameters for composition and architecture—both on the bone side and the meningeal side—and to resolve the issue of incorporating an impermeable film between these two layers to prevent cerebrospinal fluid leakage. Such leakage is one of the main causes of complications associated with prostheses currently on the market. This has been confirmed by the surgeons in the maxillofacial department at Amiens University Hospital, with whom we have been in discussion,' explains Timothée Baudequin.
It was a successful endeavour, as the ANR project was extended by six months to include in vivo tests in the thesis and to establish a solid proof of concept.

The dura mater is the outer layer of the meninges. It is a semi-rigid membrane, the function of which is to protect the brain. As existing substitutes are not without risk, we decided to explore new avenues.

"The substitute we have developed consists of three layers of polymers. The two outer layers are produced by electrospinning to ensure biomimetic properties, whilst the middle layer is produced by solvent casting. Electrospinning is a technique which, by applying a voltage difference, allows a polymer solution to be spun – depending on the chosen settings – and a fibrous material to be collected on a rotating cylinder. As for solvent casting, it is, in a sense, a moulding technique. A polymer solution is poured into a calibrated container, according to our requirements, and left to dry, producing a plastic film which can be inserted between the two outer electrospun layers. Both the final material and the outer layers have been optimised for each cell type – bone or dural – following biological analyses", explains Jean-Philippe Tosiani.

A patent application was therefore filed for a prototype in September 2025, with the support of SATT Lutech, the technology transfer accelerator of the Sorbonne University Alliance. "The SATT has agreed, via its investment committee, to support us for two years so that we can continue the in vivo validation process, which would pave the way for industrialisation. Jean-Philippe is responsible for this industrial development," concludes Timothée Baudequin. The team also receives support from the Fondation des Gueules Cassées. ■ **MSD**









Regard sur

A mentor's words

UTC-Compiegne and UTC Alumni have launched UTC Mentorat, a programme designed to support students in their career choices, their professional aspirations and their transition into working life. A meeting with one of the 170 volunteer mentors. Pascal Dupont, who graduated from UTC in 1983 with a degree in Mechanical Engineering, responded positively to this mentoring project.

Pascal Dupont spent five years at UTC before graduating with a degree majoring in Mechanical Engineering. His first role was in industrial organisation consultancy. He then went on to head an engineering firm specialising in the automation of industrial processes for nine years. "I then held various roles (technical director, production director, plant manager and finally multi-site industrial director), mainly with major automotive equipment manufacturers in the plastics sector, then in aluminium foundry, for a total of 25 years. Finally, I took over an SME with 25 employees specialising in precision machining, which I ran for seven years before selling it very recently," reveals the recent retiree, who nevertheless remains active, as he occasionally carries out consultancy assignments for SMEs wishing to improve their performance or considering external growth opportunities. Thus, joining the UTC Mentoring Programme was a natural choice for someone who, throughout his professional career, has always maintained close ties with UTC, notably through research and development projects entrusted to his teams, offering work placements to students, participating in events organised by the university, and through his involvement with UTC Alumni, notably as a trustee of the association for six years.

Reflections on the role of the engineer within a company

"I see this role as a valuable complement to the academic training received by engineering students during their degree programme. Although this training covers a very broad spectrum of fields (scientific subjects, technical subjects, humanities and social sciences, general knowledge, etc.), supplemented by extended periods in industry, it cannot, however, provide the insight gained from decades of professional experience. In my view, mentoring perfectly addresses this gap by summarising and conveying the key aspects of the engineer's role within a company. It is also a way of explaining to future graduates the informal and implicit aspects of the profession, whether in a managerial role or as a specialist", says Pascal Dupont, who lives in Compiègne and has been mentoring a single student, Damien Deteve, since the programme began. The two meet once a month for about an hour. At their first meeting, Pascal Dupont suggested around fifteen topics drawn from his own experience to Damien, and together they identified the subjects that seemed most important. "I'm willing to mentor other students as soon as candidates come forward. Few engineering schools have implemented such a programme. UTC has often demonstrated its role as a pioneer in many fields, and this initiative is entirely in keeping with that tradition. It is now essential to encourage as many students as possible to take part in this scheme, which will save them valuable time in understanding the implicit mechanisms that govern business life." ■ **KD**



3 QUESTIONS FOR...

LUC ALBA, TRUSTEE OF UTC ALUMNI, UTC'S GUY DENIÉLOU COHORT



What needs led to the creation of the UTC Mentoring Programme?

