



UNIVERSITAT POLITÈCNICA
DE CATALUNYA
BARCELONATECH

MASTEAM

Master's degree in Applied
Telecommunications and Engineering
Management

Carles Gomez
Academic Coordinator
eetac.mastertelecom@upc.edu

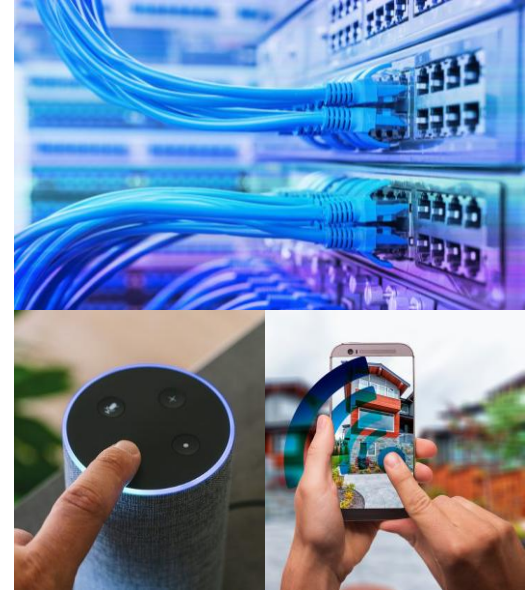


Table of Contents

Our academic offer

Why study here?

Admission process

MASTEAM

What is our academic offer?



Master's Degree in **APPLIED
TELECOMMUNICATIONS
AND ENGINEERING MANAGEMENT
(MASTEAM)**



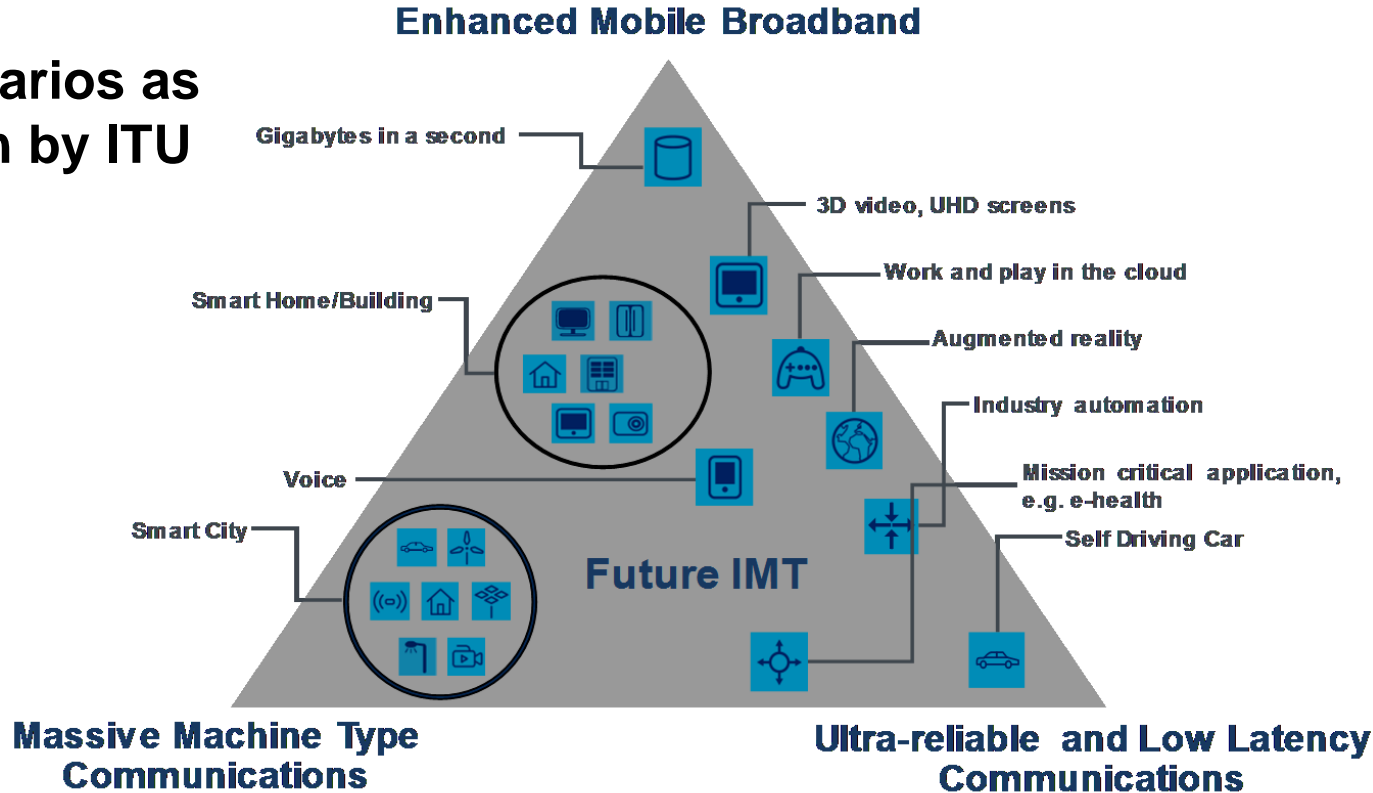
**Fostering innovation and
entrepreneurship on Information and
Communications Technologies**

