Fouille de données par contraintes

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Résumé

In this course, we overview recent contributions to data mining and more generally to the cross-fertilization between data mining (DM), constraint programming (CP) and propositional satisfiability (SAT). We first introduce the basic concepts of CP and SAT. Then we will focus on how these two-well-known constraints solving paradigms can be used to model and solve problems in data mining including itemset, association rules and sequences mining, community detection and symbolic clustering. Finally, to illustrate the benefits of such cross-fertilization, we present an original use of data mining techniques to compress Boolean formulas and constraints networks and we discuss how symmetries widely investigated in Constraint Programming (CP) and Propositional Satisfiability (SAT) can be extended to deal with data mining problems.
· Lakhdar Sais obtained an engineering degree in computer science in 1988 from the National Institute on Computer Science ("Université de Tizi-Ouzou"), a PhD in 1993 from the "Université de Provence" (Marseille) and an "Habilitation à Diriger des Recherches" from the "Université d'Artois" in 2000. In 1994, he joined the "IUT de Lens" as a lecturer ("Maître de conférences") at the beginning of the creation of the CRIL research center ("Centre de Recherche en Informatique de Lens"). Before his current position as a professor at CRIL-CNRS "Université d'Artois", he spent one year as a professor at IRIT "Université Paul Sabatier " (Toulouse, France). He is the founding-member and the leader (from 2002 – 2013) of the inference and decision process group at CRIL - CNRS. He is currently the Delegate director of the CRIL laboratory. His research focuses on search and representation problems in Artificial Intelligence. He is especially interested in propositional satisfiability, quantified Boolean formula, constraint programming and operation research, knowledge representation and data mining. For further details on his research activities visit the web site: http://www.cril.fr/_˜sais.

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