



**RÉPUBLIQUE
FRANÇAISE**

*Liberté
Égalité
Fraternité*



**● THE CYBER
● COMMUNITY**

Université
Bretagne Sud
cyber :

www.univ-ubs.fr

● OUR ● DNA

A

- **COMMITTED**
- **AUDACIOUS**
- **COLLECTIVE**
- **CIVIC**

UNIVERSITY

An enterprising and dedicated university, UBS develops 4 major innovation systems:

- ▶ Cyber and data science
- ▶ Sea and coastlines
- ▶ Industry of the future
- ▶ Environment, Health and Disability

These innovation systems can rely on 14 research laboratories and 4 technical platforms. University on a truly human scale and thanks to the engagement of its 1000 staff (including 500 teachers and research professors), nearly 11,000 students are trained each year on the three campuses of Lorient, Vannes and Pontivy.



UBS started its Cybersecurity programs as soon as 2012



A pioneer, UBS belongs to the few universities proposing such a comprehensive offer, uniting education, research and training in cyber crisis management.

During the 1960s, Brittany invested heavily in computer science and telecommunications. Today it's a truly interconnected cluster, where UBS fits perfectly in. For example, UBS has been a member of the Cyber Pole of Excellency (PEC) since 2013, a Brittany-based and State-created hub.

Our cybersecurity nucleus has experienced a particularly rapid growth as the team of faculty and researchers has increased tenfold in less than 10 years. We are continuing with a will this dynamic through a brand-new campus in Vannes which will host more than 1000 students and merge cybersecurity with artificial intelligence.



VIDÉO

Cybersecurity, a strategic development for UBS (French version - English subtitles possible with YouTube)

● OUR ● SIGNATURE CYBERSECURITY WITH PROXIMITY



AGILITY

We are a university close to its students, with clear and flexible education paths. For cybersecurity, this is reflected in our ability to quickly adjust our training offer and research strategy to the emergence of new application areas and threat changes.

COLLECTIVE WITH A MEANING

We encourage personalized relationships between students and teaching teams. In the cyber domain, this takes the form of a diversity of disciplines and the creation of small teams in project mode as quickly as possible. We advance thus all together towards a shared and common goal.

AN ACTIVE AND INCLUSIVE COMMUNITY

We cultivate a family spirit with a strong sense of belonging to a lively and vibrant community, where special care is given to women inclusiveness. For students, it is also the opportunity to participate in cross-field CTFs (Capture the Flag Challenges) and to join cybersecurity guilds.

DIVERSIFIED PARTNERSHIPS

In order to adapt our research strategy and our education offer to a field in perpetual transformation (in its defensive as well as offensive aspects), we build close collaborations with the business world and numerous state organizations, in a constant logic of co-training and co-evaluation.

A GLOBAL VISION

Our goal is «Secure by design», with prevention as focus. Cybersecurity issues are inherently transversal and cannot be solved - effectively - by treating the different components separately. Our effort consists thus in building an overall project with cybersecurity as a meta-discipline: including technical but also legal, ethical, geopolitical, communication aspects, etc.

A TRAINING CONTINUUM

With almost 1000 students, we offer a wide range of courses - from baccalaureate up to PhD - with always the possibility to go a step higher or further. This education offer, largely accessible through apprenticeships, covers a broad spectrum of cybersecurity: «software» (cyberdefense, software security, etc.) and «hardware» (embedded systems, IoT, etc.). Moreover, all our courses are certified by our National Cybersecurity Agency (ANSSI) and we are recognized by the EU through our «CYBERUS» Master's degree program. We are also expanding continuing education to enable people already with jobs to increase their skills or to consider a career change.