There were requests coming in via UTC's Education-Business Relations Unit (PRFE) from students who were either in the middle of or nearing the end of their academic studies and who had questions about their future careers, but also similar requests coming from the UTC Alumni network. There was a desire to pool these efforts and develop a mentoring programme. There was also a need, driven by the PRFE, to ensure all students could benefit from networking opportunities, particularly those less familiar with the unwritten rules of networking, and finally, the idea of strengthening intergenerational ties. In short, reaching out to UTC Alumni and its 32,000 graduates was the obvious way to meet this growing demand for cohesion within the UTC community.

What values does this rely on?

When we look at the situation today, with companies becoming increasingly fragmented, when we observe the stances taken by competing nations abroad, and when we see the manipulation at work through the fake news flooding the information sphere, all of this has also guided us towards this idea of strengthening our bonds to defend our values. Thus, UTC Alumni, the PRFE and the Department for Socio-Economic Partnerships and Entrepreneurship (DPSEE) have joined forces in a rather ambitious endeavour, and we have been able to rise to the challenge, given that only a year elapsed between the idea being put forward and the launch last May. As for our strengths, it is worth noting that, amongst the mentors, there are people with extremely diverse backgrounds. We will, in fact, try to be as eclectic as possible.

What has been the outcome so far?

Around forty pairs have been formed, and the feedback from the network—with 170 selected mentor candidates, who were trained via 'webinars'—is very encouraging. There is also a chat function on the platform, which has now been launched. Students choose a mentor, and a mentor can guide up to five students. It is possible to change mentors. The dynamics of the exchanges are left to the pair. Alongside this mentoring network, there are support initiatives, particularly for mentors who do not have any students to mentor. One of our objectives is to engage participants in the dynamics of the system and to improve the user experience, such as access to information for future mentees. ■ **KD**

NETWORK

Alumni become

UTC Mentoring is the pioneering programme launched last May, drawing on the strength of a community of 32 000 graduates. A network in which the key principles of knowledge-sharing, cooperation and solidarity are put into practice to support students' career paths and promote equal opportunities.

170 volunteer graduates have been working for several months now to support 450 students through personalised discussions about careers, study pathways and first professional experiences. Around forty mentoring pairs have already been formed, and this is just the beginning for the UTC Mentoring programme, which arose from a joint initiative between the UTC Alumni Association, the PRFE and the UTC's DPSEE. "The platform is evolving, and in Version 2 we will enable both the alumni and PRFE teams to access statistics and details of the mentoring pairs that have been formed. In this Version 2, we would also like to focus more specifically on mentoring student entrepreneurs, where we believe mentors must be genuinely attuned to the challenges of setting up start-ups, having either founded a business themselves or already having experience in setting up and managing a business," announced Samuel Veillerette, Director of the DPSEE, who regards this programme as a virtuous cycle on several levels. There is an overarching cycle which involves increasing the points of contact between alumni—who are active in the labour market and familiar with the sectors into which future graduates will subsequently enter—and students who, before undertaking their work placements, have little or no experience of their future profession. "It is therefore first and foremost about bringing these two groups together, as they were not interacting as much as we would have hoped. The Mentoring Programme is indeed one of the tools designed to help them explore future career strategies. The second aspect is to enable our alumni – who are, after all, our closest socio-economic partners – to forge even closer ties with UTC, in a very practical way. The third aspect concerns the UTC ecosystem, because by increasing the opportunities for interaction, we also indirectly increase the number of potential projects."

