Master's degrees at EURECOM

Digital Security   **Data Science**

Mobile Computing Systems

OUTLINE

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- **AT THE HEART OF EUROPE'S LARGEST TECHNOPARK**

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KEY FACTS ABOUT EURECOM

250 **Master students**

60 **Phd students**

23 **Professors**

3 **Main fields of research and teaching**

- **Communication systems**
- **Digital Security**
- **Data Sciences**

A consortium run by

7 **universities and** **7** **companies**

TELECOM ParisTech

NTNU — Norwegian University of Science and Technology

Aalto University School of Science and Technology

CHALMERS

TUM — Technische Universität München

CZECH TECHNICAL UNIVERSITY IN PRAGUE

ST life.augmented

SAP

monaco telecom

BMW Group Forschung und Technik

Symantec.

iABG

orange

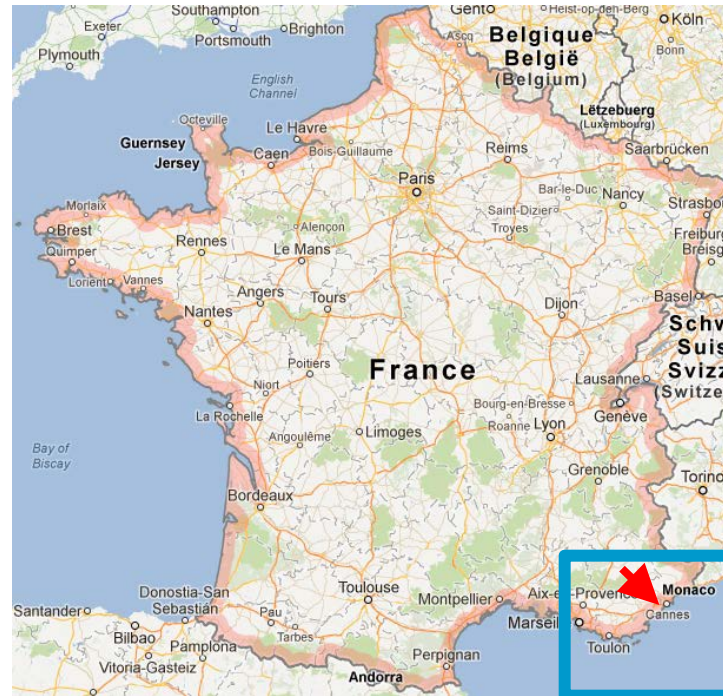**300** **Days of sun on the French Rivieria**

AN UNCOMPARABLE SETTING

- ## French Riviera – Cote d'Azur

  - 30 min from Nice airport (2nd international airport in France)
  - Ideal for sport lovers: 30 min from the beaches

    1 hour from the sky slopes

Nice

Antibes

Monaco

Cannes

Ski and beach at the same time ! January 2014

EURECOM

EURECOM is part of a brand new campus called SophiaTech and benefits from cutting-edge facilities

EUROPE LARGEST SCIENCE PARK

EURECOM is located in the heart of SOPHIA ANTIPOLIS

"The French Silicon Valley"

- **1,452 companies, 40% involved in R&D activities**
- **31,000 jobs**
- **4,500 researchers**
- **More than 5,000 students**
- **70 nationalities**

Some of Sophia Antipolis' leading companies

SIEMENS THALES hp

CISCO symantec. IBM

intel AMADEUS

nVIDIA. SAP Alcatel·Lucent

JOB OPPORTUNITIES
for EURECOM's students

48% Msc graduates are currently working in Sophia Antipolis

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RESEARCH HIGHLIGHTS (2015)

EURECOM professors have achieved world-wide recognition in their field of research.

268
Scientific publications

ERC Advanced Grants
David GESBERT
(mobile com.)

erc
European Research Council
Established by the European Commission

276
Quotations in national and international media
(**183** in 2013)

161
International Conferences

23
professors

MIT Technology Review

You've Been Misled About What Makes a Good Password

Common advice on how to make a strong password is misleading, according to a new study of password-guessing techniques.

