



# MASTER OF SCIENCE: DATA SCIENCE AND NETWORK INTELLIGENCE (DANI)

*The demand for professionals who can interpret large quantities of data with a deep understanding of telcos and webcos has never been greater, and these skills are vital for advancing science and business success. Join us!*

*This **MSc in Data Science and Network Intelligence (DANI)** is home for creative problem-solvers who want to use data strategically to advance the Digital society. We are cultivating a new type of quantitative thought leader who uses computational strategies to generate innovation and insights. Telecom SudParis (France), Asian Institute of Technology (international university), National Chiao Tung University (Taiwan) and Universidad Carlos III de Madrid (Spain) jointly offer a unique international curriculum at the Master's level addressing key issues in Data Science and Network Intelligence.*



Follow us  
on our social networks  
[www.telecom-sudparis.eu](http://www.telecom-sudparis.eu)



## Objectives

DANI combines rigorous technical training with field knowledge, industry insights and practice in critical thinking, teamwork, communication techniques, and collaborative leadership to generate data scientists with a deep understanding of how telcos/webcos evolve, who can add value a wide range of engineering fields.

The program covers areas such as network intelligence, automation, communication services, large-scale data analytics, advanced machine learning and data-mining, information retrieval, natural language processing and web mining. It also includes foundational modules on topics such as programming for data analytics, Internet of things, services and optimization. Students enrolled in the program deepen their knowledge in an elective topic by working on a project in conjunction with either a research group or an industry partner. In addition to six key technical courses, a course on telecom management and economics, jointly taught with Institut Mines-Telecom Business School, gives students essential information about markets and business models. Moreover, each student becomes involved in concrete projects and writes a Master's thesis. The Master's thesis can be conducted in collaboration with industrial partners or research laboratories.

## Career Perspectives

The demand for professionals who can interpret large quantities of data with a deep understanding of telcos and webcos has never been greater, and these skills are vital for scientific advancement and business success. Given the program's solid foundations, students acquire both an in-depth theoretical background and practical knowledge. It only takes a few weeks for graduates to find their first job in the field of ICT and most graduates are hired before graduation. With positions such as Data Scientist, Consultant, Research Engineer, System analyst, Quantitative Analyst/Modeler, Business Intelligence Analyst, Machine Learning Engineer.

## Partnerships

Students attend the ICIN international conference ([www.icin-conference.org](http://www.icin-conference.org)). In addition, World-renowned experts from Orange Labs, CISCO, ITRON, Telecom Italia and ETSI are invited to give lectures during the year.

English is the language of instruction and courses are taught jointly with MSc students from University Carlos III, Madrid (Spain), Asian Institute of Technology (international) and National Chiao Tung University (Taiwan).

## Target students

Recent graduates with a Bachelor's degree or equivalent level having an exceptional academic record, as well as engineers and professionals who wish to upgrade their knowledge can apply for the Master 1 (taught at the Asian Institute of Technology), then join the Master 2 at Telecom SudParis. Students who graduate from the two-year program, taught in English, will receive TWO Master's degrees, one from Asian Institute of Technology and one from Telecom SudParis.

## Program

### Lectures taught in English.

The curriculum for this four semester programme is as follows:

- The two first semesters are held at AIT (optional for students having a Master 1 academic background or with significant experience).
- Semesters three and four are held at Telecom SudParis and focus on specialization coursework and the MSc Thesis or a paid internship in industry.

### First year (AIT)

Semester 1: Choose 4 among:

- Data Modeling and Management
- Data Structure & Algorithms
- Theory of Computing
- Computer Networks
- Web Application Engineering
- Machine Learning
- Software Development and Quality Improvement
- E-Business Development and Technology
- Information Retrieval and Data Mining
- Data Modeling and Management

Semester 2: Choose 4 among:

- Programming Languages and Compilers
- Computer Graphics and Animation
- Advanced Topics in Internet Technology
- Software Architecture Design
- Natural Language Understanding and Translation
- Knowledge Representation and Practical Reasoning
- Big Data Analytics
- The Semantic Web and Linked Open Data
- Decision Support Technologies
- Information Systems Development and Management
- Human-Computer Interaction
- Business Intelligence

### Second Year (TSP)

Semester 1:

- Network Intelligence and Communication Services
- Internet of Things
- Data Science – theory to practice
- Service-oriented Computing
- Wireless Access Networks : State of the Art, Challenges and Evolutions
- Optimisation: Theory and applications
- Business Modelling and ICT

Semester 2:

- Master Thesis and/or paid internship in industry

**Noel CRESPI,**

*Enseignant, directeur du MSc DANI,  
Télécom SudParis*

[noel.crespi@telecom-sudparis.eu](mailto:noel.crespi@telecom-sudparis.eu)

**Direction des formations internationales,**  
[international@telecom-sudparis.eu](mailto:international@telecom-sudparis.eu)

[www.telecom-sudparis.eu/en/formation/data-science-network-intelligence](http://www.telecom-sudparis.eu/en/formation/data-science-network-intelligence)