AN INITIATIVE SET TO EXPAND

One of the UTC Career Centre's aims is to support all students as they develop their career plans and build their professional profile. The Mentoring Programme meets both these objectives. "Students need to draw on the professional experience of graduates who were in their shoes just a few years ago. The more students know about the career paths available to them upon graduating from UTC, the better they can explore their career options and make choices that suit them. The Mentoring Programme is a fine example of collaboration between UTC and UTC Alumni," adds Dany-Laure Lavillette, head of the Education and Business Relations Division at UTC-Compiegne. UTC Alumni manages and coordinates the community of mentors. The Education and Business Relations Division engages students and supports them in getting to grips with the programme. "In the upcoming version, the Mentoring Programme will be expanded to include the opportunity to conduct 'Career Interviews' with any professionals they are interested in before choosing a mentor for long-term support. It's a sort of exploratory phase leading up to the mentoring!"

A mutual exchange

Thomas Schapman was admitted to UTC-Compiegne after his A-levels, enrolling in the Humanities and Technologies (HuTech) programme, before majoring in Computer Engineering. He is currently on an Erasmus exchange for a semester at the Politecnico di Milano, Italy. He is still exploring various avenues in cybersecurity, artificial intelligence and network infrastructure, and is particularly considering pursuing a PhD. "I decided to become a mentee so that I could benefit from the experience and advice of someone who also studied at UTC. As I'm due to graduate next year, I'm reaching a point where I need to make important decisions about my future career path, and being able to discuss this with someone who knows both my university and the professional world seemed incredibly valuable to me." For him, mentoring is, above all, an exchange in which a professional takes the time to share their experience, advice and, if they wish, their network with a student who is considering their future. With a mentor from UTC, this exchange is even more meaningful because, at UTC, you shape a large part of your own academic path independently (choosing modules, specialisms, degree programmes, etc.). "Having someone who's been through it all and readily understands all these choices means you can get very practical advice that's relevant to your own path. It's also a great way to keep the alumni network alive and

mentors to UTC students

BECOMING A MENTOR AND PASSING ON KNOWLEDGE

Emmanuelle Girard graduated from UTC with a degree, majoring in Chemical Engineering in 1994. After her studies, she built her career in the automotive industry, working in both industrial and international settings. "I wanted to become a mentor because I believe it's important, today, to be able to pass on some of what I've learnt throughout my career. As a UTC alumna, I also feel I have a responsibility – or at least a desire – to contribute to this community in my own way. I find it rewarding to be able to share this experience with students, not by giving them ready-made answers, but by offering a different perspective, some guidance and sometimes simply the chance to take a step back. It's also a way for me to stay connected to UTC and to foster this bond between generations."



forge links between generations of UTC students. As a student, it's not always easy to get in touch with experienced professionals, especially when you don't yet have a network in the field you're interested in." His mentor works at Enedis, in the IT and telecoms departments. He takes the time to answer his questions. "For example, when I asked him about careers in cybersecurity, he asked around and directed me towards training courses accredited by the National Agency for Information Systems Security. He also shared his analysis of the IT job market with me, which is helping me a great deal in developing my career plans.

Facilitating, listening and bridging the gap between generations

Katell Barthélémy, who graduated from UTC in 2004 with a degree, majoring in Mechanical Engineering with Industrial Design as elective speciality, worked until 2019 at Universcience – Cité des sciences et de l'industrie on the design and production of scientific exhibitions (design and scenography). Since then, she has joined the project management department at RATP to support renovation and modernisation projects for both metro and RER stations. Today, she works with several different departments and leads innovation initiatives, particularly in areas such as urban regeneration and the evolution of project engineering. "I wanted to help a young professional get started in their career. At any age, you need advice and to take a step back. I see myself as a helping hand, a facilitator. I don't have all the answers. What I do know, however, is how to listen and ask questions. Nor do we have the same approach to work, which allows me to listen too and adapt my approach, and to question my own practices. It also brings the generations closer together," says the mentor, who meets her mentee, France Faucher – who graduated with a degree, likewise majoring in Mechanical Engineering in November 2025 – once a month. France currently works as a project manager specialising in the recycling of frameworks at Tricycle Environnement. She admits to having felt rather at a loss when facing this transition from the end of her student life to the start of her career as a young professional. "Many of us at the graduation ceremony hadn't been offered a place by the company where we'd completed our TN10 placement, and our lecturers sensed the wave of uncertainty we were feeling. The email offering the mentoring programme caught my attention. It's invaluable to me to hear my mentor's experience, and to realise that a female engineer's career path can take many different forms." ■ **KD**

"It is therefore already a matter of bringing these two groups together, as they were not communicating as much as we would have hoped. The mentoring programme is indeed one of the tools designed to help them discover future career strategies."

