SPECIAL ISSUE

INAUGURAL LECTURE

Tom Laperche : From a dream to « it's my job »

Page 3

ERASMUS MUNDUS

A second Erasmus Mundus for UTC

Page 11



NOVEMBER 2023 ### N° 61 Interactions est disponible en Français sur http://interactions.utc.fr

Donnons un sens à l'innovation Internet de la compact de l

UTC DOSSIER PAGE 5

Physical activities, nutrition addated



YOU HAVE THE FLOOR PAGE 15

A LOOK AT FRANÇOIS GABART a virtuous sailor



OR Code and discover the interactive version





FROM THE President's desk

For many years now, scientific communities and health sect professionals have been

warning us of the harmful consequences of adopting sedentary lifestyles with unbalanced diets. These are two of the four main risk factors for non-communicable diseases which represent the leading cause of deaths worldwide. These chronic diseases, their complications and recurrence rates, could be much better prevented through regular physical activity and sport, and an intake of appropriate nutrition. What is worrisome is that, physical inactivity is constantly on the increase in all sectors of the population, particularly young people. On a global scale, the WHO estimates that this will lead to almost 500 million new cases of chronic diseases developing between 2020 and 2030, putting a strain not only on people's health, but also on the global economy. As well as acting preventively, physical activity and a healthy diet often help people to manage their personal illnesses better and improve their physical and mental condition. For example, in the summer of 2023, the French health insurance scheme (Assurance maladie) is proposing to cover the cost of adapted physical activity for patients suffering from diabetes or cancer, so that they can incorporate these good practices into their daily lives

With the Paris 2024 Olympic and Paralympic Games just a few months away, it is important to remember that sports and physical activities generally were declared a Grand National Cause in 2024. UTC has long supported the development of actions in training, research and innovation, as well as in campus life associated with physical and sporting activities and nutrition. Thanks to the «UTC Sport élite» training programme, UTC enables students who are top-level sportsmen and women to combine their university studies with competition by providing them with individualised educational scheduling and support. All students and staff are not forgotten and can benefit from access to a very varied range of sporting activities (25) on the UTC premises but also more widely in the town of Compiegne thanks to a partnership with the ARC (Greater Compiegne. As a result, almost 40% of students take part in sporting activities, compared with 20% in most other higher education establishments. Finally, a diet that combines health, pleasure and a lower environmental impact is democratised through student initiatives and is studied in both training and research at UTC.

UTC is being mobilised - within the framework of its academic missions - to attain a rich, fulfilling, dynamic and healthy life for its staff and students alike!

Claire Rossi, Prof. Claire ROSSI, Director, President & Vice-Chancellor UTC

PARRAIN PROMOTION 2023

Committed to facing tomorrow's challenges

Patrick Dupin is a member of Saint-Gobain's Management Committee as the Group's Deputy Managing Director and Managing Director for the Northern Europe Region. He is also President of the UTC Foundation for Innovation and, since 2023, a member of the university's Academic Board of Directors. He will be Godfather to the graduation ceremonies of the class of 2023.

Patrick Dupin - who has spent the better part of his Career at Saint-Gobain, having joined this CAC40 Group in 2000 - emphasises the historic links between the UTC and the group. He is passionate about the issues of training and innovation, particularly in the glass division, since, he says, «glass manufacturing poses numerous challenges in terms of innovation, whether in the smelting process or in the product itself». It is only natural that links have been forged between the Group's industrial sites in the Compiegne area and the University.

It's about giving UTC the vision of industrialists, highlighting the challenges they may face and responding to any needs that may emerge.

And what is the nature of these links? «We've worked together to find industrial solutions, but we've also welcomed students for internships at our industrial sites and young engineering graduates for various positions,» explains Patrick Dupin.

And what is the underlying idea behind the UTC Foundation for Innovation? «It was cofounded in 2018 by Saint-Gobain, Sopra Steria, Poclain, UTC and UTC Alumni, with the aim of providing resources for the University so that it can develop research projects and continue to



innovate. Of course, our aim is to widen this circle of patronage», he explains.

What is his role as Chairman of the Foundation? «Well, it is not exclusively focused on Saint-Gobain. As the Foundation Chairman, I represent all manufacturers. It's about giving UTC the vision of industrialists, highlighting the challenges they may face and responding to any needs that may emerge. It's also about enabling UTC to define research programs that may be of interest to industry. Finally, it's about making sure that UTC and industry can work together on Chair projects or the development of research projects, as well as encouraging industry to work together,» he emphasizes.

And what will be your message to students as their Godfather? «The most important thing for me is to be able to inspire them. I want to show them the value of our commitment to industry, but also, through the example of the Foundation, show them the importance of building bridges between industry and academia by calling on the inventiveness of students and teacher-researchers. It's also about giving them a taste for industry at a time when the drive to reindustrialize is underway and encouraging them to take part in this adventure. Finally, it's about telling them that the challenges of tomorrow: decarbonization, economic circularity, preservation of the environment and biodiversity, etc., deserve their commitment and that future technologies can help us find sustainable solutions,» concludes Patrick Dupin. MSD

INAUGURAL LECTURE

From a dream to « it's my job »

Graduating in 2019, majoring in Mechanical Engineering from UTC, Tom Laperche received a great deal of support from UTC to reconcile his studies with high-level sailing activities. In 2022, at the age of 25, he won the Solitaire du Figaro and is now skipper of the SVR Lazartigue trimaran (32m long, 23m wide). On August 29, he delivered an inaugural lecture at UTC.

The main theme of his lecture? «Moving from the dream to 'this is my job',» he says. A mantra he would like to share with all students. According to him, the most important thing is not to censor yourself. «Take the direction you want to follow, make your dreams come alive and true, cultivate your passions, all the more so that the UTC ecosystem allows you to do so,» he exhorts them.

A native of La Trinité-sur-Mer in Morbihan, France, Tom Laperche was naturally drawn to the open seas. His parents enrolled him in a sailing club from the age of 7. Passionate about wide open spaces, he found the Atlantic to be the ideal terrain. «I was also lucky enough to rub shoulders with the big names in ocean racing, to see their imposing trimarans, some of them 18 m long, 'sailing' somewhere, balanced between air and water. I was fascinated by the Route du Rhum and the round-the-world multihull races,» he explains.

So, why did he choose UTC? «Even if it took me away from my beloved ocean, UTC was the obvious choice because it was one of the best post-bac engineering schools. I chose mechanical engineering because I thought it could serve my passion for sailing, but I had no idea that this passion would become my profession. For the first two years, I concentrated on my studies, but as soon as I finished my second year, I started to get a few boating opportunities. I was selected on several occasions to be part of certain crews. So, from the third year onwards, the UTC enabled me to reconcile my studies with top-level sport by arranging my study schedules and training times. For the last three years, thanks to the support of most of my lecturers, I've been able to take 7 to 10 days off a month to train at the Ecole Nationale de Voile in Quiberon,» he assures us.





One meeting was to prove decisive in his career. It was with François Gabart, whom he first met during a regatta in his third year. A graduate of INSA Lyon, the sailor Gabart saw in Tom a sort of replica of himself at his age. It was only natural that Tom Laperche should turn to him for his end-of-study internship at MerConcept, the company founded in 2006 by François Gabart for the purpose of developing an ocean racing team at the cutting edge of innovation and performance. «My internship focused on the design and improvement of mechanical systems to facilitate sail handling on the new M101 prototype trimaran, which foreshadowed the creation of the SVR Lartigue. In addition to the technical aspects, the course also included other aspects such as mental preparation, sophrology and nutrition, all of which are essential in ocean racing. In fact, Professor Marc Monetti's UV SP22 'S'apprendre pour mieux gérer' (Learning to manage better), which I took, is devoted to mental preparation», he points out.

His experience proved conclusive, as three years after his course, he won the 'Solitaire' du Figaro.

Other races to come? «François and I will be taking part in the Transat Jacques Vabre, which celebrates its 30th anniversary in 2023. The start is scheduled for October 29, with a record number of participants. François is also giving me the opportunity to sail single-handed on the SVR Lazartigue in the Arkea Ultime Challenge in January 2024 (solo round-the-world multihull race). I also hope to be on the starting line for the Jules Vernes Trophy to be held in winter 2024/2025,» he describes.

But as a company with a mission, MerConcept pursues objectives that go beyond boats for ocean racing. «At MerConcept, we want to make a concrete contribution to highlighting the innovations and high technologies of ocean racing, which could play a role in reducing environmental impact, particularly in terms of maritime mobility. To do this, we rely on a team of experts in the fields of composites, energy, electronics, aerodynamics, hydrodynamics... Hence our unique ability to innovate, test and share our advances thanks to our floating testbed platforms. One of our major objectives is to achieve more sustainable transport in the future, focusing on two key areas of our expertise. These are making boats fly and using the wind to move goods around on a large scale,» he explains. MSD



FULL HOUSE FOR PHILIPPE BIHOUIX'S LECTURE AT UTC

As part of the UTC's 50th anniversary Jubilee celebrations and its "Ecological Transition & Societal Commitment" lecture series, President and Professor Claire Rossi was delighted to welcome Philippe Bihouix, Managing Director of AREP, a multidisciplinary architecture and engineering design agency and a subsidiary of the SNCF Gares & Connexions Group, to UTC on Thursday October 12 to deliver a lecture on «La tech au secours de la planète? [Can Tech save the Planet?] With over 180 registrations, lecture hall FA205 in the Benjamin Franklin centre was fully booked. A second lecture hall was opened to broadcast the conference live and relay questions from the audience.