22
Average H Index

3
IEEE Fellows
IEEE

107
Research contracts

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A VERY INTERNATIONAL SCHOOL

EURECOM is one of the strongest international profile in France, providing essential intercultural skills to its students.

70%
International students
(32 nationalities)

Curriculum ENTIRELY taught in ENGLISH

70%
Foreign professors
(11 nationalities)

IEEE **First school outside the USA which was granted the "IEEE Major Educational Innovation Award"**

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TIGHTS LINKS WITH INDUSTRY

EURECOM collaborate tighly with companies. These industrial partnerships allow for a very **hands-on approach** to teaching to the benefit of students.

1. EURECOM's industrial members

Involved in the teaching and research of EURECOM

2. INTERNSHIPS

EURECOM keeps an updated database of internship opportunities offered by companies allowing students to directly apply through it.

Each semester, the database proposes an average of **offers from more than 70 companies**.

3. RESEARCH CONTRACTS WITH COMPANIES

EURECOM is actively involved in **research projects with top companies** to bring its expertise in key fields.

DESCRIPTION

- **ACCREDITATION:**

The Master's degree is recognized by the French Ministry of Higher Education and Research. The degree is delivered by **EURECOM and INSTITUT MINES TELECOM**.

Institut Mines Telecom: public institution dedicated to higher education, research and innovation in engineering and digital technologies. It brings together schools ranking among the leading graduate schools in France.

- **DURATION:** **4 Semesters. 120 ECTS.**

- September: French intensive course
- October-February / March-June / September-February: three semesters of courses
- March-August: a paid 6-month professional internship in industry/lab.

- **LANGUAGE OF TEACHING:** the whole program is entirely taught in **ENGLISH**.

Prior French knowledge is not required. French will be taught as part of the curriculum.

- **A FLEXIBLE and HANDS-ON CURRICULUM:**

The curriculum is very flexible since students can design their own program since most of the program is **made of elective courses to be chosen in a large list.**

The approach is **very hands-on** to ease the integration of students into the labour market. The curriculum is made of lectures, seminars, exercises of practical application (lab sessions), supervised projects in teamwork and a professional internship in a company.

FIELDS OF STUDY

MOBILE COMPUTING SYSTEMS	DATA SCIENCE AND ENGINEERING	DIGITAL SECURITY
• The master aims at providing the theoretical background and the applied know-how related to physical layer transmission techniques (RF design, signal processing algorithms, channel coding and modulation), and upper layer protocols (link layer control, multiple-access, routing),	• The master aims at combining computer and statistical sciences to develop cutting-edge and fundamental tools to efficiently address applied issues related to data processing. It offers a cohesive blend of technical classes in data mining, software engineering and distributed systems	• Various technical areas ranging from cryptographic mechanisms to intrusion detection and practical countermeasures against network attacks through watermarking of images and biometric identification techniques will be addressed in several courses and laboratories.

MOBILE COMPUTING SYSTEMS
- **Mobile communication techniques**
- **Network modeling**
- **Advanced topics in wireless communications…**

DATA SCIENCE AND ENGINEERING
- **Distributed systems and cloud computing**
- **Machine Learning and Intelligent Systems**
- **Algorithmic machine learning and data mining…**

DIGITAL SECURITY
- **Cyber-crime and Computer Forensics**
- **Hardware Security**
- **Imaging for Security, Watermarking**
- **Secure Communications…**

Each curriculum is coupled with fundamentals in **Business, Innovation and Project Management, law,** to develop profiles which are highly valued by corporate recruiters.