TESTIMONIAL FROM A MECHANICAL ENGINEERING MENTEE

Damien Deteve is in his final year of his mechanical engineering studies. He is completing his degree through an apprenticeship at Wabtec in Amiens as a project quality engineer apprentice. "Before I was assigned a mentor, I was facing two challenges. Firstly, I had a lot of questions about my career path – which specialism and which sector I should focus on to best meet my expectations. Secondly, as an apprentice, having a mentor allowed me to discuss issues I encountered at work, particularly from a human perspective," admits the student, who sees this mentoring as a way to better understand workplace relationships, especially those not defined by the hierarchy. "Furthermore, when taking on positions of responsibility, it enables one to draw on practical experience regarding potential challenges and how to overcome them. This initiative complements the theoretical content of the courses on topics that aren't covered, particularly in terms of management, people management and human resources."

PARTNERSHIP

An offer of new learning opportunities for Albanian and French students

A few months ago, UTC-Compiegne and the Polytechnic University of Tirana (UPT), Albania inaugurated the International Campus of Tirana (ICCT) with a strong partnership at its base between UTC and the PUT/UPT that began in 2008. Over a span of several years, there have been numerous student exchange mobilities, numbers ranging from two to, eight per year, thanks the initiative of Prof. Dritan Nace.

Cooperation between UTC and UPT began in 2008, when a delegation of two vice-rectors from UPT visited UTC. A collaboration agreement between the two institutions was then signed. "After that, I took charge of a course for UPT Masters' degree students and, since this year, I have continued to teach these courses at UPT, with annual visits of one to two weeks on site. Initially, cooperation was limited to teaching this course and supporting the integration of one or two students a year at UTC. From 2017 onwards, this cooperation gained new momentum with funding from Erasmus+ projects," explains Dritan Nace, a lecturer at UTC and co-director of the UTC-UPT International Campus. As a result, several Albanian students enrolled for exchange semesters at UTC, followed in 2019 by the first dual Masters' degree agreement and, subsequently, a delocalised Master's degree in 2022. All these exchanges paved the way for the launch of the ICCT, which has been operational since the start of the 2025 academic year. Currently, there are 24 undergraduate students studying Computer Science and 24 studying Electronics who have just completed their first year of the Bachelor's degree and 48 students enrolled on the Masters' degree programme (M1 and M2).

THE ICCT: A VIRTUOUS CIRCLE LINKING EDUCATION, RESEARCH AND INNOVATION

Le campus international UTC-UPT à Tirana (ICCT) est devenu un projet stratégique et un vecteur de diplomatie scientifique : rendre visible l'excellence française dans des Balkans où les présences allemande, italienne et turque sont fortes, construire une filière numérique francophone durable et ouvrir des opportunités aux entreprises françaises, notamment via des bureaux de développement. Il s'appuie sur l'accord intergouvernemental France-Albanie du 12 avril 2024. « Pour les jeunes Albanais, l'intérêt est varié : exigence scientifique, multiculturalité avec français intensif et enseignement mixte, professionnalisation par stage encadré, standards européens de scolarité et de jurys, poursuite facilitée en master et en thèse en Albanie comme en France. Pour les étudiants de l'UTC, ce campus offre notamment une opportunité européenne d'immersion dans un écosystème numérique en forte croissance dans un contexte d'adhésion à l'UE », ajoute Laurence Hafemeister qui a pris à la fin 2025, via Expertise France, la mission d'accompagner le déploiement du campus à Tirana. Elle en assure la codirection pédagogique avec Elinda Meçe pour l'UPT et Dritan Nace pour l'UTC.

