PhD research studentship: improving patient treatment at the intensive care unit using data mining techniques

Summary

The intensive care unit at the University Hospital Antwerp (Belgium) is looking for enthusiastic PhD students to improve patient diagnosis and treatment by applying data mining techniques to heterogeneous datasets with both intensive care data and anonymised patient records. You will be part of an interdisciplinary research team in a stimulating and dynamic environment.

The importance of data mining for health care and other application domains of engineering is growing. In this project, we want to explore the application of data mining methods in huge numbers of structured and unstructured data in a large university hospital.

In the critical care department (ICU), hundreds of thousands of datapoints (such as blood pressure, heart rate, medication, lab values, …) are gathered daily. Good decision-making in the ICU is essential and related to pattern recognition: small changes in a patient's condition can form a frequently unrecognizable pattern forecasting ICU complications. Due to the huge amount of data in this time-critical environment, automated pattern identification is required to facilitate appropriate and timely decision making in emergent situations.

This project aims to integrate different sources of information and to discover patterns of diagnosis, co-morbidity, small or more pronounced changes in the vital parameters or the evolution of lab tests for predicting the evolution of patients, the outcome, the length of stay and costs in an intensive care unit. The ultimate goal is to improve overall treatment quality, reduce mortality and increase hospital efficiency.

Application requirements

Applicants will apply for an IWT research grant and should meet all formal requirements for this grant (www.iwt.be). Specifically, they should be member of the European Economic Area (EU, Iceland, Norway and Liechtenstein) or Swiss. If you have alternative financing possibilities, this requirement is unnecessary.

You should have an MSc in a relevant discipline (engineering, bioengineering, bioinformatics, medicine, artificial intelligence, data mining) with at least a 'cum laude' degree. Applicants should be fluent in either Dutch or English and have excellent English writing skills.

Funding notes

The studentship comprises of a temporary contract until December 2010 during which he/she will prepare and submit a PhD grant application (IWT, 4y).

Contact

Please send your resume and application letter to tim.van.den.bulcke@uza.be.