



## STUDY AT EURECOM

# EXIT UNIVERSITY of the AUS Master Program



# KEY FACTS ABOUT EURECOM

**300** Master students

**75** Phd students

**25** Professors

**3**

Main fields of  
research and  
teaching

Data Science

Digital Security

Communication Systems

A consortium of

**9** universities

and

**6** companies

**300**

Days of sun  
on the  
French Riviera





# EURECOM

S o p h i a   A n t i p o l i s

## Academia

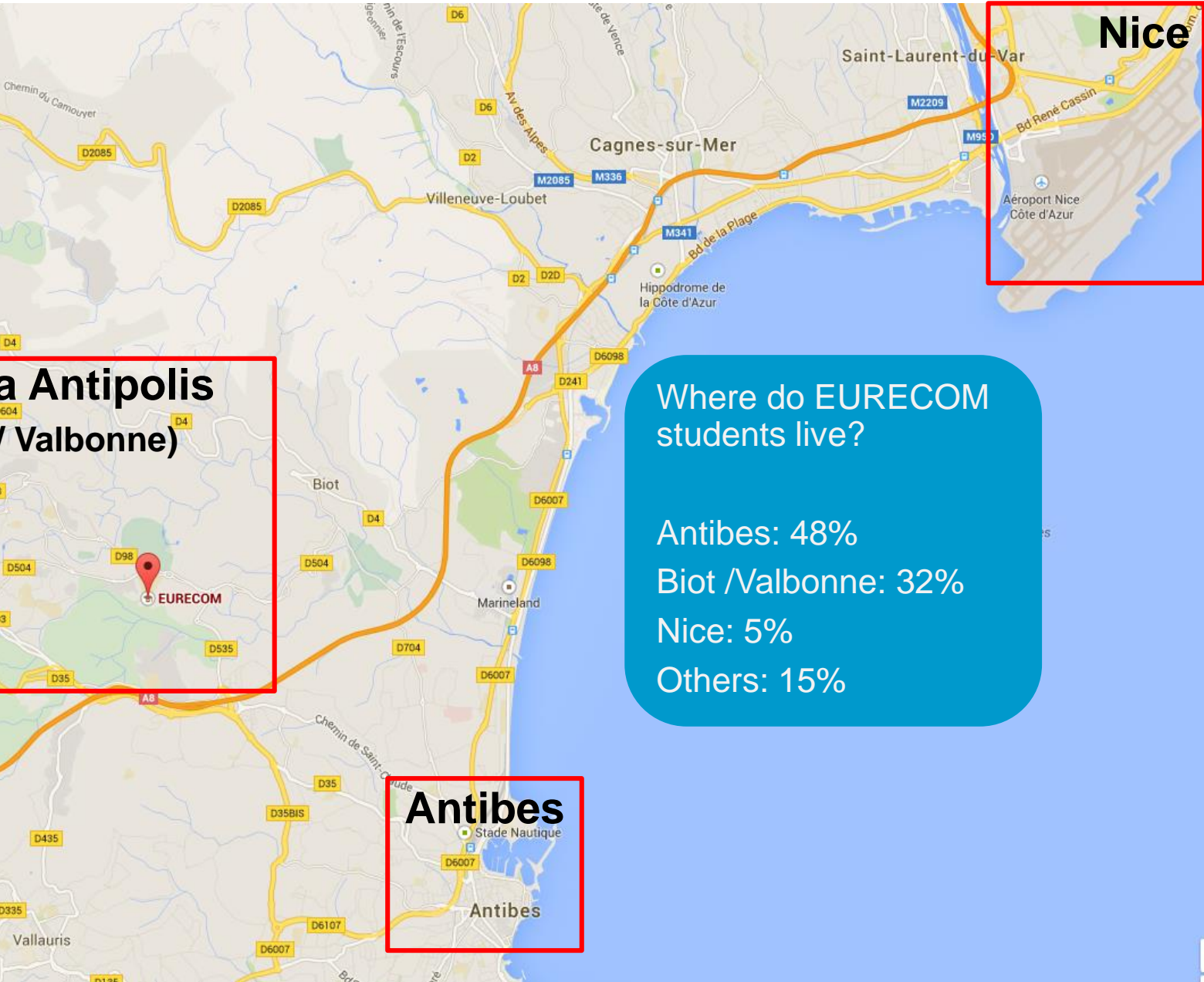


## Industry and institution



EURECOM is part of a Brand New Campus called **SophiaTech** and benefits from cutting-edge facilities





**Sophia Antipolis  
(Biot / Valbonne)**

Where do EURECOM students live?