"An incredible international experience"

Florian Miousset, 22, an M2 student in AI engineering, is currently studying at UPT through the Erasmus programme. "Last year, I learnt that UTC was going to open a campus in Albania in partnership with UPT, the ICCT, which would allow me to spend a semester there to obtain a double degree. Lecturers from UTC come to Tirana to teach the ISC Masters' degree programme, in the AOS stream (* Master ISC (Complex Systems Engineering), specialty AOS for Machine Learning and Optimization of Complex Systems). So, the experience is the same as at UTC… apart from the incredible international experience that comes with it, being in a magnificent country!" Thus, by the end of their studies, students will have had the opportunity to spend two semesters abroad: an Erasmus placement in Genoa, Italy, as well as the dual degree at the ICCT, whilst obtaining not only their French engineering degree in Computer Science, AI & Data, but also a Franco-Albanian Master of Science in Machine Learning & Optimisation. "I hope that all these international experiences and these various qualifications will enable me to find my dream job afterwards, in the management of sustainable and ethical AI projects." Florian Miousset has already had the chance to meet many international students through the Erasmus Student Network in Tirana. The campus is ideally situated in the city's economic centre and right next to Lake Tirana. "Tirana is indeed a very welcoming, modern and friendly city, close to some magnificent destinations on the Albanian Riviera. It's a very international city, not only because of the tourists but also because of the expatriates living in Albania. The Albanian students I'm studying with are very friendly and have made me feel very welcome, which is making my experience very positive."



Student mobility: a key pillar of this cooperation

Albanian students will have the opportunity to take intensive French language courses, followed by science courses taught by UTC lecturers visiting Tirana. Upon completion of their programme, they will be awarded a dual bachelor's degree (from UPT and UTC). The top students on the Bachelors' degree programme will be able to continue their studies at UTC on an engineering programme, whilst some may join a Masters' degree programme. Furthermore, UTC students will be able to benefit from the campus through exchange semesters in Tirana. Starting this year, 13 UTC students will take part in this programme. This strong partnership, embodied by the campus, is the logical culmination of a long-standing collaboration. "Personally, this experience has been extremely enriching, allowing me to combine French rigour and academic excellence with the youth, dynamism and pragmatism of our Albanian colleagues," emphasises Dritan Nace. "We are currently working on European projects in collaboration with another university." ■ **KD**

UTC FOUNDATION FOR INNOVATION

At the heart of scientific expertise in the field of hydraulics at the UTC

With its numerous stakeholders, it is time to take stock of the Chair of Hydraulics, led by Eric Noppe since 2010. One of its key contributions lies in the many engineers who have graduated from UTC and gone on to join the ranks of manufacturers and users of hydraulics following their time on the programme.

The Chair of Hydraulics was established in 2010 in response to the need to ensure the long-term future of teaching in hydraulic power transmission within UTC's engineering degree programme. This Chair is supported by the UTC Foundation for Innovation and the sponsor CETIM, which funds the hydraulics platform located on the ground floor of UTC's Daniel Thomas Innovation Centre. "This sponsorship funding is a key driver as it helps to generate business, industrial contracts, European projects, numerous interns and engineers recruited through the platform over the years, and, above all, a hydraulics accreditation awarded to UTC Mechanical Engineering graduates, which helps to support the hydraulics sector", says Patrick Dupin, Chief Operating Officer of the Saint-Gobain Group and Chairman of the UTC Foundation for Innovation. Sponsorship acts as a catalyst: it transforms an initial investment into a network of collaborations, projects and opportunities that benefit all partners. The UTC and the Technical Centre for Mechanical Industries (CETIM) have therefore established the Chair in Hydraulics and Mechatronics at the initiative of manufacturers in the hydraulic transmission sector and their trade association, Artema. "We are deeply committed to the chair's two pillars. Firstly, the hydraulics teaching component delivered at engineering degree level. That is why it was originally established. But also, the industry pillar. This has been our focus from the outset to forge closer ties with companies – whether large groups, SMEs or ISE*(* SME = Small and Medium-sized Enterprises; ISE = Intermediate-Sized Enterprises) – adds Laurence Cherillat, Artema's General Delegate. "To engage with this type of company, you really need to speak the language of industry, not just that of a researcher. You need that knowledge of the industry. This was one of the key factors when Éric Noppe was recruited, because he had a background in industry."