Our goal

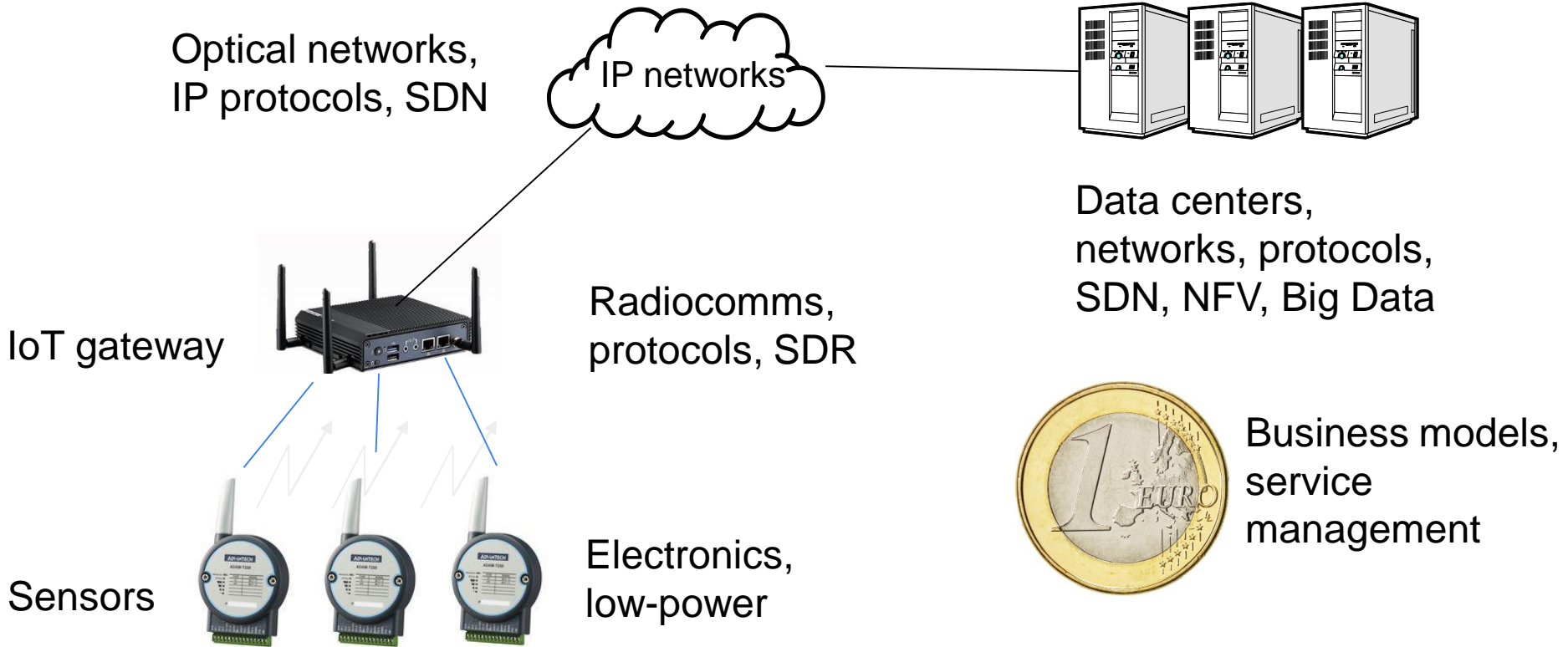
Training professionals to acquire the skills that enable them to

- conceive, design and implement cutting-edge engineering solutions,
- manage complex multidisciplinary projects, and
- improve people's welfare in a sustainable economy
- **our focus: 5G and the Internet of Things (IoT)**

5G scenarios as foreseen by ITU



Challenges: IoT



Main topics: 5G networks & Internet of Things

Generic courses on:

- Sensors (data source)
- Wireless and optical technologies for data communication
- Advanced data-processing methods
- Design and optimization of algorithms
- Translation of ideas into new devices and services

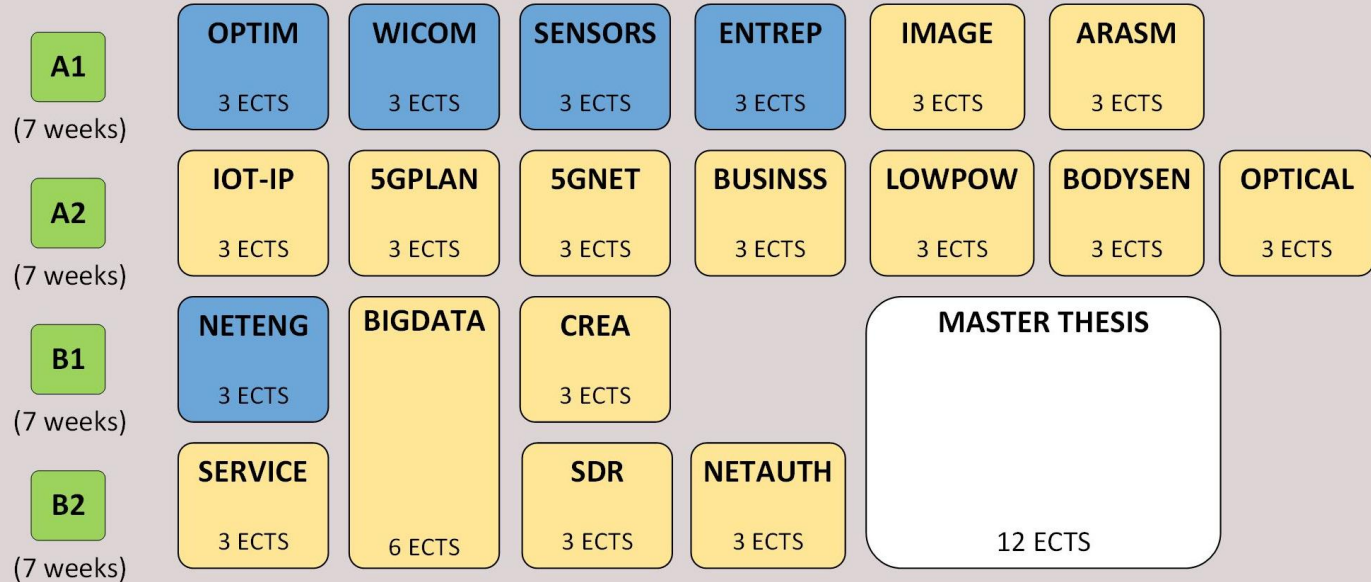
Specific courses on cutting-edge applications:

