11th Symposium on Languages, Applications and Technologies

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To all whose effort keeps SLATE alive.

Contents

Preface
João Cordeiro, Maria João Pereira, Nuno F. Rodrigues, and Sebastião Pais 0:ix

List of Authors
..... 0:xi

Committees
..... 0:xiii

Papers

Assessing Similarity Between Two Ontologies: The Use of the Integrity Coefficient
Aly Ngoné Ngom, Papa Ousseynou Mbaye, and Ibrahima Gaye 1:1–1:11

Automatic Classification of Portuguese Proverbs
Jorge Baptista and Sónia Reis 2:1–2:8

Question Answering For Toxicological Information Extraction
Bruno Carlos Luís Ferreira, Hugo Gonçalo Oliveira, Hugo Amaro, Ângela Laranjeiro, and Catarina Silva 3:1–3:10

Generation of Document Type Exercises for Automated Assessment
José Paulo Leal, Ricardo Queirós, and Marco Primo 4:1–4:6

Synthetic Data Generation from JSON Schemas
Hugo André Coelho Cardoso and José Carlos Ramalho 5:1–5:16

Extending PyJL – Transpiling Python Libraries to Julia
Miguel Marcelino and António Menezes Leitão 6:1–6:14

EWVM, a Web Virtual Machine to Support Code Generation in Compiler Courses
Sofia Teixeira, José Carlos Ramalho, and Pedro Rangel Henriques 7:1–7:9

OMT, a Web-Based Tool for Ontology Matching
João Rodrigues Gomes, Alda Lopes Gançarski, and Pedro Rangel Henriques 8:1–8:12

Classification of Public Administration Complaints
Francisco Caldeira, Luís Nunes, and Ricardo Ribeiro 9:1–9:12

Comparing Different Approaches for Detecting Hate Speech in Online Portuguese Comments
Bernardo Cunha Matos, Raquel Bento Santos, Paula Carvalho, Ricardo Ribeiro, and Fernando Batista 10:1–10:12

Semi-Supervised Annotation of Portuguese Hate Speech Across Social Media Domains
Raquel Bento Santos, Bernardo Cunha Matos, Paula Carvalho, Fernando Batista, and Ricardo Ribeiro 11:1–11:14

Large Semantic Graph Summarization Using Namespaces
Ana Rita Santos Lopes da Costa, André Santos, and José Paulo Leal 12:1–12:9

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Metaobject Protocols for Julia
Marcelo Santos and António Menezes Leitão 13:1–13:15

The Visual Programming Environment ROBI for Educational Robotics
Gustavo Galvão, Alvaro Costa Neto, Cristiana Araújo, and Pedro Rangel Henriques 14:1–14:15

Down-Translating XML: The Python Way
Alberto Simões and José João Almeida 15:1–15:9

Determining Programming Languages Complexity and Its Impact on Processing
Gonçalo Rodrigues Pinto, Pedro Rangel Henriques, Daniela da Cruz, and João Cruz 16:1–16:15

Reasoning with Portuguese Word Embeddings
Luís Filipe Cunha, J. João Almeida, and Alberto Simões 17:1–17:14

ScraPE – An Automated Tool for Programming Exercises Scraping
Ricardo Queirós 18:1–18:7

Analysing Off-The-Shelf Options for Question Answering with Portuguese FAQs
Hugo Gonçalo Oliveira, Sara Inácio, and Catarina Silva 19:1–19:11

Preface

Language allows humans to interact versatile and complexly, consolidating bonds that underlie solid social structures. With language, we think collectively and act more effectively. Also, it is through human language that precious knowledge is stored and disseminated throughout communities and along with history. It firmly bases our collective identity, our culture. Some anthropologist suggests that human communication patterns appeared around 50 000 years ago, but this origin is lost to the ages. One thing is sure: language equipped humans with an advantageous framework that allowed them to reach this complex and technological era we live in. Thus, at the origin, we have *Human to Human Languages* (**HHL**).

With the development of the computer, from the middle of the 20th century, it became necessary to think of languages that would allow humans to communicate with machines at a level of abstraction above the underlying electronic processes and, therefore, more efficiently and conveniently to the human being. These are the kind of *Human to Computer Languages* (**HCL**), including the wide range of programming languages that have been developed and are still being researched.

More recently, with the advent of networks, we found a way to make computers communicate between themselves. Therefore, languages that allow machines to exchange information efficiently and effectively are also being investigated. *These are the kind of Computer-to-Computer Languages* (**CCL**), e.g., representation and transformation languages like XML.

These different forms of communication use different languages, but they still share many similarities and joint issues and challenges. In SLATE, we are interested in discussing these three kinds of languages and eventually spark some interesting synergies that might emerge from them. Therefore, SLATE is organized into three different tracks. It is a forum where researchers, developers, and educators exchange ideas and information involving natural language processing (**HHL Track**), the latest academic or industrial work on language design, processing, assessment, and applications (**HCL Track**), and markup and transformation languages (**CCL Track**).

This book of proceedings compiles the accepted papers for the Eleventh edition of the Symposium on Languages, Applications and Technologies, SLATE'2022, held at the University of Beira Interior, Portugal, on the 14th and 15th of July, 2022. In this edition, a total twenty two papers were submitted by a total of forty one authors. The Scientific Committee executed a thorough revision of each paper and nineteen papers were selected to publication and oral presentation in Symposium. We end up with five papers in the HCL track, seven papers in the HHL track, and seven papers in the CCL track.

Our gratitude goes to the many people without whom this event would never have been possible: all the Members of the Scientific Program Committee for their valuable effort reviewing the submissions, contributing with corrections and new ideas, and helping on deciding the final list of accepted papers; the members of the Organizing Committee, for the help on dealing with the bureaucratic issues; the invited Speakers (Ricardo Campos and Simão Melo de Sousa) for accepting our invitation to share their knowledge; and finally, we thank all the Authors for their contributions to SLATE with their current projects and research problems.

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Main Chair

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