Fifteen years dedicated to hydraulic innovation

The Chair therefore enables a course in hydraulics to be delivered as part of the engineering degree programme, with 25 to 30 students trained each year. It also generates collaborative technological research through a testing and experimentation platform integrated into the Roberval mechanics laboratory. Finally, a continuing professional development programme for industry professionals complements this work. "Keeping abreast of hydraulic technology has enabled me to update my knowledge and meet my peers at international conferences. The close relationship with the engineering and continuing professional development company InSitu has provided an opportunity to offer work placements and roles to early-career engineers. Concerns regarding electrification and energy efficiency have a direct impact on hydraulics, which is a reliable technology but is not always used to its full potential due to a lack of demand. All of this justifies our work. The applied aspect enables collaborative research addressing genuine industrial concerns", adds Éric Noppe, who held the chair until 30 June this year. He joined the UTC as a contract lecturer and research scientist after 25 years' experience in industry.

"We are committed to presenting a stronger, more accurate and more attractive image of our professions to the industry's future talents. They will be on the front line in addressing major economic, social and environmental challenges."

Training and research at the highest level

Research engineers, PhD students and engineering students on work placements form the backbone of the chair. And CETIM, a patron of the UTC Partnership Foundation, has funded its operations from the outset. "All this is bearing fruit because, every year, we have a cohort graduating with a grounding in power hydraulics. This is important because it enables us to meet the needs of industry. A number of these engineers will go on to work for hydraulic component manufacturers or in other sectors and will instinctively think in terms of hydraulics. CETIM is committed to continuing its support because maintaining high-level training and research in these areas is vital. This is also the aim of our work within the framework of Mecallians, which brings together the FIM, UNM, Sofitech-Cemeca and CETIM. Through Mecallians, we are committed to presenting a stronger, more accurate and more attractive image of our professions to the industry's future talent. They will be on the front line in addressing major economic, social and environmental challenges. Our responsibility is to provide them, today, an effective framework for action", says Philippe Lubineau, Director of Research and Programmes at CETIM, which also supports the hydraulic drone – now the chair's flagship project – with the aim of producing an original demonstrator weighing less than 25 kg by 2025. "The next step would be an industrial prototype," concludes Éric Noppe. "The hydraulic mechatronic device is very appealing to students and ensures excellent visibility, particularly thanks to the EMM2015 Mechatronic Awards and an exhibition at the Global Industrie trade fair at the centre of the Mecallians stand, in partnership with Artema. In fact, activities promoting hydraulics and research feed into teaching and vice versa. Together, they shape the overall landscape of the Chair. My hope is that it will continue with the same momentum and that the new term will be even more successful, for the benefit of the students and the profession." ■ **KD**

AND THE SUCCESSOR IS…

"Hydraulics-related issues are linked to electrical engineering, fluid mechanics and flow analysis, optimisation and design methods in industrial engineering, acoustics, tribology and materials, and control systems." In short, this provides a very rich field of application for Roberval's scientific activities. For students, it is a way to refine their knowledge whilst studying for their degree, but also to take part in industrial R&D projects after graduation, adds Marion Risbet, director of the Roberval laboratory. "For them, the Chair is an ideal platform for entering industry with a recognised specialisation. They benefit from real-world industrial challenges, as well as high-level academic rigour that stimulates them. For the mechanical engineers at theUTC-Roberval laboratory, this provides a wealth of collaborative topics and case studies, because in a field as multiphysical as hydraulics, nothing can be achieved in isolation." ■



LAURENCE HAFEMEISTER

A multi-talented woman

Laurence Hafemeister, who graduated from UTC-Compiegne, majoring in Biological Engineering, is currently co-director of academic affairs at the joint campus run by UTC and the Polytechnic University, Tirana in Albania. Interactions draws a portrait of a woman of many talents.