CONTENT OF THE CURRICULUM

Technical courses	• Innovative courses, designed in partnership with EURECOM's academic and industrial members. • Regularly assessed and updated.
Non technical courses	• Soft skills, MBA type classes taught by experts from companies or professors from renowned business schools in Law, Management, Business simulation…
Semester's project	• Blend of theoretical and practical work, often involves the building of a prototype. Projects are sometimes proposed by industrial partners. (Around 200h per semester)
Foreign languages	• Any foreign language can be taught provided there are 5 students min with a similar level willing to study a given language.
INTERNSHIP	• Thesis on an industrial or research subject carried out in a company or a lab during 6 months. • Students are paid and integrated as part of the company' staff.

SEMESTER's PROJECTS

Students choose a topic and work on project which is highly related to research and/or industrial partnership. It can be about developing a prototype, finding a solution to an identified problem…

The aim is to put into practice the concepts learnt in class and gain a **valuable practical and/or research experience.**

➤ Students work in team under the supervision of a professor.

Some recent examples of students projects

Video of a
recent project

- Web Interface , Semantic Web, Sensor Networks & Security
- Online Game to teach Reverse Engineering
- Statistical tests of machine-learning algorithms with applications in security
- Collect and analysis of dynamic data on Twitter
- Where is my money going ? Following the bitcoin money trail
- Automated Identification of Android Malware Using Classification Techniques
- Surveillance networks : How to build surveillance networks from a communications point of view, what are the networks limits and will the big brother win
- Prototype of Cloudup: Secure Deduplication with encrypted data for cloud storage
- Monitoring Android baseband system status for GSM fuzzing
- A game-theoretic analysis of the economic issues in ISP regulation
- People tracking with autonomous UAVs based on AR.Drone 2.0

INTERNSHIPS

- 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)

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

CAREER PREPARATION

THEMATIC WORKSHOPS:

Throughout the year; EURECOM organises workshops animated by industrial partners and specialised agencies to help students in their future job search:

- **How to write a CV**

- **How to write a motivation letter**

- **Rules of a professional interview**

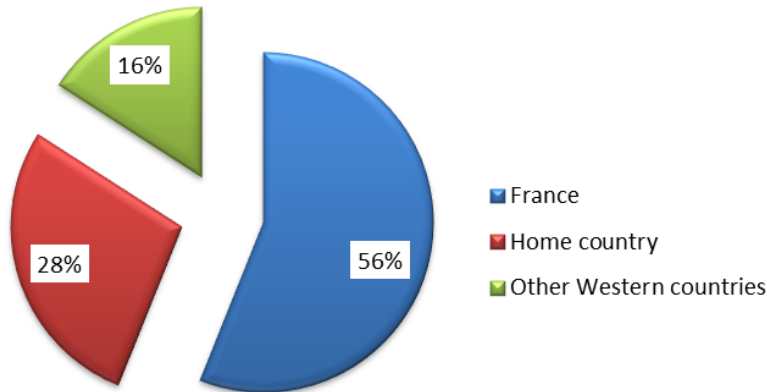- **How to use social networks in an efficient way**

INTERNSHIPS FAIRS:

EURECOM organises internship fairs with local companies allowing students to directly meet with company HR managers.
Students may also be also invited to take part in job fairs held in other cities such as Paris.
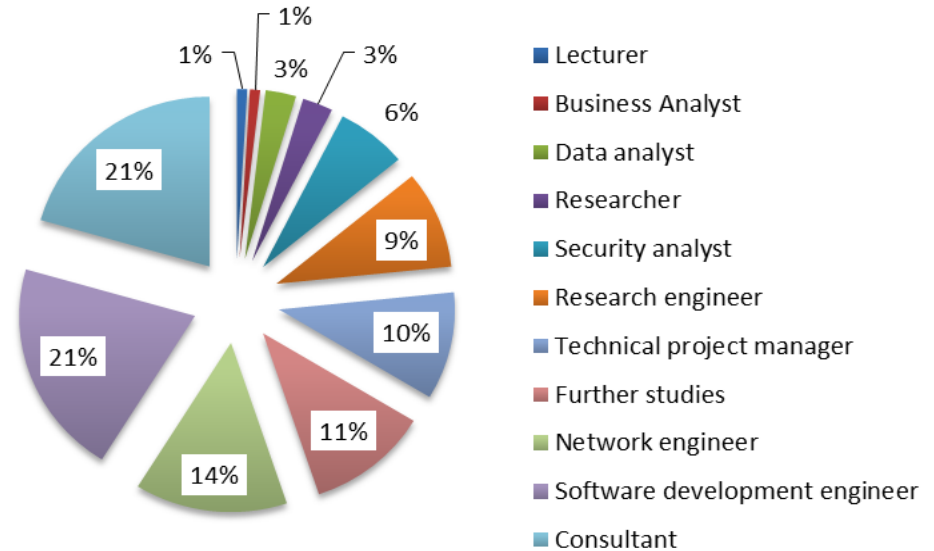
EMPLOYMENT PROSPECTS