- Antibes: 48%
- Biot / Valbonne: 32%
- Nice: 5%
- Others: 15%

**Antibes**

# EUROPEAN SILICON VALLEY

EURECOM is located in the heart of SOPHIA ANTIPOLIS



2,330	companies
36,300	jobs
4,500	researchers
5,000	students
70	nationalities

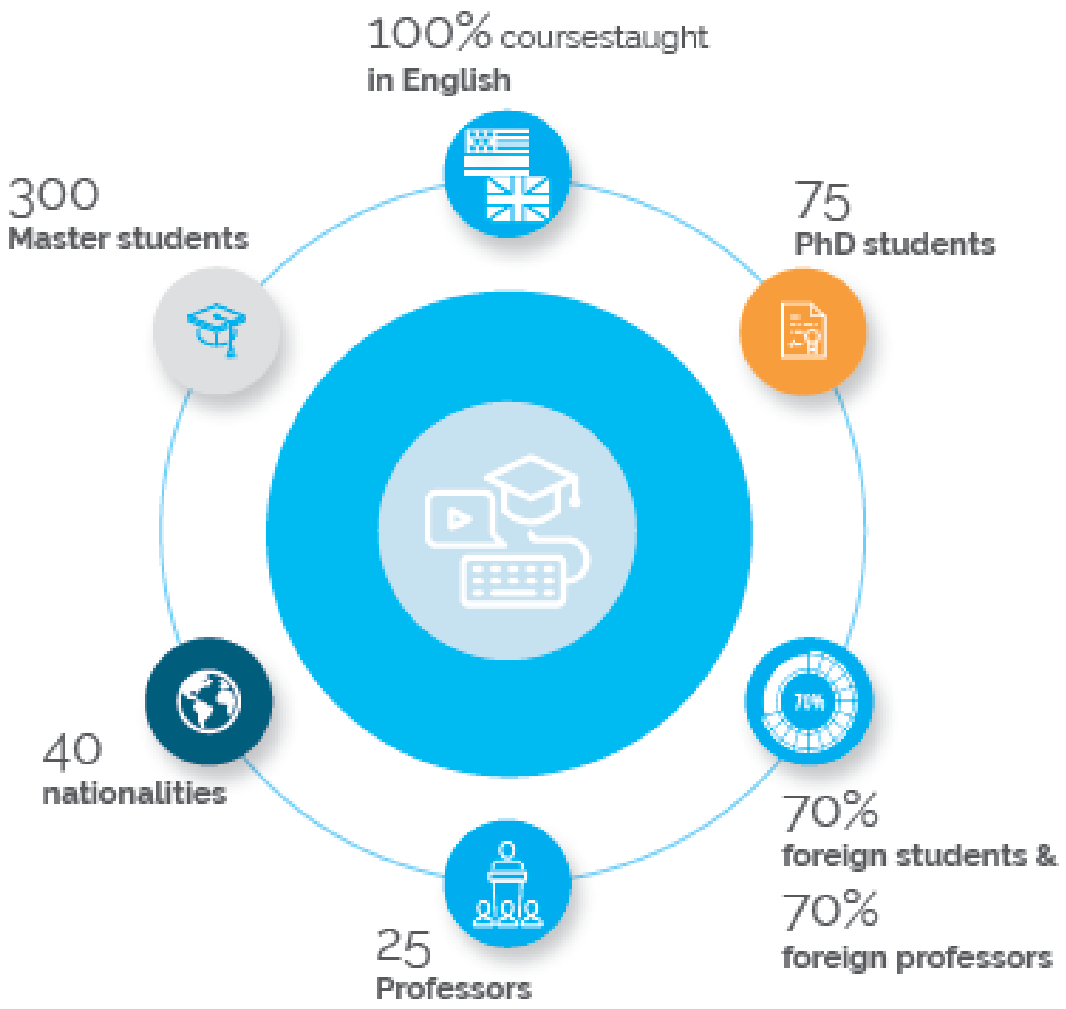
One of the largest techno-parks in Europe