Having completed her 'bac C', Laurence Hafemeister was hesitant between studying medicine or maths and physics. Passionate about maths and physics, she ultimately opted for these subjects at the University of Grenobles. However, she soon realised that her desire to pursue a course combining medicine and engineering was stronger. "At the time, there was a definite boom in the development of science and technology in the medical field. I therefore started looking for an institution that would offer this dual specialisation. That's when I discovered UTC, a pioneer in this field. I enrolled straight away for the biological engineering programme, which includes a biomedical elective stream," she explains.

A programme that trains generalist engineers with dual expertise combining engineering technologies and sciences with health sciences. "I really appreciated the flexibility given to students to organise their semesters with a variety of modules. This allows you to 'mix and match' science and technology modules with social science modules, for example. It's also a university that's open to the world, offering dual degree programmes and work placements, particularly abroad," she adds.

Having set off for her six-month end-of-studies placement at the University of Michigan Hospital in Ann Arbor, she ended up staying there for a year. "I initially worked in a clinical setting, but on a very advanced clinical research project involving not only doctors but also a professor of physics who was studying spectroscopy – in other words, everything to do with imaging (MRI). With him, I focused mainly on signal processing before turning my attention to image processing," explains Laurence Hafemeister.

This experience at the heart of research prompted her, on her return to France, to undertake a DEA (postgraduate diploma), followed by a PhD at the University of Orsay, formerly Paris XI. "My affiliated laboratory was based at the École Nationale Supérieure de l'Électronique et ses Applications (ENSEA) in Cergy-Pontoise. I worked there on image processing," she emphasises.

After successfully defending her PhD thesis, she joined ENSEA as a senior lecturer. However, she very quickly became interested in human perception of images, how we interpret them – or indeed the difficulty we have in interpreting them, etc. This led her to branch out into cognitive science. "I then carried out research into visual perception and visual attention, working in particular with neurobiologists and psychologists," she says.

In 2014, she was appointed Director of ENSEA, a post she held for 10 years. What were some of the reasons that led her to apply for this role? "I nourished the desire, the drive and the energy to modernise the courses, to further internationalise the institution and to organise campus activities for the students. Together with the teams, I developed a strategy we called 'Beyond Engineering', based on the idea that engineering and the development of tools and systems should serve humanity," she explains.

BIO EXPRESS

1998-99 : biomedical engineer, University of Michigan Hospital, Ann Arbor, USA

1994 : PhD in image processing, Paris-Saclay University

Since 1994 : senior lecturer in information technology, ENSEA, Cergy-Pontoise

2014-2024 : Director-General of ENSEA, Cergy-Pontoise

Since dec. 2025 : International expert in higher education, on assignment to Albania

Building on all this experience, she decided, in 2025, to apply for the two-year assignment, supported by the Ministry for Europe and Foreign Affairs and proposed by Expertise France, the public agency for technical cooperation. "The aim is to support the development of the campus, which was inaugurated in April 2026, between UTC International and the Polytechnic University of Tirana (PUT). It is co-directed by two directors: one, Dritan Nace, from UTC, and the other from PUT/UPT. Lecturers from UTC teach there, and Albanian students can earn a dual degree. We have also created a Bachelor's degree in 'Computer Engineering', another in 'Electronic and Engineering Systems', as well as a Master's degree in 'AI and Optimisation'. "For my part, I am the co-director of academic affairs for the campus," concludes Laurence Hafemeister. ■ **MSD**

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Director of publication
Claire Rossi

Editor-in-chief
Odile Wachter

Editors
Kaltoume Dourouri
Pauline Seban
Meriem Sidhoum Delahaye

Design/Realization
Dorothée Tombini-Prot
Antonella Vaudru

Translation by
Alan Rodney, BABEL TWO

UTC-CS 60319
60203 Compiègne Cedex
www.utc.fr

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MET EXHIBITION
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UTC's Innovation Centre
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9TH BIOMEDICAL EVENT
January 22, 2027
UTC's Innovation Centre
www.utc.fr

REBOND CADRE CAREER FAIR
February 4-5, 2027
UTC's Innovation Centre
www.utc.fr

UTC OPEN DAYS
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