SUMMER SCHOOL AT UC BERKELEY FOR THE LEEGO Chair

During this summer school, 14 students from several universities (UTC, SU, CalTech, BAS, and Hanyang University (South Korea)) attended lectures given by Pr Fahmi Bedoui, Pr Christophe Petit, Director of the Monaris UMR SU-CNRS 8233 laboratory at Sorbonne-Université and Dr Andres Jaramillo-Botero, Director of the multi-scale modelling axis at the Materials and Process Simulation Center at CalTech. Seminars on nanotechnology were given by professors from UC Berkeley's College of Engineering and visits to related laboratories were organized during the stav. Inaugurated on April 20 and 21, 2023 at UTC in the presence of our partners from Caltech, the Chair covers the 3 themes around various in-silico methodologies capable of performing rapid screening in a pool of materials (matrix and nanocharges) that can have a combination of multiple optimal properties: mechanical, electrical, thermal, etc., experimentation to validate the in-silico approach and the development of technology transfer approaches for promising case studies. * acronym LEEGO : chalLEnges and opportunities in connecting lenGth and time scales in nanOstructured materials: the case of nano-reinforced polymers

UTC-HEUDIASYC PHD STUDENT WINS BEST STUDENT PAPER AWARD

As part of his Cifre thesis with Stellantis, UTC-Heudiasyc PhD student Pierre Laclau won a «Best Student Paper Award» for his paper «Predictive Network Configuration with Hierarchical Spectral Clustering for Software Defined Vehicles» at the IEEE VTC-Spring 2023 (Vehicular Technology Conference).

THREE ARFITEC PROJECTS FOR UTC

Three ARFITEC projects focusing on the Development of a Green and Innovative Industry, Data Science and Industrial Engineering have been selected for UTC. These 3 projects will make it possible to offer scholarships to students on mobility programs with our Argentinean partners and to fund teaching/ research missions within the framework of the projects.

SPECIAL EVENT

Alumni party to celebrate UTC's 50th Jubilee Anniversary

UTC Alumni celebrated their alma mater's 50th Anniversary on Saturday November 18 in Compiegne, the event culminating in a gala dinner. The program for this event was very rich and in keeping with UTC's 50th Anniversary celebrations.

The UTC Alumni association, in partnership with UTC and the UTC Foundation for Innovation, organized a festive day to celebrate the engineering school's 50th anniversary. The event benefited from the invaluable support of the city of Compiegne and the Agglomération de la ville de Compiègne [Greater Compiegne]. «The program had been planned from the start of the year 2023 and culminated in a wide range of activities on November 18. The festivities began at 9 a.m. with breakfast and lasted far into the night. Many of the graduates of the very first class were present. The Denielou class was looking forward to this event,» points out Céline Keldenich,

General Delegate of the UTC Alumni association, founded in 1978 and boasting some 28 000 alumni.

After welcoming speeches by Professor Claire Rossi Executive Director of UTC and Amine Smahi, President of UTC Alumni, at the Daniel Thomas Innovation Centre. а round table discussion took place on the theme of «Rethinking the role of the engineer in the face of the ecological crisis», moderated by Hugo

Foundation campaign lu UTC Foun

Leroux (GP

2010), an independent scientific journalist, under the watchful eye of Clémence Blot (GM 2014), an illustrator specializing in comic strip communication, who, accompanied by her felt-tip pens, was able to capture the various exchanges graphically. «The round table speakers were Eric Bertin (GM 1995), ecological transition trainer and founder of Jardins & Compagnie, Sacha Bourguet, UTC design student committed to societal transition, Isabelle Cailleau, Director of ecological transition and societal commitment at UTC, Laurence Monnoyer-Smith, Director of sustainable development at CNES and Fabrice Girard (GM 1981, founder and chairman of the Sofren Group.»

A 'chic meal' and a grand opening fanfare

After the inauguration of the «On monte une exposition temporaire» project in the presence of Arielle François (DEA UTC 1981), deputy mayor of Compiegne and Emmanuel Pascual, Compiegne town councillor, guests had the opportunity to discover various UTC platforms, including the «Halle Numérique» of the Costech laboratory, the GEC (Enzymatic and Cellular Engineering) laboratory's «Food Science» platform, the BMBI (BioMechanics and BioEngineering) laboratory's «Technologies Sports Santé» platform, the

TIMR (Transformations Intégrées de la Matière renouvelable) and Roberval



Foundation for innovation fund-raising campaign by Patrick Dupin, President of the UTC Foundation for innovation CEO of the Saint-Gobain Group.

Entertainment and surprises punctuated the evening, accompanied by gypsy music from the Boris Pelosof Trio. «The grand finale was the arrival of the dessert offered by one of the day's partners, Chocolaterie Bellanger, namely a 1.50-high chocolate sculpture equipped with a pyrotechnic system on the theme of UTC and its 50th Anniversary. We'd also like to thank our other UTC partners, members of the UTC Alumni Business Club: Elia Medical, OJC Conseil, J2S Conseil, MentalWorks and Sofren Group". Over 300 guests attended the event, which was expertly organized by the association's volunteers and operational team. **KD**

Physical activities, nutrition and health

The benefits of physical activity and a balanced diet are well established. Whether it concerns healthy individuals, to prevent diseases, or for people suffering from chronic pathologies, by improving both their physical and moral quality of life. However, physical inactivity and sedentary lifestyles are on the rise in all sectors of Society, particularly among young people. Hence the warning issued by the World Health Organization (WHO). According to WHO, almost 500 million new cases of preventable chronic disease will de diagnosed between 2020 and 2030, if the level of physical inactivity remains at this level.

Benefits of physical activity at all ages

Jean-François Grosset is a lecturer-cum-research scientist at UTC, specializing in physiology at the UTC-BMBI (biomechanics and bio-engineering) Laboratory. He teaches human physiology at both engineering and Master's degree levels.

he physiology of both healthy and pathological persons," he explains. His areas of research? «I'm particularly interested in the peripheral nervous system - in other words, all the "cables" running from the spinal cord to muscle effectors or from sensory sensors - as well as the functioning of muscles and tendons linking muscles to bone. I'm particularly interested in the adaptations of neuromusculo-tendinous structures», he explains.

It was defending his thesis on the effects of maturation in children that his interest in these lines of research became apparent. «I first carried out

tests with prepuberty children to obtain reference curves for the various neuro-muscular parameters in healthy children and then assessed the effect of prolonged immobilization on hospitalized children with primary hip osteochondritis. We need to know how this works in healthy subjects so that we



can target rehabilitation protocols in hospitalized children,» emphasizes Jean-François Grosset.

The effects of applying electro-stimulation

Research he pursued during a Post-Doc period at Manchester and Dublin. «I was interested in the evolution of mechanical, muscular and tendon properties in subjects undergoing strength training, and in the analysis of post-exertion muscle and tendon characteristics. Hypertrophy or atrophy for the former, more elastic or stiffer for the latter», he explains.

His research continued when he arrived at UTC, where he worked with a master's student to develop a training protocol based on Electro-Myo-Stimulation.

What was the aim of this protocol? «We were interested in evaluating the effect of training based on high-frequency electrostimulation at the maximum intensity tolerated by the subjects for 4 weeks, with 3 training sessions per week in the lab, and assessing whether the involuntary muscle contraction induced by electro-stimulation was of sufficient intensity to induce an adaptation process in the tendon structures connected to the muscles. We therefore set up this protocol for monitoring muscular characteristics, based on ultrasound imaging and ergometric tools, to see the architecture and mechanical properties of muscles and tendons, and the effects of training on them», he explains.

A project that merely confirmed the results of previous studies on the role of electrostimulation in improving muscle strength and volume, but showed, for the first time, the impact on tendons. «Four weeks of high-frequency electrostimulation increases muscle strength by 25%. But for the first time, high-frequency electro-stimulation has also been shown to induce tendon adaptation. Indeed, maximum stimulation at high frequency induced a contraction equivalent to 55% of maximum force. We have shown that, despite an intensity that can be considered average, the tendon adapts, showing a slight hypertrophy but above all a modification of its mechanical properties. These are very interesting results, particularly for the treatment of tendinopathies», explains Jean-François Grosset.

Prolonging autonomy for the elderly

These results led them, as part of Adrien Létocart's thesis in partnership with the Institute

of Sports Medicine in Copenhagen, to ask whether this average intensity was ultimately sufficient to induce muscular and tendon adaptation in the elderly, and thus prolong their autonomy. «We knew that training the elderly at 80% of their maximum strength induced muscular and tendon adaptations. But what interested us was whether it was worth imposing such high intensities on the elderly, who are nonetheless more fragile and therefore more likely to suffer injury than younger people. We tested the hypothesis that an average intensity of 55% would not allow the same muscular and tendon adaptation as 80%,» he says.

This hypothesis led Jean-François Grosset and the PhD student to set up a testing protocol for the elderly. «We took two groups of elderly people on a 3-month training program, 3 times a week, supervised by the PhD student. One group trained at a high intensity, viz., 80%, the second at a medium intensity, 55%. At the end of the protocol, both groups of elderly people had equivalent muscle and tendon adaptation for all parameters. An increase in intensity does not result in a proportional increase in gains for the elderly, but rather presents an increased risk of muscular, tendon or spinal injury. We were the first to demonstrate this,» concludes Jean-François Grosset.

These results have already been published in BMC Geriatrics, while two others are currently being submitted to the European Journal of Applied Physiology. **MSD**

40 YEARS OF BIOMEDICAL RESEARCH

Cécile Legallais is Director of the Biomechanics and Bioengineering Laboratory (BMBI), a joint UTC/CNRS research unit. She looks back over the laboratory's 40 years.

1973 : A DIRECTOR WITH A VISION

When the UTC was founded in 1973, Guy Deniélou, the University's first Director, had the idea of founding a department of biomedical engineering or engineering for health. This was quite visionary for the time. To this end, he sought out research scientists in the USA and elsewhere to form a core group, to be in charge of exploring purely biomechanical phenomena that had been little studied in France at the time. Dominique Barthès-Biesel, Michel Jaffrin and Francis Goubel were among the pioneers to join UTC. The first named was a specialist in the flow of capsules in blood vessels, the second a specialist in artificial organs and the third in the biomechanics of muscular activities, to complement the physiological approach which was dominant in France then.