- Internet of Things
- Smart Objects
- Body Area Networks
- Image Processing
- Network Security
- Service engineering

60 ECTS: **1 year** for a full-time student

Mandatory courses (15 ECTS), Elective courses (33 ECTS), Master Thesis (12 ECTS)

Fall semester
30 ECTS



Spring semester
30 ECTS

Full-time students:

- 1 academic year (studies starting in September)
- 1.5 years if studies begin in February

Part-time students usually spend 2 years

Non-EU students: Spanish authorities expect you to have full-time dedication!

Work load:

- 60 ECTS: **1500 hours (1 ECTS = 25h)**
- At UPC masters, **1 ECTS** of student activities = **9h** in classroom + **16h** of autonomous learning

Some of the mandatory courses are **pre-requisite** before taking some elective courses (hard constraint), or **recommended** (soft constraint)

- WICOM is **pre-requisite** of 5GNET, 5GPLAN, and SDR
- ENTREP is **pre-requisite** of BUSINESS (but both courses can be enrolled in the same semester and be taken consecutively)
- WICOM is **recommended** before IoT-IP
- SENSORS is **recommended** before BODYSEN

Calendar constraints:

- A1 and A2 courses are offered only in Fall semester
- B1 and B2 courses are offered only in Spring semester

We have some agreements to pursue a double degree from UPC and one partner:

- Aalto University (Finland). Master's Programme in Computer, Communication and Information Sciences - Communications Engineering tracks
- Università dell'Aquila (UNIVAQ) (Italy). Master in Telecommunications Engineering
- In negotiation: Politecnico di Torino (Italy) and Técnico Lisboa (Portugal)
- More may materialize during the next course!

MASTEAM

Why study here?



EETAC Building (Castelldefels)

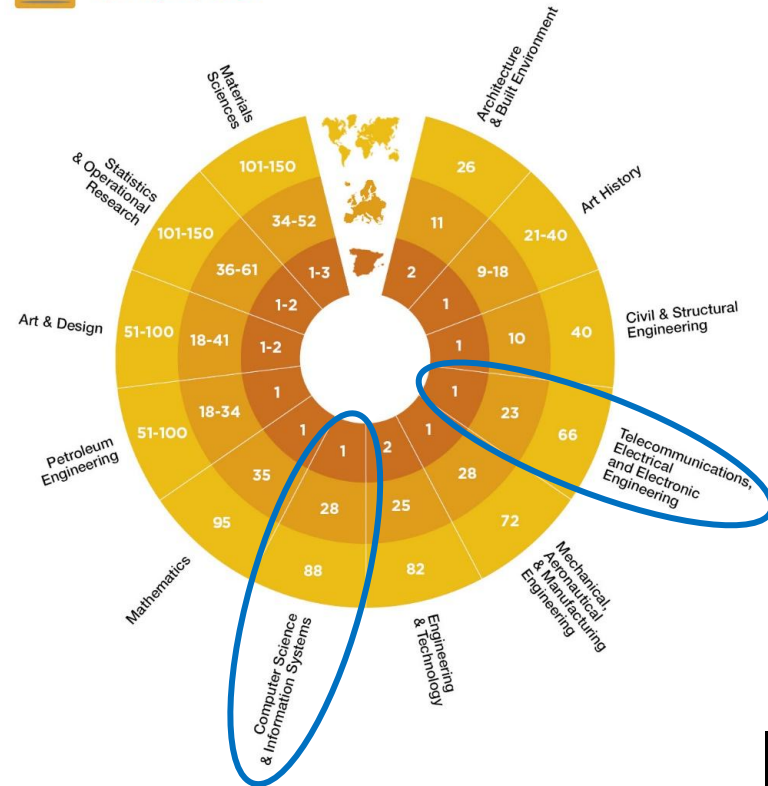
Some facts and figures (1)

Universitat Politècnica de Catalunya (UPC)

Telecommunications, Electrical & Electronic Engineering:
1st in Spain, among the top 70 in the world

Computer Science & Information Systems:
1st in Spain, among the top 90 in the world

(Source: QS World University Rankings, 2024)



UPC & 5G

Top Spanish university as recipient of funding from EU Horizon 2020 research projects, and among the first positions at the European level

