

Intelligent and Evolutionary Systems for Natural Language Processing

Proposal for a Special Session of
Intelligent and Evolutionary Systems 2014

Guest Editors

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Background and Motivation

As the Web rapidly evolves, Web users and Web contents are evolving with it. In an era of social connectedness, people are becoming increasingly enthusiastic about interacting, sharing, and collaborating through social networks, online communities, blogs, Wikis, and other online collaborative media. In recent years, this collective intelligence has spread to many different areas, with particular focus on fields related to everyday life such as commerce, tourism, education, and health, causing the size of the Web to expand exponentially. The distillation of knowledge from such a large amount of unstructured information, however, is an extremely difficult task, as the contents of today's Web are perfectly suitable for human consumption, but remain hardly accessible to machines.

To this end, biologically and linguistically motivated computational paradigms that go beyond syntax are needed. Intelligent and evolutionary systems potentially has a large future possibility to play an important role in natural language processing (NLP) research for tasks such as grammatical evolution, knowledge discovery, and rule learning. In this light, this Special Session focuses on the introduction, presentation, and discussion of novel NLP systems that are not merely based on domain-dependent corpora or word co-occurrence counts, but rather systems that can be considered intelligent and evolutionary. The main motivation for the Special Session, in particular, is to go beyond a mere word-level analysis of text and provide novel concept-level approaches to natural language processing that allow a more efficient passage from (unstructured) textual information to (structured) machine-processable data, in potentially any domain.

Articles are thus invited in areas such as AI, Semantic Web, knowledge-based systems, machine learning, and computational intelligence for NLP research. Topics include, but are not limited to:

- Intelligent and evolutionary systems for information extraction and retrieval
- Intelligent and evolutionary systems for text summarization and visualization
- Intelligent and evolutionary systems for topic modeling
- Intelligent and evolutionary systems for sentiment analysis
- Intelligent and evolutionary systems for knowledge acquisition
- Intelligent and evolutionary systems for social network analysis
- Intelligent and evolutionary systems for adaptive and transfer learning
- Intelligent and evolutionary systems for agents and complex systems
- Intelligent and evolutionary systems for evolutionary game theory
- Intelligent and evolutionary systems for bioinformatics

The Special Session also welcomes papers on specific application domains of natural language processing, e.g., social data mining, influence networks, customer experience management, computer mediated human-human communication, social media marketing, multimedia management, personalization and persuasion, enterprise feedback management, human-agent, -computer and -robot interaction, intelligent user interfaces, patient opinion mining, surveillance, art. The authors will be required to follow the Author's Guide for manuscript submission to The 18th Asia Pacific Symposium on Intelligent and Evolutionary Systems (<http://ies-2014.org/submission.html>).

Timeframe

Submission Deadline: August 1st, 2014

Notification of Acceptance: September 1st, 2014

Final Manuscripts Due: October 1st, 2014

Session dates: November 10-12th, 2014

Composition and Review Procedures

The Special Session on Intelligent and Evolutionary Systems for Natural Language Processing will consist of papers on novel evolutionary algorithms in NLP. Some papers may survey various aspects of the topic. The balance between these will be adjusted to maximize the Session's impact. All articles are expected to successfully negotiate the standard review procedures for the Asia Pacific Symposium on Intelligent and Evolutionary Systems. We anticipate approximately 8-10 papers in the Special Session. Selected, expanded versions of papers presented at the Session will be invited to a forthcoming Special Issue of Cognitive Computation on natural language processing.

About the Editors

ERIK CAMBRIA received his BEng and MEng with honours in Electronic Engineering from the University of Genova, in 2005 and 2008 respectively. In 2011, he was awarded his Ph.D. in Computing Science and Mathematics, following the completion of a Cooperative Awards in Science and Engineering (CASE) research project born from the collaboration between the University of Stirling, the MIT Media Laboratory, and Sitekit Solutions Ltd. From 2011 to 2014, Erik has been a research scientist at the National University of Singapore (Cognitive Science Programme, Temasek Laboratories) and an associate researcher at the Massachusetts Institute of Technology (Synthetic Intelligence Project, Media Laboratory). Today, he is an assistant professor at Nanyang Technological University (School of Computer Engineering). His interests include concept-level sentiment analysis, affective common-sense reasoning, noetic natural language processing, and intention awareness. Erik is associate editor of Springer Cognitive Computation, guest editor of many top-tier AI journals, e.g., IEEE Computational Intelligence Magazine, invited speaker at several international conferences, e.g., IEEE SSCI'13, and program chair of many academic series, e.g., Extreme Learning Machines and ICDM SENTIRE

AMIR HUSSAIN graduated with a BEng in Electronic and Electrical Engineering in 1992, from the University of Strathclyde in Glasgow, UK, with the highest 1st Class Honours of the year, for which he was awarded the Professor Maclean Memorial Medal of Distinction. From 1992 to 1995, he worked as a University of Strathclyde sponsored Doctoral Researcher and Teaching Assistant and was awarded his PhD in Electronic and Electrical Engineering in 1996. From 1996 to 1998, he worked as a post-doctoral Research Fellow funded by the UK Government's Engineering Research Council (EPSRC), at the Department of Electronic Engineering of the University of Paisley, UK. From 1998 to 2000, he was employed as an academic staff member of the Department of Applied Computing Science at the University of Dundee, UK. Since 2000, he is working as a senior academic staff member in the Department of Computing Science at the University of Stirling, UK, where he Heads both the Intelligent Control Systems Laboratory (ICSL), the Hearing Research Laboratory (HRL) and is also researching as part of the multi-disciplinary research Centre for Cognitive and Computational Neuroscience (CCCN), and the Stirling Mathematical Ecology Research Group (SMERG).

YUNQING XIA is associate professor at Tsinghua University, China. He obtained his PhD degree at Institute of Computing Technologies, Chinese Academy of Science, China in July 2001. He worked for University of Sheffield from January 2003 to September 2004 as postdoctoral fellow in Sheffield NLP group. From December 2005 to September 2006, he worked for The Chinese University of Hong Kong as postdoctoral fellow in Department of SE&EM. In October 2006, he joined Tsinghua University as associate professor within Center for Speech and Language Technologies (CSLT). His research interests cover natural language processing, information retrieval and text mining (opinion mining in special). He has more than 10 years research experience in area of natural language processing, leading 14 projects from governments (e.g., NSF China, MOST China, ITF Hong Kong, RGC Hong Kong, EU FP5) and industry (e.g. Canon, SK Telecom, Nokia, Oracle, etc.). He serves as associate editor of International Journal of Oriental Language Processing and reviewer of some distinguished journals (e.g., ACM TALIP, JCST, ACTA AUTOMATICA SINICA, ACTA ELECTRONICA SINICA, Journal of Chinese Information Processing, etc.).