shortBio of Nadjib Lazaar

Nadjib Lazaar is a Full Professor at Paris-Saclay University, where he is a member of the LaHDAK team at the LISN laboratory. He serves as Director of the MIAGE program and Co-Director of the Master's in Data Science at the Faculty of Sciences of Orsay.

He earned his Master's degree (2008) and Ph.D. (2011) in Computer Science from the University of Rennes 1, after graduating top of his class from the University of Es-Senia, Oran (2007).

Following his Ph.D., he held postdoctoral positions at INRIA Rennes, at the Joint INRIA-Microsoft Research Lab in Paris-Saclay, and later within the ICON FP7 FET-Open project at the University of Montpellier. He also spent a year as a CNRS delegate at the GREYC laboratory in Caen (2019–2020).

From 2013 to 2024, he was Associate Professor (Maître de Conférences HDR) at the University of Montpellier, contributing to the COCONUT and MaREL teams at LIRMM, and obtained his Habilitation à Diriger des Recherches (HDR) in 2022.

His research focuses on Constraint Programming, Data Mining, Machine Learning, and Software Engineering, with particular interest in Constraint Acquisition, Declarative Data Mining, AI-Based Software Testing, Software Verification & Validation, and Trustworthy Neuro-Symbolic AI. Beyond his research, he remains deeply committed to teaching and mentoring, continuously fostering new generations of scientists.

Title: Declarative Constraint Programming for Pattern Mining: Evolution, Challenges, and Opportunities

Abstract: The field of pattern mining has significantly evolved, moving from exhaustive extraction techniques to more refined approaches focused on identifying truly meaningful patterns. Traditional methods often suffer from the overwhelming volume of extracted patterns, highlighting the need for more adaptive techniques that can integrate user-specific constraints efficiently. Constraint Programming (CP) has emerged as a powerful declarative paradigm in this context, offering unmatched flexibility, expressiveness, and the capacity to handle complex constraints. Over the past two decades, significant progress has been made in applying CP to pattern mining, leading to the development of specialized global constraints and efficient propagators that improve scalability and performance.

This keynote will offer a comprehensive overview of CP-based declarative pattern mining, reviewing major models, solvers, and frameworks developed over time. I will discuss the trade-offs between CP approaches and specialized algorithms, identifying contexts where each excels. Looking ahead, I will highlight future research directions, such as enhancing CP solvers, improving data representations, and combining CP with specialized methods to support adaptive, interpretable, and more efficient pattern mining. By identifying key challenges and emerging opportunities, this talk aims to lay the foundation for the next generation of declarative pattern mining techniques.