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(NLP4CALL 2021)



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Proceedings of the
10th Workshop on
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edited by

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and Lars Borin

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Preface

The workshop series on Natural Language Processing (NLP) for Computer-Assisted Language Learning (NLP4CALL) is a meeting place for researchers working on the integration of Natural Language Processing and Speech Technologies in CALL systems and exploring the theoretical and methodological issues arising in this connection. The latter includes, among others, the integration of insights from Second Language Acquisition (SLA) research, and the promotion of “Computational SLA” through setting up Second Language research infrastructures.

The intersection of Natural Language Processing (or Language Technology / Computational Linguistics) and Speech Technology with Computer-Assisted Language Learning (CALL) brings “understanding” of language to CALL tools, thus making CALL intelligent. This fact has given the name for this area of research – Intelligent CALL, or for short, ICALL. As the definition suggests, apart from having excellent knowledge of Natural Language Processing and/or Speech Technology, ICALL researchers need good insights into second language acquisition theories and practices, as well as knowledge of second language pedagogy and didactics. This workshop therefore invites a wide range of ICALL-relevant research, including studies where NLP-enriched tools are used for testing SLA and pedagogical theories, and vice versa, where SLA theories, pedagogical practices or empirical data and modelled in ICALL tools. The NLP4CALL workshop series is aimed at bringing together competences from these areas for sharing experiences and brainstorming around the future of the field.

We invited submissions:

- that describe research directly aimed at ICALL
- that demonstrate actual or discuss the potential use of existing Language and Speech Technologies or resources for language learning
- that describe the ongoing development of resources and tools with potential usage in ICALL, either directly in interactive applications, or indirectly in materials, application, or curriculum development, e.g. learning material generation, assessment of learner texts and responses, individualized learning solutions, provision of feedback
- that discuss challenges and/or research agenda for ICALL
- that describe empirical studies on language learner data

This year a special focus was given to work done on second language vocabulary and grammar profiling, as well as the use of crowdsourcing for creating, collecting, and curating data in NLP projects. We encouraged paper presentations and software demonstrations describing the above-mentioned themes primarily, but not exclusively, for the Nordic languages.

A special feature in this year’s workshop is the *research notes* session. This session included short talks about PhD projects and ongoing unfinished research that collaborating teams were eager to discuss with the community and get feedback. We tested this feature for the second time with an intention to evaluate its impact and utility for future uses. This time around, we circulated a separate call for expression of interest.

This year, we had the pleasure to welcome two invited speakers: Mark Brenchley (Cambridge Assessment English; co-presenter: Kevin Cheung, Cambridge Assessment English) and Johanna Monti (University of Naples).

Dr **Mark Brenchley** is Senior Research Manager at Cambridge Assessment English. Mark manages research supporting the development and validation of Cambridge English products in the areas of speaking and writing, as well as vocabulary and grammar more broadly. He specialises in the application of corpus-based methodologies and is responsible for maintaining and developing the company’s internal corpus architecture, including the Cambridge Learner Corpus. His current work, in particular, focuses on the development and validation of auto-marking technologies.

In his talk, *What is an NLP NLP? Considerations from an L2 Assessment Perspective*, he offered a more philosophical perspective on the role of NLP in second language assessment, focusing on the question of what it might actually mean for something to be an "NLP NLP"; that is, a natural language processed, natural language profile. In general, he explored the relationship between NLP and L2 profiles with regard to the wider notion of validity as a key assessment concept.

Dr **Johanna Monti** is currently Associate Professor and Third Mission Delegate at the L'Orientale University of Naples, where she teaches Translation Studies, Specialised Translation, Computational Linguistics for Translation, Machine and Computer Aided Translation. She received her PhD in Theories, Methodologies and Advanced applications for Communication, Computer Science and Physics with a thesis in Computational Linguistics at the University of Salerno, Italy. She is the Chief Scientist of the UNIOR NLP Research Group, node in Natural Language Processing and Computational Linguistics of the CINI Italian Lab on Artificial Intelligence and Intelligent Systems. Her current research activities are in the field of Machine Translation, the impact of MT in the translation process, the evaluation of the new translation technologies and finally new methodologies in the development of linguistic data for NLP & CALL applications.

In her talk, *Challenges of Gamified Crowdsourcing for language learning applications*, she presented an overview of different types of gamified crowdsourcing and discuss the emerging opportunities and challenges of using it for language learning applications.

Previous workshops

This workshop follows a series of workshops on NLP4CALL organized by the NEALT Special Interest Group on Intelligent Computer-Assisted Language Learning (SIG-ICALL¹). The workshop series has previously been financed by the Center for Language Technology at the University of Gothenburg, the SweLL project², and the Swedish Research Council's conference grant. Currently the funding comes from Språkbanken Text³ and the L2 profiling project⁴.

