

## PhD candidate in Data Analytics Personalised Insurance (M/F)

Ref:

Fixed Term Contract 3 year (CDD), full-time (40 hrs/week)

Number of positions: 1

### Organisation

SnT is a recently formed centre carrying out interdisciplinary research in secure, reliable and trustworthy ICT (Information and Communication Technologies) systems and services, often in collaboration with industrial, governmental or international partners ([www.securityandtrust.lu](http://www.securityandtrust.lu)). The research work will be performed within a young and enthusiastic Big Data working group research, SEDAN (Service and Data Management in Distributed Systems) <http://www.wen.uni.lu/snt/research/sedan>. We are looking for a PhD candidate strongly motivated in working with an industry leading company in this area and to be willing in showing leadership, commitment and excellent analytic capabilities.

### Project Description

The research work is done in the context of a collaboration with Foyer Luxembourg in the area of data analytics in the insurance industry. Business intelligence in the insurance industry is of crucial importance for dealing with customer on-boarding, personalised insurance products and strategic insights into customer personalised management.

The project will address also fraud detection. Fraud is a major problem for all insurance companies and having appropriate fraud detection approaches is a mandatory requirement for them. While several tools exist on the market to address the detection of frauds, several major shortcomings can be highlighted. The first one is related to accurate measurements of the real performance/accuracy. With vendor-dependent benchmarks and missing common ground truth, having a precise overview on the quality of a deployed solution, is impossible. Secondly, most solutions use obsolete approaches, relying on rule-sets or simplistic anomaly detection methods. Thirdly, these solutions are hardly appropriate for modern data driven big data and real time-analytics.

Therefore, the research project aims at driving a new machine driven paradigm for data analytics, which is 1) capable to scale vertically using state of the art data ingestion solutions based on Hadoop and Spark, 2) design new algorithms based on state of the art advances in artificial intelligence and 3) provide objective and accurate performance assessment based on scientific methodologies.

The tasks of the PhD candidate will consist into performing research analysis as well as designing and evaluating proposed solutions through real implementation in partnership with an industry partner. A strong commitment for collaboration with an industrial partner is required. The researcher will have the opportunity to present his or her results to the international community by participating to worldwide scientific events.

More specifically, the work will address the following issues:

1. State of the art research in existing data mining approaches, deep learning, Generative Adversarial Networks.
2. Practical assessment of open source and commercially (if needed, e.g. SAS) tools required for the concrete case.
3. Exploratory data analysis on the dataset in order to identify the relationships among the different features (PCA, factor analysis, correlations, etc).
4. Identification of relevant large-scale graph based analytics algorithms.
5. Realistic field trial and model updating to match with real-world requirements and experience.

## Your Profile

- A master's degree in statistic or in probability or in computer science (at least 120 ECTS or equivalent)
- Good knowledge in data mining, artificial intelligence
- Knowledge in statistics software (e.g. R, Python)
- An appetite for statistics and machine learning
- Experience with Big Data frameworks (Hadoop, Spark/Shark)
- A critical mind and openness to technical and scientific challenges
- Fluent written and verbal communication skills in French and in English
- Commitment, team working and a critical mind

## We offer

The University offers 3 years appointment (extension up to 4 years in total is possible).

The University offers highly competitive salaries and is an equal opportunity employer.

You will work in an exciting international environment and will have the opportunity to participate in the development of a newly created research centre.

## Application

Applications, written in English should be submitted online and should include:

- Curriculum Vitae (including your contact address, work experience, publications)
- Cover letter indicating the research area of interest and your motivation
- Copy of your Master's degree diploma
- Copy of your Master thesis (or url to access it)

Deadline for applications: 30/04/2018

For inquiries please contact: Radu STATE ([radu.state@uni.lu](mailto:radu.state@uni.lu))