Go Mobile

CJO Mobile (CJOm) is a streamlined Cambridge Journals Online (CJO) for smartphones and other small mobile devices



- Use CJOm to access all journal content including FirstView articles which are published online ahead of print
- Access quickly and easily thanks to simplified design and low resolution images
- Register for content alerts or save searches and articles – they will be available on both CJO and CJOm
- Your device will be detected and automatically directed to CJOm via: journals.cambridge.org



JOURNALS

Journal of Functional Programming

Editors-in-Chief

Matthias Felleisen, Northeastern University, USA Jeremy Gibbons, University of Oxford, UK

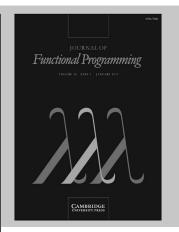
The Journal of Functional Programming is the only journal devoted solely to the design, implementation, and application of functional programming languages, spanning the range from mathematical theory to industrial practice. Topics covered include functional languages and extensions, implementation techniques, reasoning and proof, program transformation and synthesis, type systems, type theory, language-based security, memory management, parallelism and applications. The journal is of interest to computer scientists, software engineers, programming language researchers and mathematicians interested in the logical foundations of programming.

Price information

is available at: http://journals.cambridge.org/jfp

Free email alerts

Keep up-to-date with new material – sign up at http://journals.cambridge.org/jfp-alerts



Journal of Functional Programming

is available online at: http://journals.cambridge.org/jfp

To subscribe contact Customer Services

in Cambridge:

Phone +44 (0)1223 326070 Fax +44 (0)1223 325150 Email journals@cambridge.org

in New York:

Phone +1 (845) 353 7500 Fax +1 (845) 353 4141 Email subscriptions_newyork@cambridge.org

For free online content visit: http://journals.cambridge.org/jfp



Instructions for Contributors

Aims and Scope

Natural Language Engineering encourages original papers reporting research with a clear potential for practical application. The journal also invites surveys presenting the state of the art in important areas of Natural Language Engineering and Natural Language Processing as well as squibs discussing specific problems. Book reviews and reports on industrial applications are welcomed, as are conference reports, comparative discussions of Natural Language Engineering products and policy-orientated papers examining, for example, funding programmes or market opportunities. All contributions are peer reviewed.

The journal was accepted into Thomson Reuters Citation Index and will be indexed in many of their products, but most importantly in both the Science and the Social Sciences editions of the Journal Citation Reports (JCR). The first Impact Factor is expected in June 2012, for the 2011 Impact Factor lists.

General

Submission of a paper to *Natural Language Engineering* is held to imply that the contribution has not been previously published and is not being considered elsewhere. Authors of articles published in the journal assign copyright to Cambridge University Press (with certain rights reserved) and will receive a copyright assignment form for signature on acceptance of their papers.

Contributors are responsible for obtaining permission to reproduce any material in which they do not own copyright, to be used in both print and electronic media, and for ensuring that the appropriate acknowledgements are included in their manuscript.

Up to five keywords should also be supplied to help with assignment of reviewers. Papers should be preceded by an abstract of approximately 300 words.

All manuscripts must be submitted online via the website: http://mc.manuscriptcentral.com/nle

For detailed instructions on submitting files see: journals.cambridge.org/nle If you have further questions, you can write to JNLE@wlv.ac.uk

Manuscript requirements

1. Manuscripts should be **double spaced throughout**, with wide margins. Sheets should be numbered consecutively.

2. The first page of the manuscript should give the title, the name(s) and full mailing address(es) of the author(s), together with e-mail address(es).

Conventions

Authors must consult the full list of conventions for *Natural Language Engineering* available in the Instructions for Contributors at journals.cambridge.org/NLE

First View publishing and DOIs

In order to make articles which have been accepted for publication in *Natural Language Engineering* available as quickly as possible, they are now published as First View online (at Cambridge Journals Online: journals.cambridge.org) The online version is available as soon as author corrections have been completed and before the article appears in a printed issue. A reference is added to the first page of the article in the journal catchline. This is the DOI - Digital Object Identifier. This is a global publishers' standard. A unique DOI number is created for each published item. It can be used for citation purposes instead of volume, issue and page numbers. It therefore suits the early citation of articles which are published as First View on the web before they have appeared in a printed issue. See journals.cambridge.org/nle

Proofreading

Proofs will be supplied as pdfs to your nominated email address. These may be read and corrected by contributors provided that they can guarantee to return the corrected proofs within four days of receipt. Contributors should correct printers' errors but not introduce new or different material at this stage. The publisher reserves the right to charge authors for correction of non-typographical errors.

Offprints

No paper offprints are provided, but a pdf of the published article will be sent to the corresponding author.

Printed in the UK by Bell & Bain Ltd, Glasgow

Cambridge University Press
The Edinburgh Building, Shaftesbury Road, Cambridge CB2 8RU, United Kingdom
32 Avenue of the Americas, New York, NY 10013–2473, USA
477 Williamstown Road, Port Melbourne, VIC 3207, Australia
Ruiz de Alarcón 13, 28014 Madrid, Spain
Dock House, The Waterfront, Cape Town 8001, South Africa

NATURAL LANGUAGE ENGINEERING

Volume 21 Part 1 January 2015

CONTENTS

EDITORIAL	
Editorial note	1
Ruslan Mitkov	
ARTICLES	
Unsupervised acquisition of entailment relations from the Web	3
Idan Szpektor, Hristo Tanev, Ido Dagan, Bonaventura Coppola	
and Milen Kouylekov	
Similarity computation using semantic networks created from	
web-harvested data	49
Elias Iosif and Alexandros Potamianos	
Network analysis of narrative content in large corpora	81
Saatviga Sudhahar, Gianluca De Fazio, Roberto Franzôsi and Nello Cristian	ini
Improving shift-reduce constituency parsing with large-scale unlabele	ed data 113
Muhua Zhu, Jingbo Zhu and Huizhen Wang	
A syntactic approach for opinion mining on Spanish reviews	139
David Vilares, Miguel A. Alonso and Carlos Gómez - Rodríguez	107
	1/5
In Memory of Geoffrey Leech	165

The cover illustration is computer generated from an engraving of the Tower of Babel in an eighteenth-century bible

Cambridge Journals Online

For further information about this journal please go to the journal website at: journals.cambridge.org/nle



Paper from responsible sources