TRANSDISCIPLINARY RESEARCH

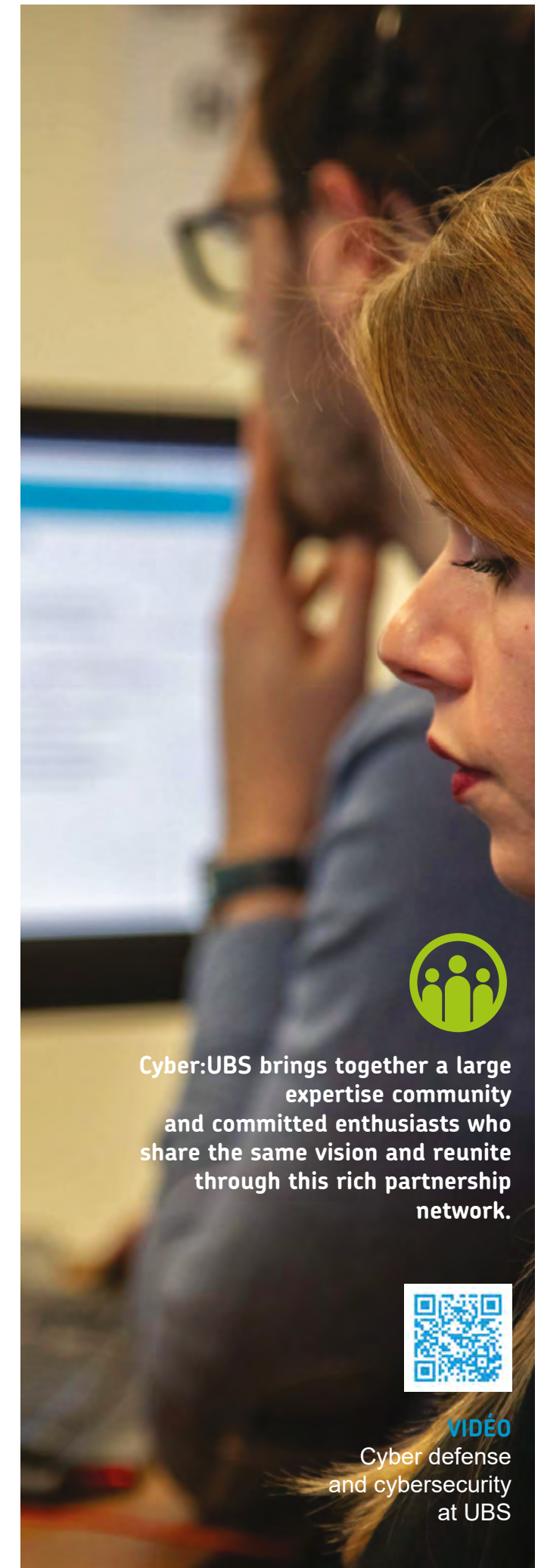
We are naturally transdisciplinary. Digital security must be considered in an integrated and systemic way, as it combines human factors, facilities, connected objects, etc. and our main priorities are university research through innovation to achieve top academic performance. This overall momentum is driven by the combined efforts of several of our laboratories with recognized expertise, ranging from the study of behavioral factors to crypto-processor security.

AN ETHICAL FOUNDATION

The Ethics issue for future technologies is already in itself paramount. This is also about bringing it to the heart of cybersecurity professions such as solutions designers, team managers, researchers and so on. This guiding line must ensure that the core technical criteria of IT security, namely availability, integrity and confidentiality, are effective while respecting fundamental human rights.

CONNECTED WITH OUR TERRITORY

We are rooted in our Brittany local area and very close to all the terrain socio-economic players. This allows easier integration within the mesh of networks and gives additional opportunities for work-study programs and internships.



Cyber:UBS brings together a large expertise community and committed enthusiasts who share the same vision and reunite through this rich partnership network.



VIDÉO
Cyber defense
and cybersecurity
at UBS

I'VE COMPLETED HIGH SCHOOL (BAC), I WANT TO GO ON WITH CYBER AT UBS

A COMPREHENSIVE EDUCATION PROGRAM

FACULTY OF SCIENCES

BACHELOR'S DEGREE
IN COMPUTER SCIENCE
VANNES

BACHELOR'S DEGREE
IN DIGITAL SYSTEMS,
EMBEDDED COMPUTING
AND CONNECTED OBJECTS
LORIENT

MASTER'S DEGREE
IN CYBERSECURITY
OF EMBEDDED SYSTEMS
LORIENT

CYBERUS ERASMUS
MUNDUS (EUROPEAN
MASTER'S DEGREE)
LORIENT
*(Winter School at Taltech
University, Estonia)*
IoT cybersecurity
(Université Libre de Bruxelles)
Software cybersecurity
(Luxembourg University)

University Preparatory
Cycle for Higher
education
(Faculty of Sciences)
Computer Science

Geipi Polytech
competitive exam

2 years Access
course to the
Engineering school

UBS ENGINEERING SCHOOL: ENSIBS (NATIONAL ENGINEERING SCHOOL OF SOUTH BRITTANY)