1982: CNRS ACCREDITATION

In the early '80s, these pioneers successfully submitted a project to the CNRS. «1982 is to be remembered as the year the laboratory was created, because that was the year we received accreditation for a joint research unit (UMR) with the CNRS. From then on, the teams, which initially comprised around twenty research scientists, began to grow,» asserts Cécile Legallais.

CONSTANTLY EVOLVING RESEARCH THEMES

Over the years, the Lab's original themes have been enriched by new research approaches. «First there was the integration of a team of cell biologists at the end of the 1980s, which led 20 years later to the creation of a «cells, biomaterials and bioreactors» team. Thanks to this reinforcement, it then seemed logical to bring together artificial organs and cell biology in a broader group known as tissue engineering. Similarly, the arrival of Marie-Christine Ho Ba Tho enabled us to broaden our initial focus on muscular biomechanics by adding bone biomechanics. Today, we speak of biomechanics of the musculoskeletal system, this also combining electrophysiological signals and movement analysis. As for fluid biomechanics, it currently covers all the scales of the human body, from microcirculation to maior blood vessels.

BMA

COMUST

Finally, more recently, we created the Dan Istrate Chair in Connected Medical Tools. This brings an e-health component to medical devices that can be applied to our research themes», she adds.

From its initial staff of around twenty, the BMBI will have grown to almost

one hundred by 2023 - researcher-scientists, PhD students, technical and administrative staff and trainees - and 40 years on it still has its CNRS accreditation. A sign of positive vitality!

Performance & prevention



A mong the objectives of UTC's Centre for Expertise in the Biomechanics of Movement? «The aim is to federate and mobilise a range of scientific and technological skills around the theme of improving performance while preventing the risk of physical injury. Thanks to our scientific expertise and the various measurement systems on our 'Sport and Health Technology' platform, we

We have developed a number of specific measurement protocols in line with their sporting practice to assess their level of training by measuring and analysing physiological and biomechanical parameters such as muscle power, coordination, balance, etc.

can analyse and study the mechanics of human and animal movement both in the laboratory and in ecological situations. This enables us to address a number of issues, such as optimising performance and equipment while preventing injuries. It also enables us to define the optimum type of rehabilitation if necessary, as well as recovery for sportspeople, for example», he explains.

What sort of research work is carried out on humans? "We have conducted several regional and European projects on prevention through physical activity in gerontology. The aim is to introduce new methods and tools for supervising and monitoring physical activities at home. We demonstrated that adherence to a training programme is greater when it is carried out at home than when it is done in a sports centre or gym.

For top-level sportsmen and women, we have developed a number of specific measurement protocols in line with their sporting practice to assess their level of training by measuring and analysing physiological and biomechanical parameters such as muscle power, coordination, balance, etc.

As part of an ongoing training programme for young cyclists in the Haut de France selection team, we have also provided athletes and their coaches with objective information about their performance levels, with a view to drawing up an individual, made-to-measure training programme,» he adds.

And in regard to animal research projects? «We have been working in collaboration with the École Nationale Vétérinaire d'Alfort (ENVA) and the LIM group, a group of manufacturers specialising in made-to-measure equipment for riders and horse protection, to set up a system to help detect equine lameness. The aim of this project is to help improve the performance of the "horse athlete" while respecting its well-being, health and physical integrity. To this end, we have developed a system of inertial units - a set of sensors housed in a box that attaches to a segment to monitor its orientation, speed and position - to detect lameness, and we have set up a station to analyse horses when swimming, to monitor their rehabilitation. **MSD**



UTC DOSSIERS

Nutrition, one of the key elements for health

Mirian Kubo has been a lecturer-cum-research scientist at the Université de Technologie de Compiègne (UTC) since 2021 and has been head of the IAA (Innovation, Food, Agroresources) course in Biological Engineering (GB) since 2023.

t was during her studies in agro-food engineering in Brazil that she had the opportunity - during a one-year university exchange - to join UTC at the end of her course. It was a year

in which she first followed the GB course and then went on to do a thesis in food process engineering at ONIRIS, Nantes.

What was the subject of her thesis? «The aim was to evaluate and model the multiphysical processes involved in microwave heating for the inactivation of enzymes in fruit juices», she says. She returned to Brazil to do a post-doc at the Escola Politécnica/ USP in São Paulo, then joined the UNESP university as a post-doc while combining with some teaching (ATER).

In 2021, she came back to UTC where she joins Claire Rossi's research team at the GEC laboratory, teaching courses on GB, agri-food and nutrition. It was only natural that she should teach part of the SP-11 course. «There are two parts: one on physiological adaptation to physical activity, the other on nutrition. For my part, I teach subjects relating to diet, sleep and the microbiota. In this course, we look at the macro- and micronutrient requirements of healthy individuals, particularly athletes. Carbohydrates and proteins are very important macronutrients for athletes, for example. We also call on external lecturers, particularly from Sorbonne University, who talk about the effects of nutrition on human health, in particular on the health of people suffering from chronic illnesses», explains Mirian Kubo.

A project with Tom Laperche

Her skills in nutrition and a discussion with Arnaud Vanicatte led her to set up a student oriented project for skipper Tom Laperche ahead of his solo round-the-world race next January. «As part of the BT0-7 UV (Formulation, Innovation, Nutrition), under the responsibility of Prof. Claire Rossi, we are working on the development of healthier, more nutritious food products compared with more conventional products. Take cakes, for example. In general, they are too sweet and fatty. We are going to modify the formulation so that they are less sweet and lower in fat but still taste good. In this UV, we set up projects with the students. This semester, they will be formulating and developing products to meet Tom's personal and sporting needs», she concludes. **MSD**



UTC Sport Elite

Arnaud Vanicatte is Director of the University Physical and Sports Activities Department, which enables students practising top-level sport to combine their studies with the practice of their personal disciplines under the best possible conditions. In short, it is a support role for athletes such as Louise-Esther Fabre in rugby, Léonie Leroux in cycling, Liam Brisson in rowing, Romain Bel in fencing and Adrien Picard in aerobatics.

Y role is to help them define their dual project, often before they integrate UTC and sometimes even before they apply to the University, in order to see if the project is feasible, first of all because the applicants are working on two high-level projects. These are the engineering course on the one hand and high-level sport on the others. We check whether all the conditions are in place for students to prosper and flourish here in Compiegne and at UTC and whether they can reconcile sport and studies. We sometimes advise students against coming to the UTC if the sport they are practising requires them to travel a long way, for example. Once the Parcoursup"* selections have been made, I ask them to contact me to confirm whether they are still interested in UTC,» he explains.(* Parcoursup is the French semi-automated HE admission on-line application system.)

But his role doesn't stop there. Arnaud Vanicatte admits that for kids just out of high school, arriving at a university where they are completely on their own can be destabilising. «The first thing is to reassure them. Studying is difficult and they may naturally wonder whether they will be able to cope with their two projects at the same time. Next, it's my job to organise their studies, i.e. to work with them to put together a timetable that's compatible not only in terms of following courses but also sports training and competitions. For competitions, which are usually held at weekends and often far from Compiegne, they need to be able to get to their training sessions in time.



In order to meet the expectations of high-level sports students, UTC has created a special structure called : "UTC Sports élite". This structure welcomes very high-level sportsmen and women, sometimes at international level, but also very young people with sporting potential, by setting up individualised educational support in consultation with the university's educational course managers to enable them to continue competing. «This can involve setting up distance learning courses. This is the case for rowers such as Liam Brisson, who had to be in Lvon with the French rowing team. Of course, they sometimes have to extend their years of study. Some complete their degree in 11 semesters, others in up to 14 semesters. They can also take sabbatical semesters, like one of our students who wanted to devote the next semester to preparing for the Olympic Games,» explains Arnaud Vanicatte.

Both the management and teaching staff are very aware of the UTC's top-level sports policy, which enables talented students to flourish, particularly in rugby, fencing, cycling, rowing and aerobatics.

Louise-Esther Fabre, 22 years old, captain of the Stade Français Women's Rugby FFR

> «I'm a computer engineering student in my semester 5 and I've been playing rugby since the age of 13. I started playing rugby in Etampes, at a small local club where I was spotted. I went on to play for

a departmental team, then a regional team, before joining the regional training centre in Brétignysur-Orge as a boarder. There were ten girls my age, thirty in all, and we trained twice a day for a total of ten hours a week, not counting the matches every weekend. When I arrived at UTC, I asked for special arrangements, but they were refused because I had to prove myself in terms of my studies first. So I joined a 1st division club in Bobigny, but as I couldn't attend all the training sessions during the week, I only played in the reserve team. In my 3rd year, I was given special arrangements and joined the Stade Français, a club that had just dropped down to the 2nd division and whose aim was to climb back into the top echelon. In 2022, we achieved our goal and were also we consecrated as French champions. I'll get my UTC diploma in five and a half years instead of five,» says Louise-Esther Fabre.

Liam Brisson, 24, rowing, Prix Destremau 2023

«I came to UTC in 2017 to study mechanical engineering and the University allowed me to complete my degree in seven years instead of five. In fact, I took fewer subjects per semester



so that I could take part in training courses with the French team in the run-up to the 2024 Olympic Games. I was entirely seconded to the Olympic centre in Lyon, where the national team trained for 28 hours a week, and I followed my lessons by video. The great thing about UTC and its teaching staff is that they do everything they can to ensure that you can combine top-level sport with your studies. Unfortunately, a nasty injury recently shattered my dreams of taking part in the 2024 Olympics. I did receive a small consolation though, in 2023 when I was chosen for the Gérard Destremau Prize, in memory of the Roland-Garros champion, awarded once a year by the Académie des sciences morales et politiques to a top level sportsman or woman», explains Liam Brisson.