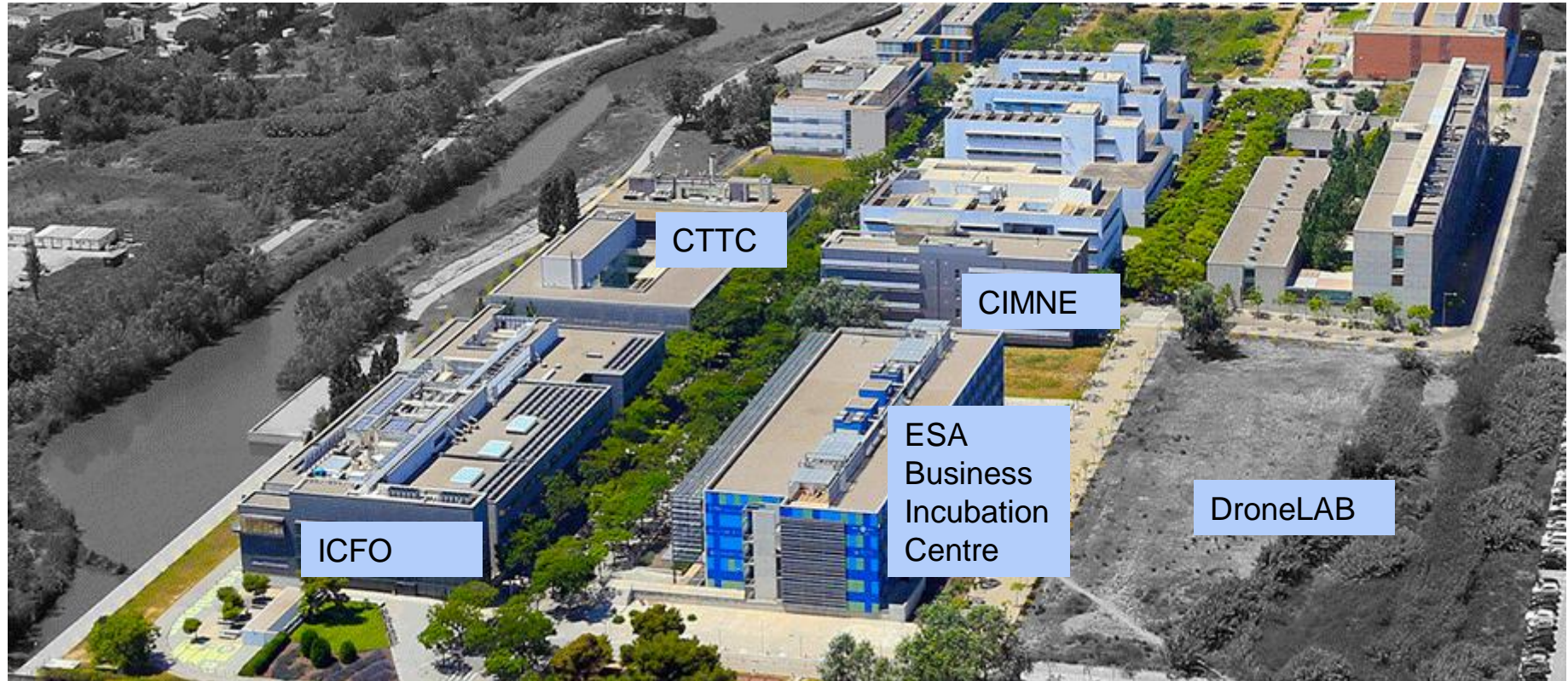
5G Barcelona

Local and EU H2020 research project – many **MASTEAM professors involved**
i2Cat, UPC, CTTC, Atos, Telefonica, MWCcapital, local & regional government, among other partners

Presence of local partners in 22 out of the 37 5G-related H2020 EU projects

<https://5gbarcelona.org/en-labs/>





DEPARTMENT		DEPARTMENT	
Computer Architecture	20		
Electronics Engineering	12	Physics and Nuclear Engineering	1
Network Engineering (Telematics)	20	Institute of Energy Technology	2
Management and Business Organization	15	Applied Mathematics I	1
Signal Theory and Communications	35	Applied Mathematics III	1
Construction Engineering	1	Applied Mathematics IV	15
Applied Physics and Aeronautics Engineering	34	Graphical Expression in Engineering	11
Materials and Structure Engineering	2	Agri-Food Engineering and Biotechnology	2
Geotechnical Engineering and Geo-Sciences	4	Control theory and industrial computers	1
TOTAL		165	

1. Advanced Materials and Technologies for Communications
2. Audio-visual Systems
3. Broadband Networks and Services
4. Control, Monitoring and Communications
5. Distributed Systems Architectures
6. Instrumentation, Sensors and Interfaces
7. Intelligent Communications and Avionics for Robust Unmanned aerial Systems
8. Mobile and Radio Communications
9. Optical Communications
10. Wireless Networks