Some of the top companies offering internship opportunities to our Master & Post Master students:



DLR, NXP, Magnetti Marelli, PSA, KMPG, Delivery Hero Germany, Technicolor, HP, Nokia, CEA, Accenture

# Diversity is not the exception: it's the norm !



# EURECOM is Exit University in :



## Digital **MASTER PROGRAM** in **Autonomous Systems**

EURECOM is offering a 2<sup>nd</sup> year specialisation in **Sensing, Communicating and Processing Big Data for Autonomous Systems**

This specialisation aims at describing the methods and tools to process and analyse data from sensors (big data integration, semantic interoperability, data mining and analytics) and at understanding the communication mechanisms adapted to the sensors' constraints (low energy consumption, limited computing capacities, etc.).

Consequently, this master specialisation is at the crossroad between communication systems and data science skills.



# DESCRIPTION

## Compulsory courses

**8 ECTS**

Mobility Modeling

3 ECTS

Select one of the following courses:

Machine Learning and Intelligent System

5 ECTS

Mobile Communication Systems

5 ECTS

## Elective courses

**8 ECTS**

Distributed Systems and Cloud Computing

5 ECTS

Computer architecture

5 ECTS

Mobile application and services

5 ECTS

System and Network Security

5 ECTS

Standardization activities

3 ECTS

Designing embedded systems with UML

3 ECTS

Interaction Design and Development of Modern Web Applications

3 ECTS

## Compulsory I&E Courses

**7 ECTS**

**French** or another foreign language for French speakers

**1 ECTS**

**Semester project**

**6 ECTS**

**Master thesis**

**30 ECTS**

# INNOVATIVE LEARNING METHODS

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- Main developer of a dedicated (GPU)-cloud platform to perform analytics on demand:  
<https://zoe-analytics.eu/>
- Use of cutting-edge software for Data Science :Jupyter, Collab, ...
- Founder of OpenAir Interface, the 1st 5G software alliance for Wireless innovation:  
<https://www.openairinterface.org/>



# HANDS-ON APPROACH

- **Balanced approach between theoretical input and practical application (Labs, Challenges..)**
- **Guest Speakers from the Industry**
- **Semester long projects on relevant industrial topics**
- **Visits in nearby companies and introduction to new technologies**



# Innovative projects in AUS and Machine learning



# SEMESTER PROJECTS

## Project Descriptions available on intranet

- One or two students per project
- Talk to supervisors to discuss the topics (or in advance to propose new ones)

Approximate clustering algorithms for DNA data storage	Automated code generation for IoTs
MEC LORA Service for IOT at the Edge	Automated code generation for IoTs
	Machine learning for predicting user content
The Million Song Dataset - Content Prefetching for Personalized Radio (Data Analysis and Algorithm)	Flying Robots for Future Wireless Networks Beyond 5G
Exploring Graph-Based Technologies (RDF, EasierRDF, GraphQL) and Developing an Object Modeling Framework for RDF in Node.js	Exploring MEC for V2X applications
	The Million Song Dataset - Content Prefetching for Personalized Radio (Data Analysis and Algorithm)
	Methodology approach to Machine Learning-based Cognitive Network & Management in Virtualized Multi-Tenant 5G Networks

# MASTER THESIS

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- **Minimum 22 weeks (March to August)**
- **Where:**
  - Industrial Company
  - R&D Lab (recommended for a follow-up PhD)
- **How:**
  - EURECOM provides support for mailing and contacts
  - Students are also encouraged to search for a placement on their own
- **Defense at EURECOM in front of a jury  
(one academic + one external expert)**