Léonie Leroux, 17 years old, a cycling "espoir"

«I have just been admitted to UTC in of the core curriculum and right from the

start I was given a choice of courses and timetables. I also have access to a "weights" room dedicated to top-level athletes so that I can do my training, especially in winter when it's important in cycling. For bike training, I try to find people to ride with me around Compiegne, otherwise I go once a week to train with my Parisian club, the women's Sprinter Club, based in Saint-Quentin-en-Yvelines. I've been cycling for five years, training 15 hours a week, excluding weight training, general physical preparation and competitions. I currently ride on the road and on the track, but my sporting objectives are on the road. This year, for example, my national division 2 team won the French Cup,» says Léonie Leroux.

Romain Bel, 22 years old, fencing, objective: Olympics 2028

«Just before the covid in 2019, I was admitted to

the core curriculum at UTC, the university I chose for its 'Sport Elite' programme. You have to realise that I train in Paris for around fifteen hours a week, and that means I need to have time to travel back and forth. The UTC has



given me that. But it's not just the training schedule that's important, there can also be organisational problems during competitions, for example, and in that respect Mr Vanicatte's role is irreplaceable. In the beginning, Covid allowed me to collect UVs, but since I started in the major branch, I've been doing 4/5 UVs per semester instead of 6/7. I'm currently in my 3rd year of Mechanical Engineering and I'll be doing the engineering course in five and a half years, which is one semester longer than the normal course. I started fencing at the age of 6, as my father was a fencing teacher. I started competing quite early on, first at departmental level in Paris, then regionally, then nationally and now a little internationally. Today, I'm 1st in the Ile de France region, 23rd nationally and 214th internationally. My aim now is to keep improving so that I can join the French team for the 2028 Olympics,» explains Romain Bel.

Adrien Picard, 24 years old, with the 2024 European Aerobatics Championships as the target

« I personally followed a slightly different route compared with my fellow students. I first did a DUT before joining UTC in 2019 to do my licence pro (professional degree) and then, in 2020, was admitted to the

Mechanical Engineering major branch. To start aerobatics, you need a Private Pilot Licence (PPL), which I got in 2017 when I was 17. At the same time, I started a two-year aerobatics training course in Amiens before starting to compete in 2020. One of the characteristics of aerobatics is that the flights take place mainly in the spring, mainly for climatic reasons. This requires special organisation. So, the autumn semester includes the adapted courses so that I can have time to look for sponsors but also be able to honour the obligations we have towards them, particularly in terms of representation. This takes up a lot of time but doesn't pose any particular constraints because you can do it from home. In the spring, however, things are different. Personally, I train in Caen. A two-day weekend is very tiring in this discipline. So I asked for an extra day on either Monday or Friday, depending on the weather forecast, which was granted, allowing me to schedule my lessons over four days. My ultimate goal, at this time, is to be chosen for the French squad competing in the European Aerobatics Championships in 2024,» says Adrien Picard. MSD

INTERACTIONS

FÊTE DE LA SCIENCE

A fête designed to let you get a grip on science

With the Paris 2024 Olympic and Paralympic Games less than a year away, sport and science were the main themes of the 32nd Fête de la science organised by the French Ministry of Higher Education, Research and Innovation. From October 12-15 almost 4 000 visitors came through the doors of Compiegne University of Technology, the largest science village in the Hauts-de-France region, with 44 stands. Students and teacher-researchers vied with each other «to make people want to come, to present science in a friendly and fun way, give people a taste for scientific careers and make children realise that science is everywhere and that they can have a scientific culture», explains Karim El Kirat-Chatel, head of scientific, technical and industrial culture (CSTI) at UTC. Here's a small sample.

Sport and its relationship with materials science, sustainable development, economics, sociology and health... A fertile theme for understanding the challenges and progress of tomorrow, exploring technological advances and the evolution of materials in the service of sport, the impact of nutrition on performance, the ability of insects to break sporting records...

Nicolas Rivoallan, a PhD student in biomaterials at UTC and the Institut für Mehrphasenprozesse in Hanover (IMP), Germany, who is seeking to recreate the junction between bone, tendon and muscle using electrospinning, was one of the guests at this 32nd Fête de la science. Nicolas won first prize from the

jury of the 2022 final round of the competition "My thesis in 180 seconds flat" and was also one of ten authors selected by the French Ministry of Higher Education, Research and Innovation to explain his studies in the annual "Sciences en bulles" comic strip distributed throughout France. Weaving tendons like Spiderman democratises tissue engineering with a sense of humour. His demonstration through his linear and stylised installation also follows these precepts of simplicity. «I love talking about my thesis subject, which is about recreating a kind of tendon, bone or bioartificial muscle by combining cells and materials. It's interesting to share it with the general public. I'm also motivated by the idea of inspiring people to take up careers in this field. The subject is very biology-based, integrating bio-mechanics and bio-engineering. It started ten years ago. Research scientists are passing the baton to find a concrete solution for repairing tendons. It will still be some time before they can be implanted. Nevertheless, what we do can be useful for other aspects, such as testing drugs or gaining a better understanding of what happens at the interface between bone, tendon and muscle». "Sciences en bulles" convinced the student in his final year to move into science outreach. The handover before his departure at the end of the academic year is underway to enable the work to continue.

Al and parity also on the agenda

Although sport was the theme chosen for this year's Fête, other subjects were also addressed, such as AI and the 'Victeams' project. The

use of artificial intelligence and virtual reality to create emotional experiences and immersive personalised scenarios to solve training and decision-making problems is one of the projects being conducted by Domitile Lourdeaux, a lecturer in the UTC-Heudiasyc laboratory (Heuristics and Diagnosis of Complex Systems) at UTC. An example of a practical application: training medical teams to manage stressful and critical situations in wartime. «We're still in the

experimental phase. It's still limited in terms of interaction to adapt to non-technical skills. In the serious games, the learner has a choice of three texts, including the solution we didn't want to give. Everything hinges on communication and a message that we haven't yet resolved. However, we have made a lot of progress on the research aspects. The idea is to find a scenario with dilemmas and difficult situations adapted to the individual's profile.

While one of the objectives of the Fête de la science is to give people a taste for science, and while parity is now more widely considered, women like Domitile Lourdeaux are still underrepresented in research. Anne L'Huillier from France and Sweden is this year's winner of the Nobel Prize in Physics, 65 women have been awarded the prize, representing 6.7% of the 970 laureates since its inception in 1901. According to 2023 figures from the CNRS (the French National Centre for Scientific Research), only 34.5% of researchers are women. Social norms and gender stereotypes remain deeply entrenched. Nathalia Oderich Muniz, a post-doctoral research scientist, and the "Sciences égales" student association at UTC joined forces to promote this parity through an exhibition. Why not me? featured posters on the phenomenon of social biases such as the "imposter syndrome", the "Mathilda effect" and the "glass ceiling", as well as posters of women in history and contemporary women. Nathan agreed that «a lot remains to be done in terms of parity. Prejudices and social preconceived ideas are still very present. The images we have of scientists are often of Einstein or Newton. As far as women are concerned, we only have Marie Curie. A paradox when compared with the discoveries of Ada Lovelace and her conceptualisation in the 1850s of the first machine-executable algorithm in the history of computing, or Grace Hopper and the invention of the Cobol language in 1959. With the reform of the baccalaureate and mathematics no longer being compulsory, and girls having less interest in the subject, their entry into engineering schools and their interest in it will decline», Rosalie believes. When it comes to specialisations, 75% of biology students are girls and 75% of computer science students are boys. We're falling behind on stereotypes. That's why it's important to raise awareness among young people. However, UTC has nothing to be ashamed of, with over 50% of young women entering post-bac courses in recent years. Still on a parity trajectory, UTC, for its gender equality awareness project proposed as part of Equality Month in March 2023, won the prize for the most active school in the prestigious 'Les ingénieuses' competition organised by the CDEFI (Conference of Directors of French Engineering Schools). This prestigious national competition promotes the role of women in engineering. UTC, an institution that combines science with women.





ERASMUS MUNDUS

A second Erasmus Mundus for UTC

Professor Dritan Nace works at the Department of Computer Engineering within the UTC-Heudiasyc laboratory. Since 2017, he has been responsible for the Labex Master's degree in 'complex systems engineering', as well as the 'systems learning and optimisation' pathway. He is currently coordinator of the Erasmus Mundus programme in sustainable systems engineering (EMSSE).



n 2017, the «Complex Systems Engineering» Master's degree was restructured with the aim of giving it greater visibility among UTC students while continuing and accelerating the implementation of double degrees with foreign academic partners. This was done first with the University of Genoa (UNIGE) in Italy in 2016, then with the Polytechnic University of Tirana (UPT) in Albania in 2019 and finally with the Polytechnic University of Catalonia (UPC) in Spain in 2021. These double degrees were made possible by the introduction of Erasmus and Erasmus Plus Mic by the European Union (EU). The former is designed to encourage the mobility of EU students, the latter to encourage the mobility of non-European students within EU universities.

On the strength of this experience, the four partners decided to join forces and propose the «European Master in Sustainable Systems Engineering» (EMSSE) project. "This Erasmus Mundus programme was initially led by the Italians. «The project that the Italians led for three years, although well rated, did not come to fruition. This was probably due to the juvenile age of the double degrees. In any case, in 2022, together with our partners, we restructured the project and, in agreement with them, it was the UTC that successfully led the project, financed by nearly 5 million euros by Europe for a period of six years and including 4 classes of students. This funding is used in particular to award grants, more than two-thirds of which are reserved for students from outside Europe. The Erasmus Mundus programme is so selective that no more than thirty students are enrolled each academic year. In this respect, it can be said that Erasmus Mundus is a showcase for European higher education on a global scale. Hence the hope of its initiators that it will become a permanent feature,» says Dritan Nace.

What does EMSSE involve? «The EMSSE is built around three flagship Masters courses at each university: Learning and Optimisation of Systems (AOS) at UTC, System of Systems Engineering (SOSE) at UNIGE

and Advanced Manufacturing Systems (AMS) at the University of Catalonia. The course, which is taught in English and will start in autumn 2024, will focus on the engineering of sustainable systems that are efficient, economical and

environmentally friendly. In short, engineering that takes into account the environmental, economic and social impacts of a system before and during its design, operation, maintenance and finally its end-of-life phase. The aim is that, at the end of the two-year Master's degree course, students will be awarded a university degree that is shared by all the academic partners involved,» he explains.