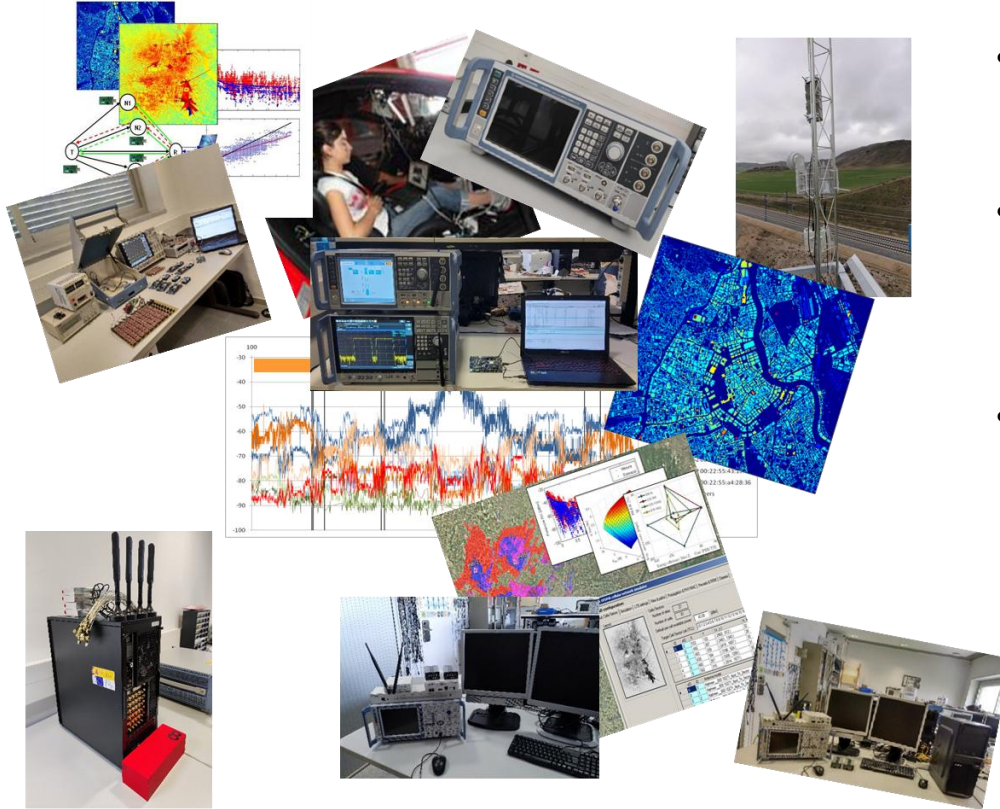
15 projects granted by the European Commission + **16 projects** granted by the Spanish Administration on:

- 5G/6G, communication infrastructures, IoT & autonomous sensors, artificial intelligence, aerospace, cybersecurity, business innovation & talent management

Our faculty also participates in

- Editorial boards of high-impact scientific journals
- Committees devoted to the definition/standardization of communication protocols

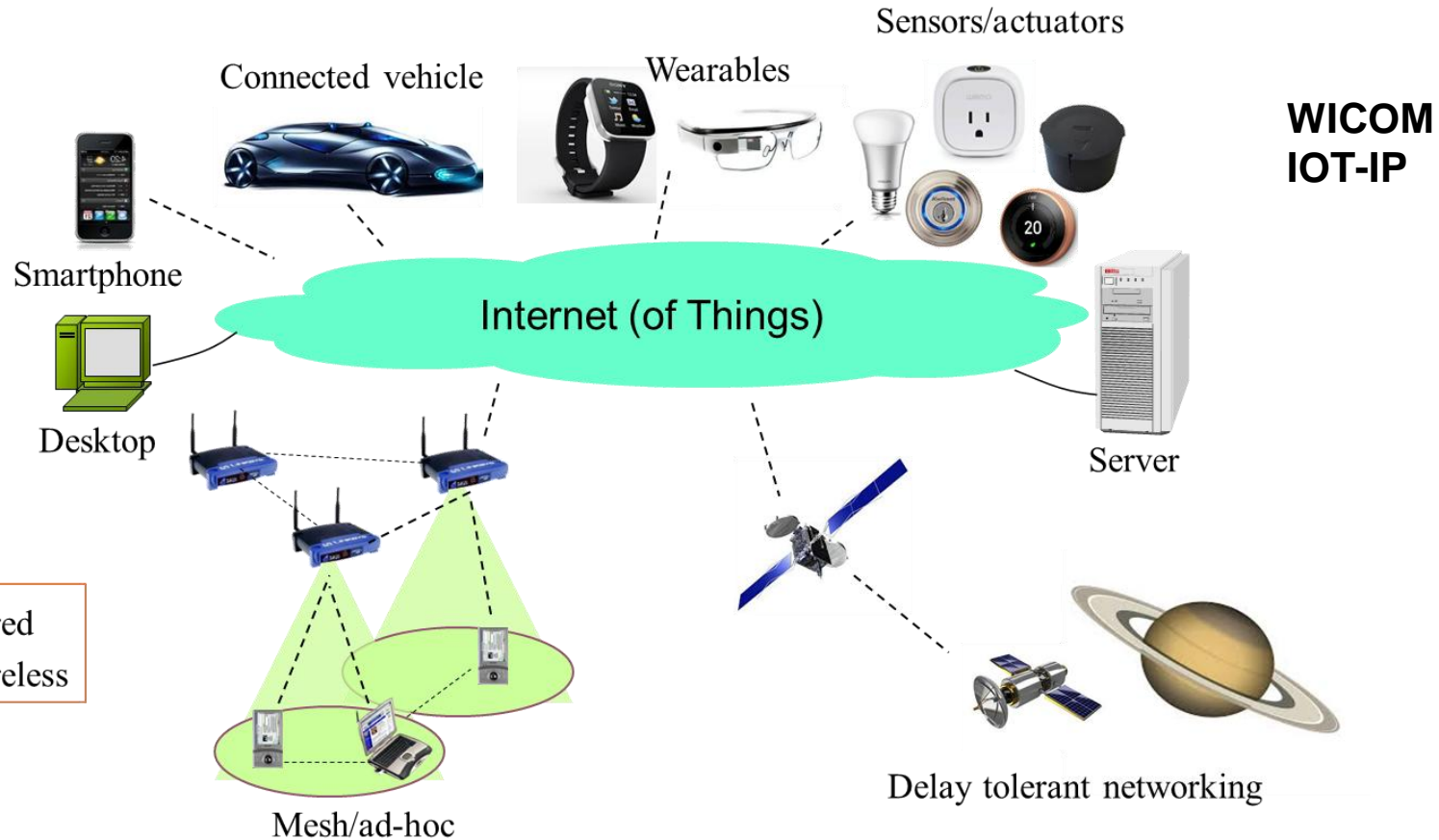
Research activities: Examples (1)