# MASTER THESIS OPPORTUNITIES (1)

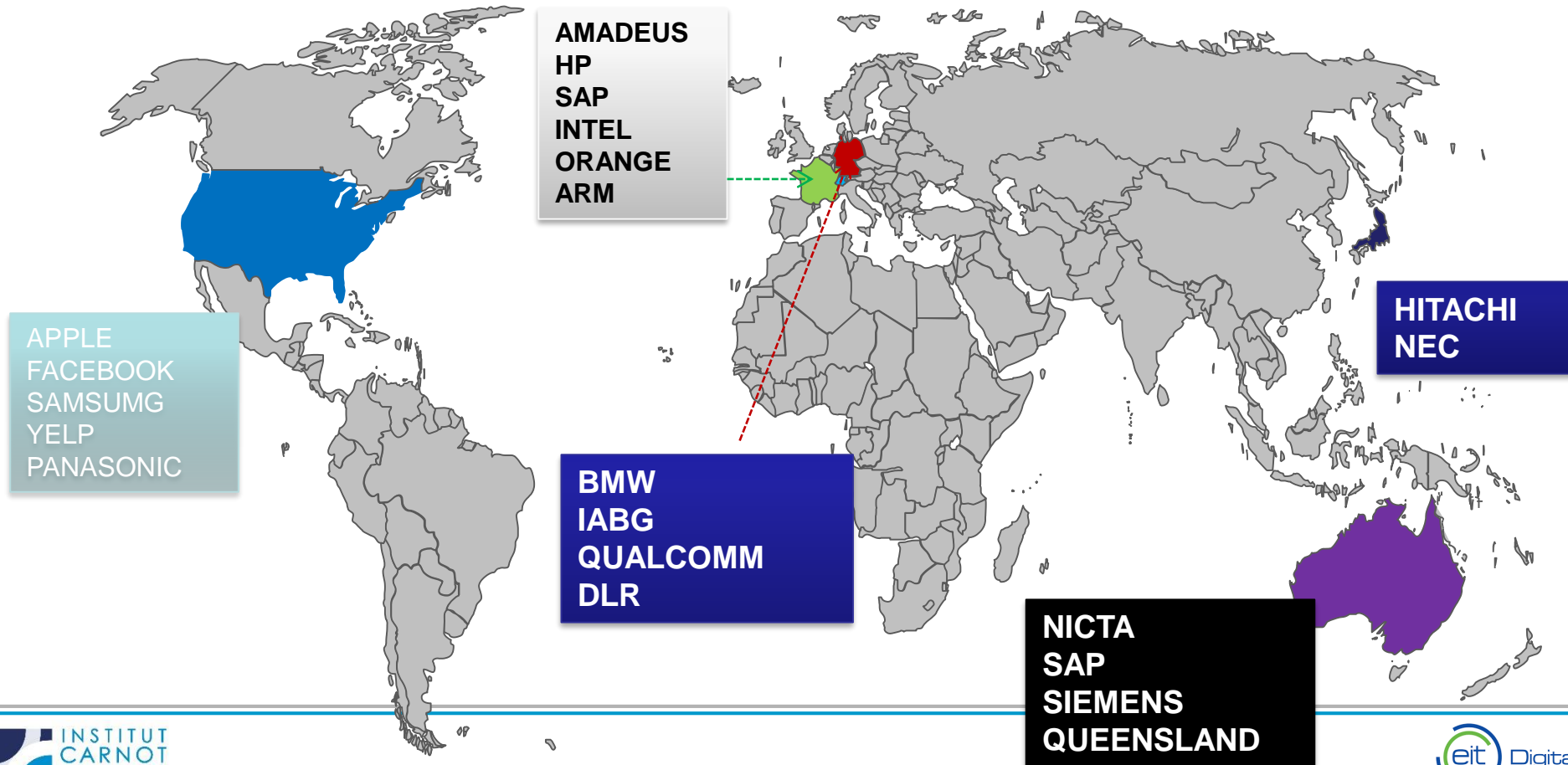
- Master's programs include a **paid 6-month internship (master's thesis)** in a hi-tech company or lab - a unique industrial exposure and competitive asset on the job market!
- EURECOM gives students access to its **database of internship opportunities** in prominent companies both in France and Abroad.