The special feature of an Erasmus Mundus programme is the mobility requirement.

How does the EMSSE academic programme work? «The special feature of an Erasmus Mundus programme is the mobility requirement: students enrolled on a course must spend the first year with academic partners and the second year at the university offering the specialism. For our part, we have decided to leave students free to choose their place of study for the first semester of Master 1, but that all students must attend the Polytechnic University of Tirana for the second semester, where courses will be taught by professors from the four universities», explains Dritan Nace.

> The consortium formed by the UTC and its academic partners includes three official associate partners. These are Aise-Incose, the largest engineering association in Italy; Ikerlan, a centre specialising in industrial digitalisation, in Spain;

and Savoye in France, a company specialising in supply chain systems management, with a strong interest in the deployment of concrete, sustainable CSR policies. To date, these official associate partners have been joined by a number of industrial partners: Renault, Saint Gobain, Voltalia, Orange, Delmon Group, CEA and Leonardo, a group specialising in space and defence technologies in Italy. Finally, the SNCF and Suez Smart Solutions in France, both longstanding partners, have expressed an interest in the network.

What is the role of these industrial partners? «They have two major roles. The first is to advise us on training and how to adapt it to the challenges they may face. The second concerns the more practical and professional aspects of the students' course. They can welcome students for work placements in their final semester of study,» he concludes.



European Master in Sustainable

Systems Engineering

LIFE ON THE CAMPUS

SOCIETAL COMMITMENT

Félix Brossard, a politically engaged documentary producer

Behind the scenes of the documentary Our Brothers' and Sisters' Keepers, which will be shown at the Grand Rex in Paris on December 9 after several national broadcasts, reveals the incredible journey of a team taken to Poland in the summer of 2022 by 21-year-old UTC student Félix Brossard. Immersion at the heart of the only project to have been authorised to collect testimonies from Ukrainian refugees and volunteers in the Przemyśl camp in Poland, around ten kilometres from the Ukrainian border.



élix Brossard, a student in his 3rd semester of computer engineering (GI3), lives and breathes cinema and images. Founder of the Studio N Association, one of the largest voluntary associations in France with almost 400 members, and a founding member of the Studio N company and the "Fédération française du cinéma associative", the Deux-Sévrien is a committed enthusiast. He's a workaholic and a hyperactive person who doesn't like to be bored: «There's too much to do for that! His aspiration: «To give meaning to my life and use what I know how to do to help others". A week after Russia declared war on Ukraine on February 24, 2022, Félix and a group from Studio N decided to get involved. "It's the first time we've experienced a conflict on our continent,» says Félix. We imagine that young people our age are fighting for their country. We're not good at humanitarian work, but we are good at images. We agreed to make a documentary in the Przemyśl camp in Poland where thousands of Ukrainians had taken refuge. We weren't looking for shock images, but personal testimonies to get the message across to Europe. The city gave us permission to film. It's unprecedented and a crazy exclusive». The accounts gathered in Przemyśl

in Poland, the first town located around ten kilometres from the Ukrainian border, illustrate the commitment and boldness of the young team. The documentary Our Brothers' and Sisters «brings us back down to earth and helps us understand the key issues,» says Félix. We have messages to spread so that people understand what happened over there. Screened at the CGR Niort multiplex on November 10, the Poitiers-Castille multiplex on November 17, the Angoulême multiplex on November 24 and the Bordeaux-Le Français multiplex on December 1, thanks to CC GE37 students from UTC who are organising these previews, the documentary will also be shown at the Grand Rex in Paris on December 9. According to the UTC student: «Being supported by the cinema sector is no mean feat".

Locations for novel shoots

At the end of June 2022, after a day and a half's journey, the team disembarked at Przemyśl, in a transit camp that was merely a stage on the way to another host country, such as Germany, France and «above all Poland, which has a similar culture and gives refugees the opportunity to return home fairly quickly». Here, everything is run by associations, NGOs (non-governmental organisations) and volunteers like Hessel, a former Dutch banker who left everything behind to help people in absolute need. «He is doing something that is essential for him. It's reset his values to zero. It's a real slap in the face. After seven days on the ground, and fourteen recorded testimonies from volunteers and refugees, the documentary Our Brothers and Sisters delivers 42 minutes of stories «sometimes terrible and understood after the fact when editing. And that was not easy to handle ... »

In early 2023, moved by the documentary, the former Dutch banker contacted the team again to follow him to Ukraine in humanitarian groups. «We were accredited by the head of the Ukrainian army to film and show the situation on the ground. It was concrete. There was no turning back. From a humanitarian and professional point of view, this was an opportunity not to be missed, even though we're no longer in Poland but in Ukraine, with all the risks that entails», stresses the enthusiast. Last July, in Fastiv, Irpin, Uman and Kiev, the team, deeply affected by the consequences of the war and what they saw there, filmed the second episode of a much wider, global project. The thirty or so interviews and 50 hours of footage shot are currently being translated into a new documentary.

Studies with an entrepreneurial spirit

« UTC leaves a lot of room for projects outside study time and encourages a great deal of autonomy and investment. It's undoubtedly thanks to this formula that I was able to get involved in this project», admits Félix. To set up large-scale projects like this one, Robin, a friend and member of the BDE (student's union) to which the young documentary filmmaker also belongs, points out that «you need the mental strength to get involved. A lot of students have an entrepreneurial spirit, but the hardest part is putting it into practice. He's going to do it. That's always impressed me about Félix. He never makes excuses. He works all the time because he knows how to put his social and student life on hold. I was immediately impressed by his approach. We had a lot of questions about going out into the open to take pictures. But it was a carefully thought-out project with a whole approach. In Poland, it was safe and reassuring. In Ukraine, there was the possibility that he wouldn't come back ... ». Today, the young UTC undergrad hopes to leave again, but with his engineering diploma in his pocket and to complete the many projects in progress with the Studio N Association: the forthcoming release of a short pirate-based film shot in 2022 on the island of Oléron and the organisation of the National Festival of Associative Cinema this summer.



ECOLOGICAL TRANSITION

Engineering and the climate change challenges

Is engineering training ready to meet the challenges of climate change? It's a question that a dozen students from the SIO1 course worked on for a semester, under the guidance of Clément Mabi, lecturer at UTC. The conclusion of their work takes the form of a debate, broadcast live on the UTC's social networks.

rganising a debate and leading to face the question of the evolution of their training in a context of adaptation to climate issues is the project that a dozen students are working on as part of their SIO1 course. Imagining the future in order to meet the challenges while integrating societal and innovative technological changes raises the question of the relevance of university curricula. «Some of our scientific courses are entirely relevant, but when it comes to technology, it's all about designing future systems and their organisation,» says Paul Taupin, one of a dozen students involved in setting up a web-debate on this issue. Guests will include Anne Le Goff, lecturer at UTC and Sophie Havreng, lecturer and editor at the Shift Project and head of the socio-economy and evolution of the T3P sector at the French Ministry for Ecological Transition. «We are still looking to the past and its obsolescence,» adds Paul Taupin. But students from the UTC who are members of 'Compiegne en transition' are interested in the subject in order to propose solutions.» For the student, the project to train engineers for the 21st Century, led by the Shift Project team and the INSA Group (Institute of Applied Sciences), is a good example.

What are the blind spots in engineering training? How can engineers help optimise existing systems to reduce their carbon footprint while maintaining their efficiency? What are the main challenges that training programmes need to overcome in order to integrate sustainability as a core component of engineering? What are the most environmentfriendly industrial practices? Is the disavowal of current engineering training necessary for innovation? These are just some of the questions to be addressed in a debate that aims to be «fruitful and constructive as part of a more in-depth approach and reflection on our training», emphasises Paul Taupin. We hope to confirm our point of view on its necessary evolution. Engineering needs to find solutions that deal with the challenges of compromise and reduction. **IL**

This debate will be broadcast "live" on UTC's social networks, December 12 at 13h00 (also accessible via replay later.

Clément Mabi, a lecturer at UTC and a specialist in issues such as democratic experimentation, Open Gov, citizen participation, digital culture, environmental dialogue and controversy analysis, «initiates and trains people to think about the social posture of the engineer», he says. «Sensitive to ecological upheavals, the systemic vision of things and the science of innovation, I remain convinced that a Society in transition needs a bottom-up circular economy and open governance. I believe in active ecology in engineering schools. The students' work is based on three challenges: theoretical input, meetings with guests and putting the concepts developed into practice. To defend their ideas, their maturity, their openness and their involvement, debate is a excellent complement.»

UNIVERSITY SPORTS

The art of leading a university rugby team as a Player-Leader-Student

As a rugby player with fifteen years' pitch experience, my involvement in the life of UTC team was an obvious choice. As early as my second semester at the school, a friend, Hadrien Gleyze, and I took the reins of the team as co-captains, an adventure that we undertook with determination and self-reliance.

A t UTC, we value learning through first-hand experience and our mission is not limited to that of mere 'player-leaders'. Managing a university rugby team is a major undertaking, involving the organisation of matches (forward planning, booking of pitches, travel logistics, etc.), as well as managing the administrative aspects that go hand in hand with running a sports club: such as licences, equipment orders and creating events. This complex task requires interaction with many players, such as the Fédération Française du Sport Universitaire (FFSU), Compiegne's town hall and the UTC sports hall.

Hadrien and I also tried to bring our personal touch to the team. Thanks to the financial support of UTC, we were able to acquire new game shirts for our team. In collaboration with the French sports brand JICEGA, we came up with the design. We would like to express our gratitude to this company for its invaluable support. At Compiegne, we also approached local partners, who generously contributed by donating tank tops to all our team members.