COMPUTER
SCIENCE AND
CYBERSECURITY
VANNES

Software
Cybersecurity

Cybersecurity
& Data Science

CYBERDEFENCE
VANNES

INDUSTRIAL
ENGINEERING 4.0
*(Industrial
cybersecurity
coloring)*
LORIENT

UBS TECHNOLOGICAL INSTITUTES

COMPUTER SCIENCE
UNIVERSITY BACHELOR'S
DEGREE OF TECHNOLOGY
VANNES

Software engineering

Cybersecurity

Artificial Intelligence

INDUSTRIAL ENGINEERING
UNIVERSITY BACHELOR'S
DEGREE OF TECHNOLOGY
*(Industrial cybersecurity
coloring)*
LORIENT

Engineering of
multitechnical systems

Management, Methods
& Innovative Maintenance

BAC +2

BAC +3

MOST OF THESE
PROGRAMS ARE OPEN
TO VOCATIONAL
EDUCATION!

IT IS ALSO POSSIBLE
TO COME FROM
OTHER COURSES
OR INSTITUTIONS

BAC +5

I can continue with a PhD (bac+8 and beyond)

ANSWER CYBERSECURITY KEY CHALLENGES

Cybersecurity refers to all means of protecting people, states and organizations' assets against hacking

A FULL RANGE OF EDUCATION COURSES

Various high-level training courses covering all areas of the cyber threat: from analysis and crisis management to secure software design and embedded systems.

Planning new courses: In the coming years, the goal is to create new courses around cybersecurity in various disciplines, including law, humanities, etc.

DEMANDING AND REALISTIC TRAINING

One hundred percent of UBS cybersecurity students find employment after graduation. Cybersecurity faces a constant shortage of talent, which drives salaries up year after year.

UBS helps organize cyber defense of Operators of Vital Importance (health, water control, energy, etc.), find software vulnerabilities, secure industrial installations and connected objects.

UBS helps students, organizations and companies to practice real-world scenarios.



AN INTERNATIONAL OUTREACH

Cybersecurity at UBS has a wide national and international sway, something that the size of our university does not suggest at first glance.

Cybersecurity students have access to partnerships (joint courses, exchange semesters) with many universities, particularly within the European Union (Estonia, Belgium, Luxembourg, etc.) but also all over the world.

Students regularly participate in competitions and challenges, such as the Cyber Security Awareness Week (CSAW) organized by New York University (the UBS student team ranked third in 2019), the Barcelona Cybersecurity Congress and the International Forum of Cybersecurity (FIC) in Lille.

HIGH-LEVEL RESEARCH

The overall dynamic is supported by the federation of 5 research labs with recognized expertise.

The 6 main lines of research are diverse and complementary: Embedded systems and IoT • Industrial cybersecurity • Cyberdefence • Systems of systems • Big data and intrusion detection • Human factors (including data privacy)



STATE-OF-THE-ART EQUIPMENT

On the Vannes campus, UBS operates a "Cyber Range": 150 square meters of high-tech space where students practice cyber crisis management. This Cyber Range is the first cyber training center to be created within a French public university.

The Lorient campus is equipped with technical platforms for embedded and industrial systems. These include physical attack benches, emulators for motor vehicles on-board electronics, dedicated security software, frame analyzers, calculation servers, etc.

We can also highlight the electronic components security bench test and the industrial cybersecurity facility, which corresponds to a «Cyber Range» applied to industry.

These advanced installations enable simulations and real-life exercises, offering sophisticated detection, analysis, remediation and forensic tools, as well as proven incident governance methodologies.

Our perspective combines software, electronic components, automation and processes, designed and used by and for humans.

There is thus a software - hardware - human triptyque on which to base cyber security thinking.



VIDÉO

Cybersecurity research at UBS
(French version - English subtitles possible with YouTube)

● NUMEROUS ● PARTNERSHIPS

Large businesses sponsor student promotions

- More than one-third of the courses are taught by industry and government professionals.

Internship and apprenticeship students are also evaluated by their host structures, which allows training to evolve according to needs, as the threat changes constantly. Companies and State thus take part in UBS's cybersecurity co-training and co-evaluation.



THEY ARE SUPPORTING US



EDUCATIONAL AND RESEARCH PLAYERS



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