Submissions to the ten workshop editions have targeted a wide range of languages, ranging from well-resourced languages (Chinese, German, English, French, Portuguese, Russian, Spanish) to lesser-resourced languages (Erzya, Arabic, Estonian, Irish, Komi-Zyrian, Meadow Mari, Saami, Udmurt, Võro). Among these, several Nordic languages have been targeted, namely Danish, Estonian, Finnish, Icelandic, Norwegian, Saami, Swedish and Võro. The wide scope of the workshop is also evident in the affiliations of the participating authors as illustrated in Table 1.

Country	2012-2020 (# speaker/co-author affiliations)
Algeria	1
Australia	2
Belgium	5
Canada	4
Cyprus	2
Denmark	3
Egypt	1
Estonia	3
Finland	10

¹ <https://spraakbanken.gu.se/en/research/themes/icall/sig-icall>

² <https://spraakbanken.gu.se/en/projects/swell>

³ <https://spraakbanken.gu.se>

⁴ <https://spraakbanken.gu.se/en/projects/l2profiles>

France	9
Germany	89
Iceland	6
Ireland	2
Italy	7
Japan	5
Lithuania	1
Netherlands	4
Norway	13
Portugal	6
Romania	1
Russia	10
Slovakia	1
Spain	3
Sweden	67
Switzerland	10
UK	11
US	7

Table 1. NLP4CALL speakers' and co-authors' affiliations, 2012-2021

The acceptance rate has varied between 50% and 77%, the average being 63% (see Table 2).

Although the acceptance rate is rather high, the reviewing process has always been very rigorous with two to three double-blind reviews per submission. This indicates that submissions to the workshop have usually been of high quality.

Workshop year	Submitted	Accepted	Acceptance rate
2012	12	8	67%
2013	8	4	50%
2014	13	10	77%
2015	9	6	67%
2016	14	10	72%
2017	13	7	54%
2018	16	11	69%
2019	16	10	63%
2020	7	4	57%
2021	11	6	54%

Table 2: Submissions and acceptance rates, 2012-2021

We would like to thank our Program Committee for providing detailed feedback for the reviewed papers:

- David Alfter, University of Gothenburg, Sweden
- Claudia Borg, University of Malta, Malta
- António Branco, Universidade de Lisboa, Portugal
- Andrew Caines, University of Cambridge, UK
- Xiaobin Chen, Universität Tübingen, Germany
- Kordula de Kuthy, Universität Tübingen, Germany
- Simon Dobnik, University of Gothenburg, Sweden
- Thomas François, Université catholique de Louvain, Belgium
- Johannes Graën, University of Gothenburg, Sweden and University of Zurich, Switzerland
- Andrea Horbach, University of Duisburg-Essen, Germany
- Ronja Laarman-Quante, University of Duisburg-Essen, Germany

- Herbert Lange, University of Gothenburg, Sweden and Chalmers Institute of Technology, Sweden
- Peter Ljunglöf, University of Gothenburg, Sweden and Chalmers Institute of Technology, Sweden
- Verena Lyding, EURAC research, Italy
- Detmar Meurers, Universität Tübingen, Germany
- Margot Mieskes, University of Applied Sciences Darmstadt, Germany
- Lionel Nicolas, EURAC research, Italy
- Robert Östling, Stockholm University, Sweden
- Ulrike Pado, Hochschule für Technik Stuttgart, Germany
- Magali Paquot, Université catholique de Louvain, Belgium
- Ildikó Pilán, Norwegian Computing Center, Norway
- Gerold Schneider, University of Zurich, Switzerland
- Egon Stemle, EURAC research, Italy
- Anaïs Tack, Université catholique de Louvain, Belgium and KU Leuven, Belgium
- Irina Temnikova, Mitra Translations, Bulgaria
- Sowmya Vajjala, National Research Council, Canada
- Elena Volodina, University of Gothenburg, Sweden
- Zarah Weiss, Universität Tübingen, Germany
- Victoria Yaneva, National Board of Medical Examiners, Philadelphia, USA
- Torsten Zesch, University of Duisburg-Essen, Germany
- Ramon Ziai, Universität Tübingen, Germany

We intend to continue this workshop series, which so far has been the only ICALL-relevant recurring event based in the Nordic countries. Our intention is to co-locate the workshop series with the two major LT events in Scandinavia, SLTC (the Swedish Language Technology Conference) and NoDaLiDa (Nordic Conference on Computational Linguistics), thus making this workshop an annual event. Through this workshop, we intend to profile ICALL research in Nordic countries as well as beyond, and we aim at providing a dissemination venue for researchers active in this area.

Workshop website:

<https://spraakbanken.gu.se/forskning/teman/icall/nlp4call-workshop-series/nlp4call2021>

Workshop organizers

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