These activities, although time-consuming, are also extremely gratifying. Meeting the expectations of forty team-mates who are counting on you is an exceptional source of motivation. Our ultimate aim is to strengthen team cohesion by promoting the values that rugby cherishes, such as solidarity, conviviality and respect. Today, we're not just a group of players, but a real 'band of mates', and that's what makes us so strong. Our club is also fortunate to have a women's team, with whom we share strong bonds of friendship.

After the difficult period marked by the Covid-19

pandemic, I'm extremely pleased with how far we've come. Everyone's efforts have paid off, and our team is more motivated than ever, which is reflected on the pitch. We're confident that this momentum will enable us to put in some fine performances at the Ovalies in early May. Eliott Malsert





RESEARCH



The Jean MONNET The Jean Monnet Chair

Martin Morgeneyer is a lecturer-cum-research-scientist at the UTC's TIMR laboratory, which specialises in the control of particle systems. He now holds a Jean Monnet Chair of the European Union.

The «Empowering Europe, Environment, Engineering» Chair focuses on the ecological transition and the respective roles of engineering and the European Union (EU) in achieving it. This Chair places UTC in an international network of excellence, thanks to the EU Commission. A network that will act as a catalyst for the launch of teaching and research initiatives within the University to meet the challenges facing humanity.

Among these challenges? «In the space of a few years or decades, humanity has destroyed two-thirds of insects, vertebrates and a large proportion of resources. We all know that we are now living on credit, a debt that is becoming more dangerous by the day», warns the new 'Jean Monnet professor' Morgeneyer.

How can we bring about a positive change in the situation? «On the one hand, there are the 'collapsologists' who are studying our current trajectory, which is leading us straight into the wall. On the other hand, there are our engineering sciences, which can help to reverse the trend: integrating ecological reasoning into our approaches, enhancing the knowledge of



citizens and assisting decision-makers. The result will be a set of structures designed to promote responsibility, control and sobriety. Helping to achieve this is the aim of my Jean Monnet Chair,» he says. Martin Morgeneyer is firmly among those who believe in the corrective effect of scientific technological knowledge.

To illustrate his point about the human capacity to rise to challenges, he uses the metaphors of road safety and the creation of Europe after the 2nd World War. «In the 1970s, road accidents claimed almost 16,000 victims a year in France, even though road traffic was much lower than it is today. In 50 years, the number of victims has been reduced by a factor of five, thanks in particular to technological progress by manufacturers and the introduction of innovations such as seatbelts, airbags, various controls, etc. There have also been changes in regulations, particularly with regard to speed limits, which have played a role. In a nutshell: it was the involvement of all the players concerned - engineers, citizens, decision-makers - that made this positive change possible. Another example: the founding of Europe. At a time when Europeans had been at war with each other for centuries, and still in the midst of the 2nd World War, French visionaries began to design a new Europe that would enable us to forge political, economic, social and cultural links that would make it virtually impossible for a new conflict to arise. Under the leadership of Jean Monnet and Robert Schuman, Europeans showed that they were capable of taking a virtuous turn», explains Martin Morgeneyer.

In 2019, Europe launched the Green Deal, a set of measures designed to put the EU on the path to ecological transition. It's a pact that requires a comprehensive, transverse approach.

What are the main issues addressed by the Green Deal? Europe is engaged in a legislative process that includes initiatives on climate, the environment, energy, transport, industry, food, agriculture, biodiversity and sustainable finance. In this sense, the Green Pact is a huge opportunity for us, as universities and engineering schools, to prepare students for these challenges, but also to



contribute to future solutions or those already in the pipeline», he asserts.

What is the ideal profile of an engineer to meet the challenges raised by the Green Deal? "We will need engineers who are able to understand the reluctance of some people to change their behaviour in society and, on the technological side, to seek out and implement innovative and scientifically relevant solutions, while taking a historical and anthropological approach», he stresses.

The Jean Monnet Chair aims, in this sense, to provide overall elements facilitating an effective environmental transition. « UTC has historically been involved in issues related to sustainability and the European Union. We have therefore built this Chair on these existing courses. We are also conducting research projects (CALIPER, D-Brake, miplexmo, etc.) with European partners on the issues addressed by the Green Pact,» concludes Martin Morgeneyer.

It is a Chair that also contributes to the international influence of UTC and attests to the high academic level of the university's teaching, not only in scientific and technological knowledge, but also in the human sciences.







A look at François Gabart, a virtuous sailor

French yachtsman and professional skipper François Gabart has just taken part in the 16th edition of the Transat Jacques Vabre, alongside UTC sailor Tom Laperche on the Trimaran Ultim SVR-Lazartigue. Together, they share the same commitment to protecting the environment.

rançois Gabart graduated from INSA Lyon, set up MerConcept, an ocean racing stable, in 2006. At the cutting edge of innovation and performance, with unrivalled expertise in engineering, technical studies, design and assembly of very high-tech boats, MerConcept supports the creation and development of sporting, human and innovative projects. «Now based in Concarneau in a single workshop, we imagine, build and pilot the boats of the future in the heart of Sailing Valley. We want to take advantage of the advances that have propelled ocean racing into a new era to accelerate innovation in the service of more sustainable maritime mobility,» says François Gabart, who in 2013, at the age of 29, became the youngest winner of the Vendée Globe, the solo round-the-world race, on the IMOCA MACIF. At the end of 2019, MerConcept will be looking at the meaning that can be given to ocean racing expertise, and will be taking concrete steps to transfer technology by carrying out studies on an electric foiled catamaran incorporating ocean racing innovations. «Dreaming, imagining, innovating, building, optimising, performing - that's the DNA on which MerConcept was built. We're proud of our results. But these days, fighting to win only makes sense if it's combined with strong social, societal and environmental commitments.» adds the man with an impressive track record. In 2014, he won the Route du Rhum - IMOCA MACIF and in 2015 he also won the Transat Jacques Vabre - Trimaran MACIF. In 2016, he won The Transat bakerly -Trimaran MACIF; in 2017, he beat the solo round

the world record in 42days 16h 40min 35s. In 2020, MerConcept will become a company with a mission.

Competitors in the field of sustainable performance levels

Despite being only 26 years old, Tom Laperche is no longer just a "hopeful" in the world of sailing. His performances over the last few years have already ranked him among the top sailors. World champion on a small dinghy at the age of 11. Tom made his first Atlantic crossing at the age of 13, in the company of his father Philippe. A graduate of the engineering school of the Université de Technologie de Compiègne in mechanical engineering, this top-level sailing athlete has been part of the SVR-Lazartigue Trimaran programme practically from the outset. On 7 November 2021, just three months after being launched, François Gabart set off on the start of the Transat Jacques Vabre alongside his co-skipper Tom Laperche. After more than sixteen days of racing and a fierce battle, the two skippers finally achieved the feat of taking second place in this historic transatlantic race on the ocean racing circuit. A first-rate performance that suggests a very bright future for this new flying boat. «Tom, like me, is passionate about the technical aspects of our boats. We're sailors and competitors with the support of a superb team. Coming n we have the round-the-world Ultim race, which will set sail from Brest on January 7, 2024. We are fortunate to be living our passion guided by our dreams but also our commitments which imply putting our passion and know-how into ocean racing, which is part of a sustainable performance vision. It is essential that maritime mobility becomes as "low-impact" as possible. Through the search for sustainable innovation, we want to accelerate technology transfers between ocean racing and the maritime world, and we have a real desire to put all our know-how at the service of tomorrow's world. **KD**





3 QUESTIONS TO...



GEORGES FERNANDES, Project Manager at spie Industries.

You worked with Romain Bel, a mechanical engineering student at UTC and top-level fencer. What was his role?

Romain Bel was on a business engineering placement with our company SPIE Industries in the Paris region. Our company deals with energy, electricity and communications, from design to implementation, not forgetting maintenance. Romain's tasks involved technical, commercial, financial and management missions. He worked on analyses of mechanical systems, in particular identifying the critical parts to be kept in stock to avoid potential delays. He managed invoicing for certain contracts, and planned and monitored the work of maintenance teams in the field. He was exposed to a wide range of tasks and learned new skills. I was very happy to be his tutor and to see how quickly he integrated into the teams. I have to admit that at first I was reluctant to have a young engineer on board, because they often don't have the same building culture as us. But now I'm convinced.

What has been the added-value of such a recruitment?

A young recruit like Romain Bel is a real asset for us. When these young engineers are well trained, they know how to adapt and have real know-how. Romain was quick to make himself useful and autonomous in just a few weeks. My own background is in the field, and at the time engineers weren't as highly regarded. When you meet Romain, you can see that he wants to learn and not make mistakes. He was able to deploy his talents and create a methodology in a very specific process that didn't exist before and that we're going to maintain in the company over the long term. I gave him a "carte blanche" and he succeeded in developing useful and efficient software.

Did the fact that Romain Bel is also a top-level sportsman make a difference?

My son is a student athlete in ice hockey and I can see what that does for a person's mental outlook. They have that sporting spirit, that mindset, which makes it easier for them to challenge themselves. Romain Bel has more than fifteen years of top-level fencing under his belt. He is part of the UTC's Sports Elite programme. His aim is to be the best. These profiles know how to handle pressure and stress. They are always smiling, always available and able to adapt their schedules to the needs of the company. Romain had set himself the challenge that before he left us, this software package had to be operational and he was successful. **KD**

A COMMITTED STARTUP

Revival Bionics, the prosthetics start-up of the future

Guillaume Baniel, 33, is the founder and CEO of Revival Bionics, a company that designs and manufactures an active walking assistance device, specifically a robotic human foot, for amputees. The aim of this device is to improve mobility and comfort for patients, so that every step becomes easy again.

evival Bionics derived from the personal story of Guillaume Baniel, who, after completing a DUT n Mechanical and Production Engineering at the IUT in Amiens, went on to study Mechanical Systems Engineering at UTC. In 2014, he began his career at Thales as an electromechanical engineer. He was an electromechanical product engineer and was in charge of the on-board generators installed on board the Mirage 2000. «In 2018, paralysed, I found myself wearing an orthosis on a daily basis. I was surprised by the non-propulsive nature of my orthosis, a carbon second skin that does not fully compensate for my disability. This experience prompted me to undertake in-depth research into prostheses and active orthoses,» confides Guillaume Baniel. After a year's re-education and a great deal of research, he came up with his first concept for a bionic foot. Encouraged by the INPI (France's national intellectual property agency), he joined the BioStart programme in mid-2020 at the Eurasanté incubator in Lille.

