Le nouveau Master ULB en Data Science et Big Data

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The availability of massive datasets (« Big data ») in sciences, applied sciences and industry is nowadays pervasive and the recent domain of data science regroups all the computational and statistical approaches for extracting models, knowledge and insight from data.

- Data science is more and more needed in many real-world applications. Business and financial decision-making rely on real-time forecasts based on high-frequency streaming data (production, transactions, trade, market data). Genomics and high scale DNA sequencing produce large-scale measurements at many different biological levels.
- The increasing use of social networks, mobile phones, tablets has produced and is producing huge volumes of heterogeneous data. Industrial manufacturing relies heavily on distributed monitoring (sensors, Internet of things) of processes.
- The data treatment is really a hot topic and becomes an important subject in the society.

- Glassdoor's 2018 ranking of the best jobs in America (based on job satisfaction, salary, job openings, etc):
  1. Data scientist
  2. Dev. Engineer
  3. Marketing Manageer
  4. ...
- The required skills to be data scientist: programming skills (R, Python, SQL to cite a few), statistics, machine learning, data intuition for applications.

Benefits of the training

- You have already a master degree and good knowledges in computer sciences or in statistics and you are interested by their applications.
- The specialized master in data science, big data provides an interdisciplinary training in data analysis (model choice, forecast, inference, learning) of big data.
- The program we propose here is fully taught in english and therefore opens to the international job market.
- The ULB is equipped with computing infrastructures for big data: Hadoop clusters, GPU servers, High Performance Computing (CECI) servers.
- The student who wants to complete his/her master by a internship will clearly benefit form the fact that Brussels is full of companies interested by the profile.
- Several faculties and research centers are involved in the master:

ULB Faculté des Sciences

Solvay Brussels School Economics & Management

ULB ECOLE POLYTECHNIQUE DE BRUXELLES

The program

- 3 compulsory courses (15 credits):
  - Computing foundations of data science (Polytechnique)
  - Multivariate and high-dimensional statistics (Sciences)
  - Data management and analytics (Solvay)
- 2 courses in statistics to chose in the following list (10 credits):
  - Time series analysis 1
  - Topics in Mathematical Statistics
  - Statistical foundations of machine learning
  - Statistical learning
  - Computational Statistics

The program

- 2 courses in computer sciences to chose in the following list (10 credits)
  - Pattern recognition and image analysis
  - Current trends in artificial intelligence
  - Big Data: Distributed Management and Scalable Analytics
  - Data Mining
  - Combinatorial optimization
  - Continuous optimization
- 1 course in econometrics in a list of 2 courses (5 credits)
- A “mémoire" or an internship in a company (20 credits)

Total: 60 credits. **Expected duration** of the program: 1 year. The program we propose here is fully taught in english and therefore opens to the international job market.

Job opportunities

- The master will take advantage of the expertise and the international reputation of several ULB research teams. It will provide theoretical and practical training for new professional profiles (“data scientist", “data manager", “analytics manager") as well as a valuable complement for more conventional profiles like “statistician", “computer scientist" or “IT manager" .

Access conditions

- No full admission rights granted for the master. Students must send documents (CV, etc) to the jury to motivate their admission.
- Expected profile: Master in computer sciences, mathematics, statistics, economy, business engineering, engineering, actuarial sciences.

Thank you!

for more details: https://www.ulb.ac.be/programme/MS-BGDA/index.html