- Flying Internet of EveRything Communication Enhancements (FIERCE)
- Laboratorio Abierto Científico-Tecnológico de Investigación en 6G de la UPC (6G-OpenLab)
- Evolution of infrastructure (ultra low Latency) and Expanded mobile system (mmWave) towards 6G-AI NeTworks (ELEGANT)

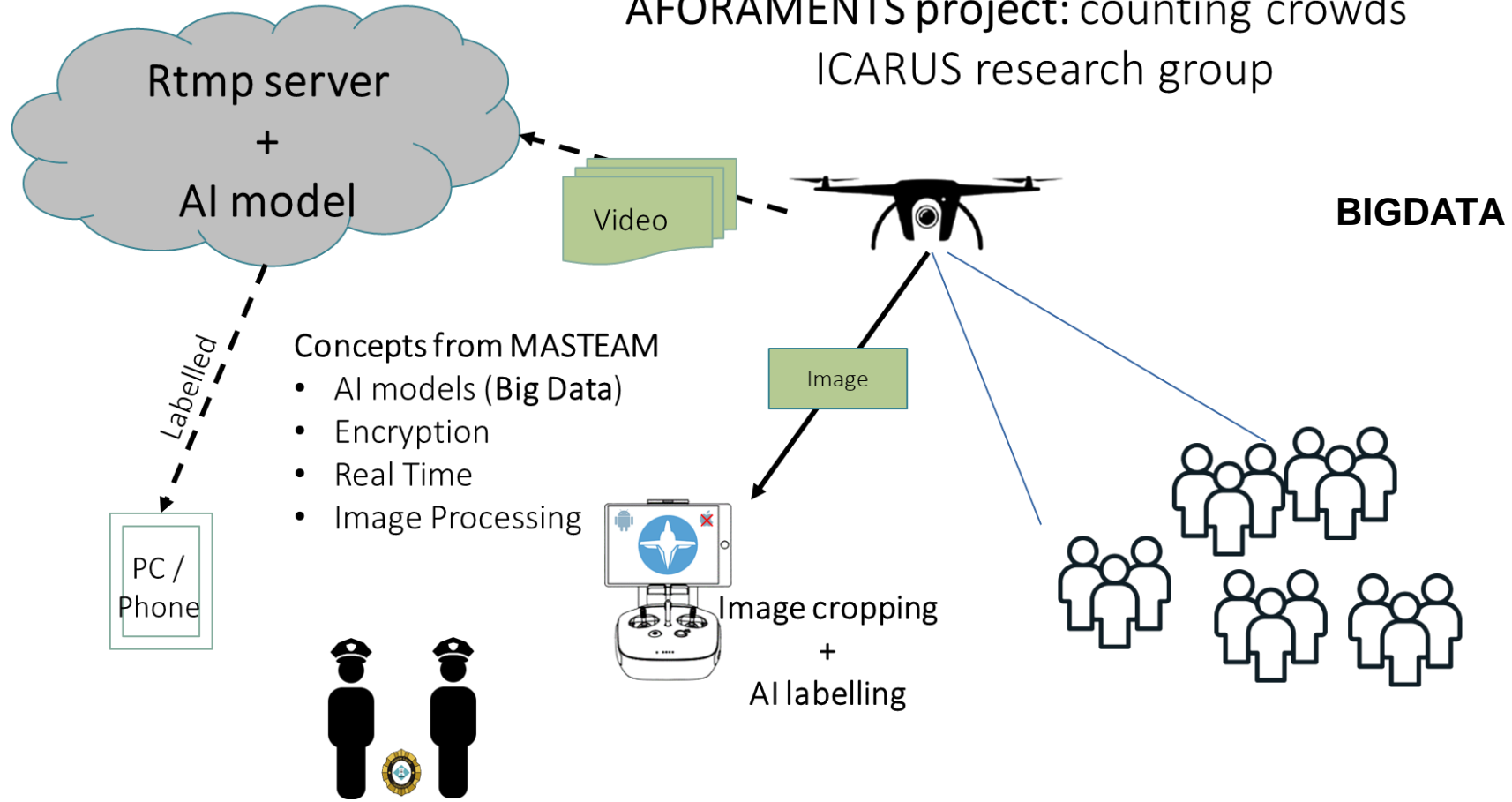
WICOM / 5GPLAN

Research activities: Examples (2)



Research activities: Examples (3)