## Example of internships (Places and Topics)

<b>AFD Technology</b>	International GSM Roaming
<b>ALCMEON</b>	crawl, and large-scale processing of UGC (User Generated Content)
<b>AMADEUS</b>	iPhone application for online flights shopping
<b>ATOS</b>	Network security
<b>BMW</b>	Security analysis and specifications of the fedust protocol
<b>CISCO Systems Inc.</b>	Router's Penetration Testing
<b>Commsquare</b>	Protocol Analysis in IP Mobile Networks
<b>EUREVA</b>	Developing a Cloud-Computing visualization solution
<b>NOKIA</b>	TCP Response to Lower-Layer Connectivity-Change Indications
<b>ORANGE</b>	Practical Network security applications in a network provider environment
<b>PHILIPS ELECTRONICS</b>	Study of the influence of NAT in triple play networks
<b>SAP</b>	Security mechanisms for the Internet of Services
<b>SecludIT</b>	Security Audit in cloud infrastructures
<b>ST MICROELECTRONICS</b>	Evaluate the feasibility of particular kinds of multi-fault attacks against RSA
<b>SWISSCOM Innovations</b>	Network access control
<b>TECHNICOLOR</b>	Design and evaluation of a hybrid cloud for dynamic workloads
<b>THALES ALENIA SPACE</b>	network access control with port based security

# MASTER THESIS OPPORTUNITIES (2)

EURECOM provides students with a database of Master's thesis opportunities based on internships in labs and companies in France and abroad.





# OPPORTUNITIES IN SOPHIA ANTIPODIS

EURECOM students can browse a database of several hundreds of offers, fueled by the efficiency of its network of partners and relationships with **local, national** and international companies.

Some of the top companies offering internship opportunities to our Master & Post Master students:



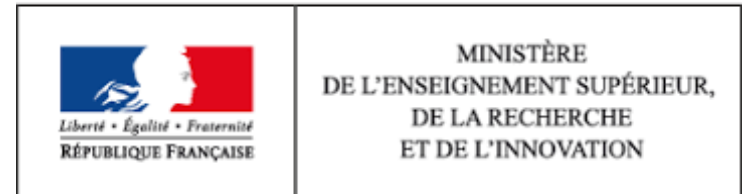
DLR, NXP, Magnetti Marelli, PSA, KMPG, Delivery Hero Germany, Technicolor, HP, Nokia, CEA, Accenture



# EMPLOYABLE MASTER in BOOMING FIELD

EIT DIGITAL Student will obtain our MASTER IN INTERNET OF THINGS

Our Master's programs ("Diplôme National de Master") are fully accredited by the French State and co-delivered by the Institut Mines Télécom, French leading consortium of the best French engineering schools.



Master obtained **the Carrière IA certification**



Certifié © Carrière IA - Emplois IA & Data Science

# WHY EURECOM ?

## A very strong Data Science Department



**MICHIARDI, Pietro (Head)**

Scalable Machine Learning  
Algorithms  
Computational Statistics  
Parallel and Distributed  
Systems



**Motonobu KANAGAWA**

Kernel methods and  
Gaussian processes in  
machine learning, statistics and  
numerical computation  
Machine learning for enhancing  
the power of computer simulation  
Applications to real-world  
problems involving computer  
simulation models



**PAPOTTI, Paolo**

User-centric data cleaning  
Automatic fact-checking



**FILIPPONE, Maurizio**

Development of practical and  
scalable Bayesian inference  
methods for Gaussian  
Process-based statistical  
models.  
Statistical methods for early  
stage diagnosis of  
neurological disorders based  
on neuroimaging data.  
Bayesian inference in  
mechanistic models applied to  
systems biology.



**Raja APPUSWAMY**

Big data analytics  
Data management on modern  
hardware



**Maria ZULUAGA**

Machine and statistical  
learning, image analysis and  
computer vision, time-series  
analysis, healthcare



**TRONCY, Raphaël**

Semantic Web and Multimedia  
Technologies, Knowledge  
Representation, Information  
Extraction, Ontology Modeling  
and Alignment and Web  
Science.



