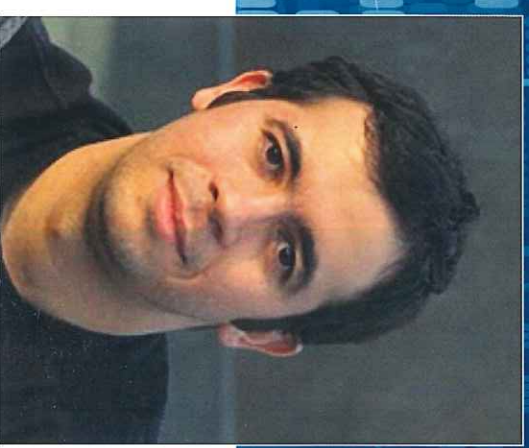# A Lecture by
Tiberius O. Bonates, Ph.D.

A Scalable Implementation of Logical Analysis of Data in WEKA

Logical Analysis of Data (LAD) is a supervised classification algorithm introduced in the late 80's, which has been applied to data analysis problems arising from various domains, including economics, seismology and, most prominently, medicine and bioinformatics. LAD accuracies are typically on par with those of successful algorithms from the machine learning literature, such as neural networks and support vector machines. However, the use of LAD by practitioners has remained a privilege of those who had access to one of the few (closed source) LAD implementations, or those who had the opportunity to write their own code. In this lecture, we introduce a recent implementation of LAD, developed with the intent of being highly scalable, independent of third-party optimization software (such as ILP solvers), and open source. The fact that the software is implemented as a WEKA classifier introduces additional benefits: it can be easily compared with other algorithms available in WEKA, via WEKA's automated testing capabilities, and it can reach a large audience (anyone familiar with WEKA will be able to use it). This is joint work with Vaux Gomes, from the Federal University of the Semi-Arid, in Brazil.

Date: April 11, 2014 | Time: 2:30 - 4:30 p.m. | Location: D633

Intended Audience (all welcome): Students and Faculty of Mathematics and Computer Sciences

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Professor Bonates received his Ph.D. in Operations Research from Rutgers University. His main research interests lie in the areas of combinatorial optimization, mathematical programming, and artificial intelligence, including the design of machine learning algorithms and applications to the transportation industry. His research has been published in scholarly journals, such as Annals of Operations Research, Discrete Applied Mathematics, and Annals of Mathematics and Artificial Intelligence. In addition to his academic experience, Professor Bonates has expertise in the solution of optimization problems arising in industrial applications. He worked as an optimization specialist for Dash Optimization (now Fair Isaac, Corp.) and as a consultant for Princeton Consultants and for NetJets, Inc., the world leader in fractional jet ownership.

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