He then decided to put his dual skills in project management and technical engineering to good use. From there, in 2021, he founded his own start-up: Revival Bionics, whose main objective is to develop technological solutions that fully compensate for disability. «I then asked Nathan Girard, who was just as passionate as I was and an engineer who had recently graduated from UTC, to join me in this adventure. A year later, Revival Bionics has a bionic foot demonstrator and is now one of the few companies in the world to have done so".

DNA with both technological and human aspects

In 2022, Revival Bionics distinguished itself by winning the first Grand Prix I-Lab, a national business start-up competition. «This prize confirms our start-up's remarkable contribution to innovation in biomechanics and our commitment to disability compensation. As far as I'm concerned, I've got a taste for understanding the very fine details involved in setting up a tech company that is halfway between a technological feat and a human exploit. I can't wait to test my hypotheses with a bigger team,» says Guillaume Baniel. The future looks bright for the company, with a number of strategic projects in the pipeline. «We are actively working on the development of the second version of our device and, more broadly, on key mechatronic building blocks, a crucial stage if we are to be able to offer patients a robotic foot and technologies that fully compensate for their disability. Indeed, the company's vocation is to bridge the gap between passive devices such as orthoses and conventional prostheses, which fail to restore a gait equivalent to that of an able-bodied person. So Revival Bionics' DNA is based on technological innovation, improving the quality of life of disabled people, and a commitment to research and development in the field of biomechatronics.



Eppur, concentrated technology made in UTC

Colin Gallois and Lancelot Durand together founded Eppur, the first braking system for manual wheelchairs. The concept was born during Colin Gallois' undergraduate years in the UTC design department in 2015.



pair of wheels used for brake your wheelchair without injuring yourself - it was something to think about. Eppur, or rather Freewheelchair to start with, was born in Compiegne in 2015. Colin Gallois was just starting to study design at the UTC. «One evening, I crossed paths with a wheelchair user who was losing control of his chair on a slope. He was gripping the wheels of his wheelchair tightly in an attempt to slow down, but he couldn't. I wondered why he didn't do it. I wondered why he didn't use his brakes? In the weeks that followed, I interviewed

A FEW EXAMPLES OF THE SUCCESS STORIES OF UTC-ME-IDI STUDENTS

Finalist in the 2015 Dyson competition - Xavier Garcia 1st at the James Dyson Awards 2016 - Colin Gallois, Xavier Garcia - Freewheelchair which will give rise to Eppur 1st at the James Dyson Awards 2018- Tingyun DU & Yuchen 1st James Dyson Award 2019 - Romaric Delahaie and Mathilde Blondel - Eve, the anti-aggression bracelet

1st James Dyson Award 2020 - Auxane Caseiro and Charlyne Kerjean - Tuli, the revolutionary Cup

Finalists in the Dyson 2021 competition - Jeanne Raynaud -Corentin Vercoor - Manche hospital staff

Ingénieur du Futur 2021 Trophy - Agathe Boulet and Louise Thouron - Cosette- Senior Telephone several manual wheelchair users. I realised that what I thought were brakes were actually parking brakes, used to bring the wheelchair to a complete stop, and that the only way to slow down was to use your hands like brake pads,» he recalls. Colin Gallois then began to work on the subject with a friend from the UTC, Xavier Garcia, and then with Lancelot Durand, also a UTC student, but also a colleague of his at Decathlon.

«For several years, we worked on this project alongside our responsibilities at Décathlon. By 2021, we had working prototypes and very good feedback from users. The workload was heavy because we worked on the project in the evenings, after our day's work at Décathlon,» explains the young entrepreneur, who now intends to make Eppur a mobility brand for people with disabilities. The team already has several ideas for new products and is currently working on expanding the range of mobility solutions.

James Dyson Awards and Concours Lepine

After taking his baccalauréat, Colin Gallois enrolled in a science preparatory class for the Grandes Écoles to prepare for the competitive examination to become an airline pilot, a profession he had dreamed of since childhood. After two years of preparatory classes and failing the pilot school admission exam, he decided to go for what he liked best: mechanics. He opted for a L3 in mechanics and engineering sciences.Colin Gallois et Xavier Garcia étaient également déjà premiers au James Dyson Awards en 2016 avec Freewheelchair.

«During my undergraduate year, I discovered UTC's Industrial Design Engineering course. It seemed to me to be the perfect combination of my scientific background and my creativity. So I applied and did three years at UTC in Mechanical Engineering, then in Industrial Design Engineering, interspersed with internships and stays abroad, in Singapore and Sweden, before doing my end-ofstudies internship at Décathlon». Following his end-of-study internship, Colin Gallois continued his career at Decathlon for five years as a designer, engineer, innovation manager, then product manager and design director until 2021, when he joined Eppur full-time. Last May, Eppur won the highest distinction at the Lépine competition. «It was an incredible recognition of our work and, above all, a wonderful opportunity to shine a light on our innovation and make it known to as many people as possible. We received several hundred

FOCUS ON THE UTC DESIGN PROGRAMME

The Industrial Design Engineering programme, part of the Mechanical Engineering Department of the Université de Technologie de Compiègne, is :

- 35 design engineers trained each year
- more than 50% women
- Engineers with dual skills (Mechanical Engineering and Industrial Design)
- An engineering degree (Bac + 5)
- A job placement rate of 83% in less than a month and 100% in less than 4 months
- 8 CC's offered to students
- a unique project-based teaching environment
- 5 research full professors
 -

messages and requests for product demonstrations it was crazy! Colin Gallois and Xavier Garcia were also first runners-up at the James Dyson Awards in 2016 with Freewheelchair.

An innovation that came to be via a passion

« UTC gave me two exceptional partners, Lancelot and Matthias, as well as giving me the desire to fulfil my potential by developing products outside the classroom. Eppur wouldn't have been born without a passion for the product, but above all for the user, and it's this approach that still drives the whole team today. As for Décathlon, I like to think of it as my second school, after UTC,» concludes Colin Gallois. It's an incredible company, which has enabled me to continue in the same vein as at UTC, creating products with very high value in use, in a highly stimulating professional environment. **KD**





ART & TECHNOLOGY



UTC goes MET art-wise

From November-10 to December 2, in the showroom of the Daniel Thomas Innovation Centre, more than twenty students organised the UTC's first art exhibition as part of its 50th Anniversary celebrations. The MET, an acronym for 'On Monte une Exposition Temporaire' and a clever wink to New York's Metropolitan Museum of Art, showcased the multidisciplinary work of UTC students and alumni. When art and engineering find common ground and break down the barriers between disciplines, the MET resonated with the University's philosophy of openness.

livants [Alive], with an s. This was the theme of the first UTC art exhibition, which took place from November 10 to December 2 in the showroom of the Innovation Centre, avenue de Landshut, Compiegne. This theme emerged from the forty or so entries received by the twenty or so students involved in the project. The project was born out of a decisive meeting in July between Samuel Veillerette, Director of the UTC's new Socio-Economic Partnerships and Entrepreneurship Department (DPSEE or $D\Psi$), launched in May 2023 and Manon Garcia, a 4th year student majoring in Mechanical Engineering and President of the MET association, which was set up in September for the occasion. Between paintings, drawing, sculpture, photography, embroidery and video, the exhibition revealed the creative diversity of the fifteen or so artists selected and «the pool of students at the UTC who are sensitive to different cultures», emphasises Manon Garcia who, having studied fine arts during her gap year and done a work placement in a cultural production agency in Paris, took on board a whole group trained in project management as part of a dedicated CC course. "Art is not just for the elite,» she continues. Showing that areas that may seem far apart can interact in a festive and playful way also introduces people to other aspects of the human experience. A number of musical and choreographic events and guided tours have also been organised to enhance the discovery of these visual arts. The joint objective of the DPSEE and the MET is to revitalise the Daniel Thomas Innovation Centre, enabling engineering

BUDDING ARTISTS : THE FOLLOWING UTC

UNDERGRADS WERE ALSO EXHIBITED :

Claire Acher, Léo Jourdan, Fabien Bondel, Laïs Massoussi, Chloé Gommard, Adrien Charannat, Christine Balmer, Manon Garcia, Samuel Veillerette, Amandine Chambert-Loiret, Louise Gotelid, Louise La Brune, Yasmine Benjouad et Léna Vaché. students to transfer their innovation and project management skills to the cultural environment, and to work towards promoting the arts and culture professions, in particular that of artists from UTC and the Compiegne region. Manon Garcia sees the exhibition as «a contemporary space for reflection, a crash test that is both ephemeral and sustainable, which could lead to a new paradigm for creativity at UTC». The DPSEE and MET plan to capitalise on this first experience, on the technical and regulatory achievements and the contacts that have been made in setting up this project.



Graphic novel and terracotta

One of the guest artists is Paul Boinet, a UTC graduate who has been working as a process and industrial transfer engineer in the pharmaceutical industry for the last ten years or so in Rouen. Although he has been involved in so called "protean art" since the age of 17, the thirty-year-old alumnus had never exhibited before. «To show my work is to lay myself bare and expose myself to criticism. But a work must also be seen by the public. The UTC offers this friendly and benevolent test environment», he explains.