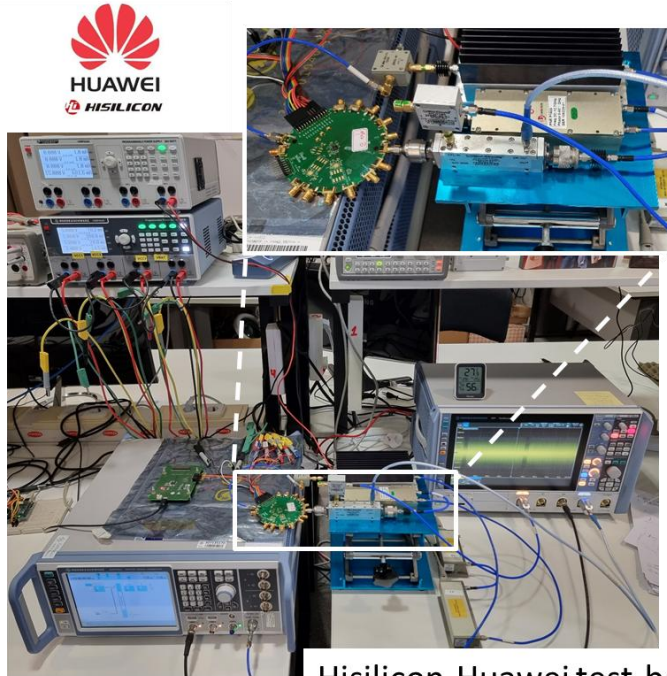
AFORAMENTS project: counting crowds
ICARUS research group



Research activities: Examples (4)

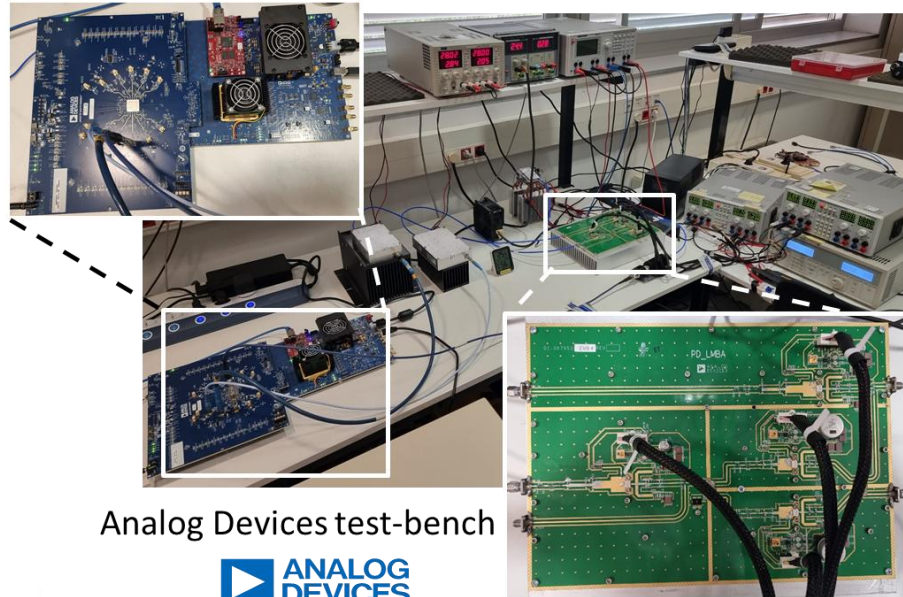
Software Defined Radio (SDR):

Characterization and modeling of nonlinear systems. Digital predistortion (DPD) linearization of highly efficient power amplifiers.



Hisilicon-Huawei test-bench

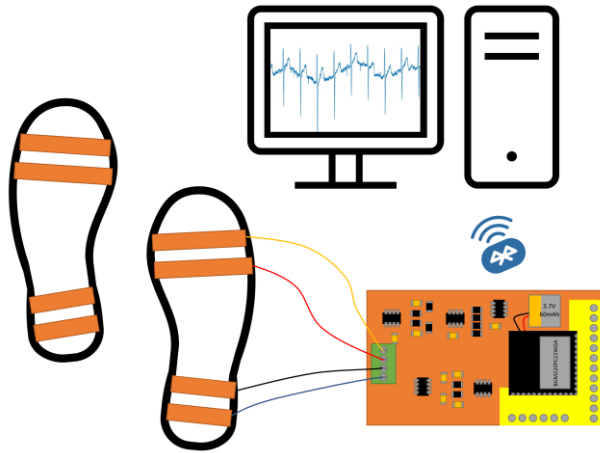
DPD linearization of power amplifiers for mobile terminals with non-flat frequency response and considering dynamic resource block allocation.



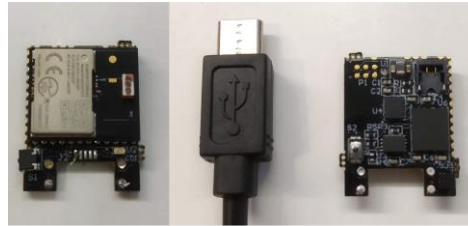
Analog Devices test-bench



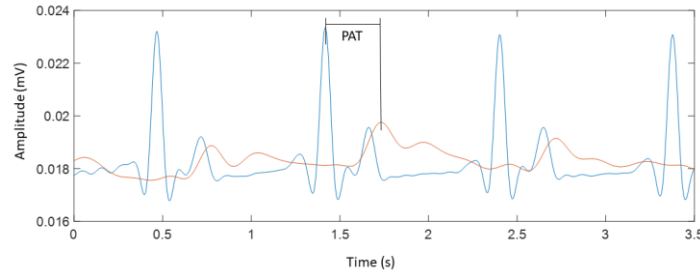
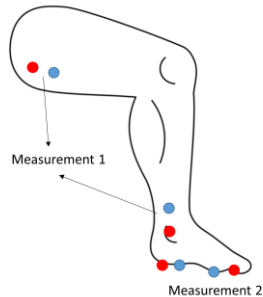
Artificial Intelligence and machine learning solutions to linearize dual-input, high-efficiency load-modulated balanced amplifiers for base stations.



