

# Proceedings of the 3rd Workshop on Natural Language for Artificial Intelligence co-located with AIxIA 2019

Mehwish Alam<sup>1</sup>, Valerio Basile<sup>2</sup>, Felice Dell’Orletta<sup>3</sup>  
Malvina Nissim<sup>4</sup>, Nicole Novielli<sup>5</sup>

<sup>1</sup> FIZ Karlsruhe – Leibniz Institute for Information Infrastructure,  
Karlsruhe Institute of Technology Germany  
`mehwish.alam@fiz-karlsruhe.de`

<sup>2</sup> University of Turin, Italy  
`valerio.basile@unito.it`

<sup>3</sup> Istituto di Linguistica Computazionale, Pisa, Italy  
`felice.dellorletta@ilc.cnr.it`

<sup>4</sup> University of Groningen, Netherlands  
`m.nissim@rug.nl`

<sup>5</sup> University of Bari “Aldo Moro”, Italy  
`nicole.novielli@uniba.it`

## Preface

Natural Language Processing plays a fundamental role in current AI research, as target of different scientific and industrial interests. At the same time, several AI achievements have shown their beneficial impact on applications in linguistic modelling, processing and generation. Especially the recent advancements in deep learning are drastically changing the landscape of NLP, where the continuous performance improvement on well established tasks is happening at an unprecedented speed. Therefore, Natural Language Processing is a rich research topic, whose cross-fertilization with AI spans a number of independent areas such as Cognitive Computing, Robotics as well as Human-Computer Interaction.

We believe that new technological challenges and opportunities rise at the boundary between NLP and AI. On the one hand, AI applications benefit from a deeper understanding of problems related to Natural Language, and thus the integration of advanced NLP techniques. On the other hand, NLP benefits greatly from being used in wider areas of AI where problems and methodologies related to NL can be evaluated in new contexts.

Given these premises, the workshop “Natural Language for Artificial Intelligence” (NL4AI) aims at providing a meeting forum for stimulating and disseminating research where researchers (especially those affiliated with Italian institutions) can network and discuss their results in an informal way<sup>6</sup>. In particular, the goal of the NL4AI workshop is to explore the role of Natural Language and Natural Language Processing in Artificial Intelligence applications.

<sup>6</sup> <http://sag.art.uniroma2.it/NL4AI>

NL4AI 2019 was the 3rd edition of this workshop, taking place on November 19th and 20th in Rende, Italy. We thank the Italian Association of Computational Linguistics (AILC)<sup>7</sup>, that supported the invitation of the speakers to the workshop: Albert Gatt and Roberto Basili.

We received 11 submissions, 8 of which were accepted after peer-review. In terms of topics, the contributions to the workshop range from pure NLP works to broader proposals bridging NLP with other AI applications.

A common theme is that of **under-resourced languages** and domains. In this direction, the paper by Arukgoda et al. employs deep learning to alleviate the scarcity of resources for automatic translation of Sinhala-Tamil sentences, while Kothalawala et al. propose an approach based on online learning to improve Named Entity Recognition in the Sinhala language. Two papers (Gambino and Pirrone; Polignano et al.) explore the application of the recently popular BERT model to the Italian language.

Two papers propose **applications** of NLP techniques to different tasks. Frummet et al. introduce an annotation scheme and classification task to improve conversational agents, by injecting knowledge about information needs into the model. Monett and Winkler employ a NLP pipeline to support the creation of an ontological resource on human intelligence.

Finally, two works are focused on various **Natural Language Processing tasks**. The first is *verb semantic similarity*, topic of the paper by Ravelli et al. who introduce ontologically-informed word embeddings (*Ref-Vectors*) to improve the performance. The second is *predicting verb aspectual coding*, for which Richter and Yousef present the result of a pilot study on six slavic languages.

As a final remark, the program co-chairs would like to thank all the members of the Program Committee as well as the local organizers of the AIIA 2019 Conference<sup>8</sup>.

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<sup>7</sup> <http://www.ai-lc.it/>

<sup>8</sup> <https://aiia2019.mat.unical.it/>