DSC exit point at UNS

http://mastercs.unice.fr
Multimedia and Web Science for Big Data

Professor Françoise BAUDE |
KOM Master School | October 2018
Sophia-Antipolis: the largest technology park in Europe

- Created in the early 70’s
- ICT (50% of jobs), Biotechnology (30% of jobs)
- 1400 companies
- More than 30,000 jobs
- 5,000 students
- 4,000 researchers
- Teaching ICT there since 20 years but ...
Campus Sophia Tech

- ... a brand new ICT Campus: additional buildings, dedicated to research and teaching in support to innovation
  - Inria research center
  - UNS/UCA : CNRS ass. research labs (I3S, LEAT), masters in ICT program, Polytech school of Engineering, PACA incubators
  - EURECOM institute (research and teaching)
Our specific program for DSc exit point: Multimedia and Web Science for Big Data

• Objective:
  • Help students to meet the challenges and make the technological choices of tomorrow in the domains of:
    • Data Analytics
    • Data Engineering
    • In the particular domain of multimedia content, widespread available on the Web
  
• Application – driven motivation
  • Data analysis for **specific data formats**: image, video, 3D images, text and metadata
  • Web, social networks as key data sources & specific (and heterogeneous) datasets: biology, medicine, e-health, astronomy
Technical courses

- Shared with Sciences des Données Master 2 & Polytech 5th year’ Track
- Max. 24 students per class for labs sessions
- More than half of sessions are labs

2019-20 Courses plan  [with Total Elective: 12 ECTS]

Data science and data engineering support (6 ECTS Mandatory)
* Technologies for massive data
* Data Science industrial process (IBM, Amadeus,...)
  * Multimedia & massive data streamed processing

Data Analysis, Mining [2 each]
* Data mining (in general)
* Analysis and indexing of images & videos with deep learning techniques
  * Data mining for networks

Multimedia and Web data processing  [2 each]
* Compression, analysis and visualisation of multimedia content
  * Web of Data

I&E minor business work (6 ECTS)

Personal project (6 ECTS)

Other Electives (each 2 ECTS by default)
- Large scale distributed systems
- Peer to peer systems
- Security of web applications
- Blockchain and Privacy
- Middleware for Internet of things
- Virtualized infrastructures in cloud computing
- Statistical Learning Methods (3)
- Statistical computational methods (CART, RF and introduction to SAS) (3)
- Advanced image treatment
- 3D Engineering
- Virtual reality
- Semantic web
- Knowledge engineering
- French initiation (on top of)
Personal project

• In group (up to 4), or individual
• Starts october => end of February
• Research oriented in many cases
• Good link to local ecosystem

EXAMPLES of PROJECTS, 2017-2018:

*Action elasticity compensation in video classification
*Joconde Learn
*Labeled topic classifier
*Tensor and matrix factorizations in Python: application to recommender systems
*Assessment of the quality and relevance of automatic tests
*Long term digital data storage on DNA

MinD/Spark CNRS I3S
Wimics-MinD/Spark CNRS I3S/INRIA
Meritis Labs
SIS CNRS I3S
Amadeus
SIS CNRS I3S
Industrial partners... and good internships

• In 2017-18: 12 Data Science Entry students, 14 exit students
  • SAP Research Labs Mougins as official partner
    • Welcome meetings
    • Internship subjects, eg Machine Learning for IT Management Platform
    • Invitation to join SAP Labs *Plankton challenge* Dec 2017
      • show practical usage of “plankton” for general public or for industry, using the attributes of plankton images and plankton ability to predict water/air quality
• In 2016-17: 9 Data Science Entry, 7 Data Science Exit students
  • IBM Global industry *Nice-Dallas Solution Center* as official partner, again for 2018-19
• In 2015-16: 10 Data Science Entry students
  • Amadeus as official partner: at the big data crossroads in the travel industry
Local EIT Digital Data Science students welcome day
• Each October: 40+ companies @
Example of 5-6 months internships in Sophia

• Large Scale Video Description on YouTube-8M dataset, CNRS I3S
• Data anonymization through Generative Adversarial Networks in the differential Privacy scenario, SAP Labs
• Clustering techniques for DNA signal reconstruction, CNRS I3S
• End-to-end Multiple Object Tracking with Convolutional Recurrent Neural Networks, Renault soft.
• End-to-end Models for Lane Centering in Autonomous Driving, Renault soft. & CNRS I3S
• Test quality analyses, Amadeus
• Live Data Sampling for Analytics, Amadeus
(Minor) I&E Work and beyond?

- Numerous local activities in link with innovation
- “Challenge jeunes pousses” (start-up challenge) of Telecom Valley
  - [http://www.telecom-valley.fr/cjp](http://www.telecom-valley.fr/cjp)
  - October to March with coaching by professional
  - 16th edition in 2018
    - You can win 3,000 euros, 6 months of incubation and 12 months of housing
- DEMOLA network UCA branch (sort of I&E concurrent to EIT Digital)
- Strong support from our I&E local coordinator, Cedric Ulmer
  - Former SAP Labs researcher, founder of FranceLabs, a big data startup;
Services offered to students

- Help for immigration procedures
- Help for obtaining lodging benefits
  - Financial support for housing
- Help for housing at
  - Sophia-Antipolis
  - Nice
- Convenient and cheap for students transportation from Nice to Sophia-Antipolis
- Student club
- Sport facilities
- ... and a beautiful living environment
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Your EIT Digital contacts on the French riviera