Project: Deepening knowledge and improving the Quality of Life in Parkinson Disease through Smart Insoles (MyGait)



SENSORS
BODYSEN
LOWPOW



- 95% of employed alumni
- 76% find a job in less than 3 months
- LinkedIn: 200+ contacts

228 resultados

**Eduard Garcia-Villegas • 2º**

Researcher and Wi-Fi expert - Ass. Prof. in UPC's Department of...
Greater Barcelona Metropolitan Area

Anterior: Academic Program Coordinator (**MASTEAM**) en Universitat Politècnica de Catalunya

Wathiq Mansoor, Francesc Tarrés y 24 contactos más en común

**Fsc. Xavier Escayola Elias • 2º**

Head of Bioengineering Group en Hospital Sant Joan de Déu...
Greater Barcelona Metropolitan Area

Reconocimientos y premios: Best academic grade in the engineer's degree and **MASTEAM** (2009)

Victoria Julia Ovejas Benedicto, Marcos Quilez Figuerola y 6 contactos más en común

**Rolando Guerra-Gómez, PhD • 2º**

PhD | Senior Telecom Engineer and Researcher | AI/ML |...
Barcelona

Extracto: ...and Engineering Management (**MASTEAM**) from Universitat...

Néstor López Serveto, Juan Martínez Rossi y 1 contacto más en común

**Miquel Franco Rius • 2º**

Senior Hardware Engineer - Team Leader at Lear Corporation
Gavà

Victoria Julia Ovejas Benedicto, Ángel Castilla-Jardón y 1 contacto más en común

MASTEAM

Access & Admission process

- An official Spanish university qualification or an official university qualification issued by a university in the **European Higher Education Area (EHEA)** that qualifies the holder for admission to a master's degree.
- A qualification issued by a university in a country **that is not in the EHEA**
 - If the qualification has not been homologated, the UPC will verify that the course of study corresponds to **a level of education equivalent to an official Spanish university** degree and that the qualification obtained **would provide admission to a master's degree** in the country in which it was awarded
 - This access route in **no way implies the homologation** of the qualification or its recognition for any purpose other than admission to the master's degree. The master's degree will, however, be fully and legally valid

- Masters are also open to **UPC bachelor's degree students** who have **not been awarded** the bachelor's degree because
 1. they are missing up to 9 ECTS elective credits (including credits pending recognition or transfer), and their Bachelor's thesis, or
 2. they have not yet attained the cross-disciplinary competency in a foreign language, if applicable

- An official Bachelor Degree OR Technical Engineering Degree in
 - Telecommunications or ICT (Information and Communication Technologies) Engineering specializing in Telecommunications Systems
 - Telematics (Computer Networks)
 - Electronic Systems
 - Audiovisual Systems
 - Science & Technologies of Telecommunications
 - ...or an official MSc Degree in Telecommunications or ICT Engineering
- Any of the aforementioned degrees must have been obtained in an educational institution from a country belonging to the **European Higher Education Area (EHEA)**

- With **complementary coursework** (if needed), other engineering degrees from EHEA or Telecommunications/ICT engineering degrees from **outside EHEA** might be accepted.
- The Academic Committee will review the applications and may propose the appropriate **compulsory bridge courses** (you need to pass them in order to continue your master's studies)
- Language requirements: English language certification – Level B2 or higher, according to the Common European Framework of Reference for Languages (CEFR)

- **Passport**
- **Bachelor degree** and academic record/transcript of records
- Curriculum vitae, **motivation letter** and **two letters** of recommendation (from a professor and/or former employer)
- If your Bachelor degree was not obtained in Spain, you need to add a **declaration of equivalence** or your degree marks in the Spanish mark system
- Certification of English Language: B2 (or higher) of the Common European Framework of Reference for Languages, or an equivalent level in other scales (IELTS, TOEFL, Cambridge, etc).
- If you have any other master or bachelor degree, even if not finished, add your transcript of records and/or degree certificate.

- Candidates wishing to start their studies in September 2025 (Autumn 2025 semester) should apply during the pre-enrolment period open from **January 2025 to July 1st 2025**
- **Non-European Union nationals** should apply as soon as possible, in order to obtain admission soon enough to proceed with the visa request at the Spanish consulates in their countries
 - Note that **we do not have any kind of influence on those consulates**, and cannot speed up the visa application!
- Up to 35 candidates can be admitted each year (25 in the Autumn intake, 10 in the Spring intake)
- Visit <https://www.upc.edu/en/masters/access-admission-enrolment> for more details!

- The MASTREAM Academic Committee will assess your documents and will decide on the admission of each candidate
- You may accept or not the admission proposal
- If your visa application is still in process at the beginning of the semester, you will be offered the option to defer the start of your studies to the next semester

- Visit <https://masteam.masters.upc.edu/en> for
 - ✓ Course descriptions
 - ✓ Fees
 - ✓ Double degree agreements
 - ✓ Specific information for international students

Thank you for your attendance!

Questions?