Multimedia semantics and  
multimedia interlinking for  
hypervideos, Semantic Data  
Integration for smart cities and  
knowledge bases population

# Worldwide reference in Communication Systems (5G)



[GESBERT, David \(Head\)](#)

Communications and information theory for wireless networks



High spectra efficiency techniques for 5G networks  
Distributed algorithms in cooperative wireless networks  
Cognitive radio



European Research Council  
Established by the European Commission



[Marios KOUNTOURIS](#)

Communication theory  
Machine learning for wireless communications  
Low latency networking  
Stochastic modeling and performance analysis



[ELIA, Petros](#)

Information theoretic limits and coding in cooperative communications, fundamental performance-complexity limits in communications, MIMO decoders, two-way relaying, isolation and connectivity in dense networks, queueing theory, crosslayer design, and soft-biometrics.



European Research Council  
Established by the European Commission



[SPYROPOULOS, Thrasylvoulos](#)

Performance Analysis and Modeling  
Mobile Data Offloading  
Small Cell Networks  
Distributed Caching  
Cognitive Networks  
Delay Tolerant Networks  
Mobility Modeling  
Intelligent Transportation Systems  
Social Networks  
Traffic Classification



[SLOCK, Dirk](#)

Transmitter and receiver design for 4G/5G systems, with multiple antennas / users / cells, relaying; capacity and diversity analysis, interference management, cognitive radio, localization  
Audio signal processing: acoustic echo cancelation, dereverberation, source separation, enhancement  
Joint Wiener filtering and parameter estimation, empirical Bayes estimation, Variational Bayesian techniques



# Worldwide reference in Communication Systems (5G)



[KNOPP, Raymond](#)



Specific subjects investigated by the group include coding, multiple access and two-way transmission techniques in radio communications, software radio architectures and implementation technology, and physical-layer abstraction and emulation architectures for radio networks.



[KSENTINI, Adlen](#)



Mobile and wireless Networks, Software Defined Networking (SDN), Network Function Virtualization (NFV), Content Delivery Networks (CDN), Performances evaluation



[HÄRRI, Jérôme](#)



Mobility modeling and context prediction of autonomous/manual vehicles and vulnerable road users. Cooperative congestion & awareness control. Connectivity and graph properties of vehicular networks. Enhancement of positioning systems for transport-related applications. Benefit of vehicular communication and ITS (Intelligent Transportation Systems) on traffic efficiency, traffic safety and transport automations.



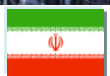
[KALTENBERGER, Florian](#)



Multi-user MIMO and relaying techniques and their implementation on the OpenAirInterface.org platform  
Interference management and mitigation  
Physical layer abstraction for large-scale system simulations



[NIKAEIN, Navid](#)



Uplink channel access techniques for mix machines/human traffic in LTE/LTE-A systems  
Scheduling schemes applicable to evolving cellular systems as well as adhoc/mesh network  
Large scale wireless network emulation architectures and HW/SW CPU/GPU co-design  
Experimentation and performance evaluation in LTE/LTE-A using OpenAirInterface.org

# WHY EURECOM?

## ENHANCED EMPLOYABILITY

- **Balanced Approach between Theoretical courses and Supervised sessions in labs.**
  - **Guest Speakers from the Industry**
  - **Semester Long Projects on relevant topics**
  - **Very strong ties with major actors in industry, not only in Sophia but in the whole world**
- **6-month Paid Master Thesis in a company or lab**

EURECOM provides students with an updated **Database of internship opportunities**

**Average monthly allowance:**  
**1200€/month**

*Some of the companies offering internship opportunities*

amaDEUS

NXP

NOKIA

ARM

RENAULT  
Passion for life

SAP

DASSAULT  
SYSTEMES

FORTINET®

ST  
life.augmented

orange™

# INDIVIDUAL ASSISTANCE

- **Human-size school:  
Accessible professors and  
staff**
- **Favorable professor/students  
ratio**
- **A whole team dedicated to  
student's administrative life**
  - Administrative assistance: Health insurance, housing, bank account...
  - Help to find a flat and an internship



EURECOM  
Student Affairs Team

# LANGUAGE AND CULTURAL TRAINING

- A 3-week Intensive program of French language and cultural visits organised in September
- Included in the program (Free of charge for Exchange Students)
- Weekly French courses throughout the academic year





# STUDENT ACTIVITIES

EURECOM has a very active Student's association organises many events all year long to fully enjoy your stay in France.