His work on a graphic novel, a kind of comic strip page whose singular dynamic construction blends together drawing and painting in a kind of pictorial poetic renewal form, illustrates the passions that drive us and the possible convergence of disciplines. «The MET offers an interesting dialogue between works of art. It decompartmentalises art and science, opens our eyes to the other and gives us a glimpse of something other than the curriculum we are following or have followed. While I've been interested in the phenomenology of visual objects, materials engineering and cognitive science, art opens up your mind and your appetite for other things. I'm quite proud to be exhibiting at UTC, which has been a great highlight of my life and the place where I nurtured this creative urge.»

Valérie Moreau was a research scientist and lecturer in Industrial Engineering at UTC 2008-2022, but is now on leave to devote herself full-time to sculpture, terracotta and bronzes. This alumna, who «thinks she was an artist before she became an engineer» and has been making a living from her art since 2003, already has several exhibitions to her name. Notably with the Galerie Bénédicte Giniaux in Bergerac, whose partnerships have opened up various international contemporary art venues in Paris, Lille, Montpellier, Lyon and Rennes. In October, she moved to the Palais-Lionel Fibleuil gallery in Le Touquet. «Artistic expression, this need to do and say things, has always been with me. Clay was a revelation for me. I think in 3D and that's how I express myself best. At the Daniel Thomas Innovation Centre, two imposing sculptures showcased her most recent plastic explorations, hybrid creations based on the living world, in keeping with the theme of this first MET. «Integrating art into engineering school gives us a more sensitive approach and a chance to reconnect with living things. It makes sense. We had been thinking for a long time that the Innovation Centre should be used in this way. The willingness of the students and the new Director of Partnerships to support them contributed to the success of this first exhibition.»





UTC FONDATION FOR INNOVATION

« From small streams to large rivers »

Julien Bahain is the Godfather of the UTC Foundation for Innovation's first fundraising campaign. A 2011 UTC graduate, this engineer majoring in the Mechanical Systems Engineering programme is also an Olympic bronze medallist in rowing at the 2008 Beijing Olympics.

ulien Bahain immediately agreed to take on the role of Chairman of the Fundraising Committee of the UTC Foundation for Innovation and sponsor of the first fundraising campaign. «For me, it's a way of giving back a little of what I received during my time at UTC. I firmly believe that it's by contributing a little here and there that we can make a difference together. I personally have benefited from help, financial or otherwise, throughout my career, from remedial courses and help in finding work placements. We all need a helping hand to achieve our goals and it's my turn to give a little back. I've taken on students on technical placements (TN05), helping them to find placements and accommodation. I always take the time to answer students' emails, whether it's for advice or in a job search. I'd like to be one of the voices carrying this message to the alumni community, while also having the opportunity to reconnect with each other" says the engineer, who graduated in 2011 after joining the UTC in 2004 as part of the core curriculum, followed by the Mechanical Systems Engineering major course. He discovered the management of innovative projects (MPI), a speciality option common to all branches, which is where he wanted to go.

Why raise funds?

The aim of the fund-raising is to provide longterm support for students and projects in two clearly defined areas: international mobility and social and environmental projects. «These are two subjects that are close to my heart and with which I clearly identify, whether in my professional or personal life. If you are open to one, you can better understand the other. I believe that these are two fundamental subjects that our UTC students need to address and experience in the face of the challenges we face,» continues Julien Bahain, who took part in his first Olympic Games in Beijing in 2008. He is 22 years old. It was the UTC that enabled him to continue rowing at a high level. «I always like to make it clear that UTC Sport Elite was a factor in my choice of university, but I've always put my studies first. By choosing UTC, I broke with the sporting protocol of my federation at the time. Logic would have dictated that I should be closer to a national training centre with the possibility of joining one of the INSAs. Compiegne has a rowing club with a national and international history. The club opened its doors to me without reservation and my sporting career would have been very different without



the unconditional support of Sport Nautique Compiégnois. In the end, it was an à la carte career path that was the solution for me and I am grateful to all those who have accompanied and supported me during my seven years at UTC. As a rower, I can't ignore this analogy about water, because it's the little streams that make the big rivers. We can all play a part and contribute to our common future.

From the Beijing 2008 Olympic adventure to British Columbia, Canada

Beijing 2008 was his first Olympic Games. It was also the first time that a quadruple sculls, four rowers with two oars each, won an Olympic Bronze medal for France. For Julien Bahain, it is confirmation that it is possible to combine studies and sport, and to do so outside the traditional framework. «It's a medal that I owe to my hard work, and I think that anyone who has crossed my path on my old bike in the streets of Compiegne or on the lecture theatres will attest to the fact that it was all down to timing and real determination on a daily basis. But once again, without the support and hard work of my classmates, my teachers, the UTC Sport Elite staff and the local rowing club, none of this would have been possible. Taking notes during an absence or a catch-up lesson offered by some people made all the difference.



« We can all play a part and contribute to our common future. »

A performance is built every day". UTC gave him the opportunity to adjust his course once the first semester of the core curriculum had been completed. He was thus able to organise his semesters according to his sporting calendar. This enabled him to lighten the spring semesters so that he could compete on the international circuit. As a result, he was able to complete all his credits in seven years instead of five. In addition to an à la carte course, the UTC also offers a structure around its athletes: UTC Sports Elite. It offers access and personalised monitoring of performance. This includes mental preparation, sports performance monitoring tools (physical and physiological tests, etc.) and the opportunity to share moments with other athletes. Julien Bahain now works Julien Bahain now works for Infrastructure BC in Canada as a project manager. He plans major provincial infrastructure projects, manages the tendering and procurement processes and their implementation (project management and construction contract management). He loved the CCs GE37, 38, 39 and 40 in project management when he was at UTC, and has now made it his profession, managing around \$2 billion worth of projects, including \$270 million currently under construction. Although UTC engineering degree is not directly recognised here, it was the MPI course that enabled him to enter the world of work in British Columbia.



Serving the Oval ball & France

Julien Piscione, a UTC PhD graduate, has been head of the Performance Support Department at the French Rugby Federation's sports department since 2016. His passion for sport and keen interest in advanced studies have made him an expert in performance analysis.

JULIEN PISCIONE

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Interactions interactions.utc.fr

Director of publication Claire Rossi

Editor-in-chief Odile Wachter

Editors

forêts gérées durablement et de sources contrôlées. / pefc-france.org

10-31-1668 / Certifié PEFC / Ce produit est issu de

Kaltoume Dourouri Ingrid Lemaire Meriem Sidhoum Delahaye Design/Realization Dorothée Tombini-Prot Antonella Vaudru Assistant Corinne Delair Translation by Alan Rodney, BABEL

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a long time. This is a team that wanted more than anything to win the title. But we're going to bounce back. We have invested heavily, particularly in scientific terms,» explains Julien Piscione, head of Performance Support in the FFR's Research and Development department. Unlike his friends, who were going to engineering school, he chose to study STAPS, the science and techniques of physical and sporting activities, once he had passed his baccalauréat S, with honours. It has to be said that he already had a great deal of sporting experience by this time, in 2000. Julien Piscione had been practising

ven though it was painful to lose out in the quarter-finals

of the 2023 Rugby World Cup, a lot of hard work was put in

by our players, like Antoine Dupont, whom I've known for

Karate since he was five years old. He was a top-level sportsman from 1997 to 2001, a member of the Le Mans Karate Pole Espoir in 1997/1998, a member of the INSEP Karate Pole France from 1998 to 2001, then a club trainer and holder of the Federal Instructor Diploma.

Developing avenues for progress in the quest for performance

«Studying sports science very quickly became a goal for me and that's where UTC Compiegne came into my life. After a DEA in Science and Technology, majoring in Biomedical Engineering, I embarked on a PhD obtained in 2006, entitled "Electromyographic study of striated skeletal muscles subjected to external mechanical compression". The rugby scrum, which is heavily implicated in the occurrence of neck injuries, was an appropriate application for the electromyographic (EMG)

BIO EXPRESS

Since 2016: Head of the Sport and Performance Sciences Department, Sports Department, French Rugby Federation (FFR) 2006/2002: Doctorate in Science and Technology,

specialising in Biomedical Engineering, UTC 2002/2001: DEA in Science and Technology, "Biomedical Engineering" major, UTC

Base camp for France's teams

study of muscles subjected to mechanical compression,» he sums up. At the UTC BMBI (biomechanics and bio

engineering) laboratory, he met Chantal Pérot, now

Professor Emeritus at UTC. A rugby research programme

was then set up in conjunction with the FFR, and Julien

Piscione obtained a grant and worked assiduously for

four years on his thesis. «It was an incredible experience because I discovered many different fields: engineering,

computer science, biology and signal processing. My time

at UTC opened my eyes to a global vision of research.

Then I joined the FRR, where they were looking for the

future head of the R&D unit. Today, I manage the Sport

and Performance Sciences department.

Julien Piscione takes a scientific look at many aspects of the lives of these top athletes, including physical and mental preparation, nutrition, sleep, data and stress. The aim: to always have a competitive edge over other nations. «For example, we know that

rugby is a contact sport that causes injuries such as concussions. Using sensors in the mouthguards, we can assess head acceleration and identify situations that could lead to concussion. For Julien Piscione, sport and innovation are closely linked. At the next Olympics, he will have a front-row seat in the stadium, not far from the players, like a rear base that will have done its utmost to help improve performance. «With an oval ball bouncing all over the place, it's not always easy to play 15-a-side with somewhat complex rules. For me, that's also the beauty of sport: you have to remain humble and admire the show!" **KD**

AGENDA

UTC OPEN DAY (VISITORS WELCOME) Saturday, January 13, 2024 Centre Pierre Guillaumat and the UTC Innovation Site

www.utc.fr

UTC'S 6TH BIOMEDICAL RENDEZVOUS

Friday, January 26, 2024 Centre d'innovation UTC

www.utc.fr

S THE EXECUTIVE SALON «REBOND»

Friday, February 2, 2024

Centre Pierre-Guillaumat

www.utc.fr

COMPIEGNE ILLUMINATED

Saturday, February 24, 2024 Parc Songeons & centre Benjamin Franklin

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