EURECOM's hands-on and cutting-edge study programs provide quality career outcomes for its graduates in top companies.

Current country of residence of Msc graduates

France — 56%
Home country — 28%
Other Western countries — 16%

Current positions of Msc graduates

- Lecturer
- Business Analyst
- Data analyst
- Researcher
- Security analyst
- Research engineer
- Technical project manager
- Further studies
- Network engineer
- Software development engineer
- Consultant

Current employers of Msc graduates

ALCATEL, ALLOT, AXA, ATEK, AMADEUS, FORTINET, GOOGLE, IBM, ORANGE, SAP, SYMANTEC, THALES, VALEO…

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PERSONAL ASSISTANCE

EURECOM is a human-size school with available staff and faculty providing students with individual assistance in each stage of their studies.

- **Accessible professors:**

EURECOM has a very good **students/professors ratio**, meaning you can easily approach professors. Semester's projects allow you to have a direct connection with them.

- **A bilingual administration team totally dedicated to international students:**

Our team can provide you with personal assistance at all stages of your studies:

- ➢ Help you find accomodation and apply
for accomodation allowance* (CAF allocation)
- ➢ Find an internship
- ➢ Help with everyday procedures (doctor, transport…)

Students both French and foreign, are entitled to receive financial aid for housing if they stay in France more than 8 months. More information: www.caf.fr

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STUDENT ASSOCIATION EVENTS

From your arrival until your graduation, the Student Association will make sure you make the most of your leisure time and of your new environment!

Weekend of Integration

Many sport activities

International study trip

Beach volley challenges

Ski weekend

End of the year weekend

Graduation Ceremony

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ADMISSIONS / CONTACT

Msc applications are opened from October to early June.

Contact: admission@eurecom.fr / **+ 33(0) 4 93 00 81 33**

Entry requirements :
- a 3-year Bachelor's degree in a relevant field
- A min B2 level in English (upper intermediate)

Students fill an online application and upload the following documents:
- CV
- Motivation letter
- Certified copy of transcripts (indicate ranking if available)
- Certified copy of degree certificate
- 2 recommandation letters (at least one from a professor)
- English test (French test if applicable) – can be sent later
- Short description of the syllabus (can be done by the student)
- Any useful document deemed relevant by the student (certifications, thesis)

Selection criteria:
- Academic performance, reputation of the home university, ranking
- Quality of the motivations, relevance of the future professionnal project

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TOP REASONS TO STUDY WITH US

Only school in France where the curriculum is *100% taught in English*

INTERNATIONAL

2/3 foreign professors and students in a truly multilingual and multicultiral environment

AVAILIBILITY

EURECOM' s human size ensures individual monitoring from staff and professors.

LOCATION

Combine high quality study and leisure on the French Riviera and Sophia Antipolis

QUALITY

Classes are fulled by EURECOM's cutting-edge research and tight links with industry

RELEVANCE

A very hands-on and flexible curriculum for maximum relevance and interest

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MEDIA RESSOURCES

Activity report Research and teaching highlights

OpenAir Interface presentation

Faculty Directory

Presentation of ERC-PERFUME project

Student's Project example (drone)

Research Report

EURECOM