**Weekend of Integration**



**International Meal**



**International Study trip**



**Ski Weekend**



**Many sport activities**



**Graduation and Alumni Events**

# STUDENT ACTIVITIES

EURECOM's localization allows our students to enjoy culture, sports and discovery.



**60 km from Italy**



**Gateway to main European Cities with low cost flights**



**Fine Arts**



**Like the cinema ?  
Enjoy the Festival de Cannes**

# FANCY LIVING IN A VILLA?



*1h30 from the  
sky slopes*



# *30 min the beach*



# TESTIMONY

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HELEN



EIT student  
2018/1019

*« Hi all, my name is Helen and I spent my second year of the EIT master in security and privacy at EURECOM in the sunny South of France.*

*After an very intensive first year at the University of Twente in the Netherlands, I moved to France in August. Already months before I got lots of help from the great administrative team of EURECOM concerning all aspects of moving: finding a flat, insurances, bank accounts, etc.*

*Many thanks to Gwenaëlle, Philippe, and all the others! You're amazing!*

*In September, we were offered a free language course to get started with French while having the time to explore a bit the beaches and the mountains, and to meet the other students. It was a great time.*

*My two favourite courses were BigSec and MobiSec. The professors are extremely passionate, and the material is based on recent research accompanied by interesting practical challenges.*

*But my personal highlight of the semester was the semester project were we could support professors and PhD students with recent research and explore (+ solve) highly relevant problems that can even end in a publication.*

*Finally, EURECOM has a great database for finding internships which makes it very easy to get into contact with companies for the master thesis.*

*To conclude, I enjoyed my time at EURECOM a lot and I am extremely thankful for all the help and support I got there. Many thanks :) »*

# TESTIMONY

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*“ My experience at EURECOM was awesome!*

*Everything started from the early moments I entered the university before the actual courses. I went there to finalize some bureaucratic stuff and immediately realized two things: the first one is the location that was so beautiful, surrounded by the woods and completely isolated from the traffic of the city and the second one is the great help I received from the EURECOM staff.*

*They are kind, funny and always with a prompt response, and I never had an issue that they couldn't resolve.*

*Professors are really competent and I found an environment that pushed me hard into my studies, motivating me to do my best.*

*Another great thing about EURECOM is that it is small and you start knowing all the other students from the early moments, especially if you join all the awesome activities that they organize. You feel you are more in a big family rather than in a public institution.*

*If this is not enough, I should mention that the weather is always sunny there and you can enjoy a very beautiful see in the weekend.*

*In conclusion, EURECOM is a perfect match between what you can learn and what you can do, that combines together the competence of its professors and the entertainment of the location. »*

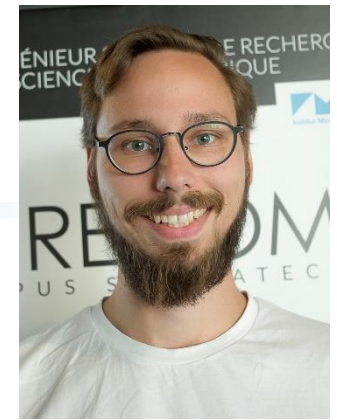


PAOLO 

EIT student  
2018/1019

# TESTIMONY

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LAURI



EIT student  
2019/2020

I am happy to give a few sentences about EURECOM because I was very satisfied with the courses.

***"EURECOM offered the best courses I had done so far: good lectures, great hands-on approach for labs and support from professors when in doubt"***

Best,

Lauri Laatu



**Academic Coordinator Autonomous Systems:**

**Raphael Troncy ([master-eit-aus@eurecom.fr](mailto:master-eit-aus@eurecom.fr))**



**Administrative Coordinator AUS**

**Philippe Benassi ([philippe.benassi@eurecom.fr](mailto:philippe.benassi@eurecom.fr))**



[Link to the Data Science Department](#)

[www.eurecom.fr/en](http://www.eurecom.fr/en)