

EACL 2017

**15th Conference of the European Chapter of the
Association for Computational Linguistics**



Proceedings of Conference, volume 2: Short Papers

April 3-7, 2017
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Preface: General Chair

Welcome to the EACL 2017, the 15th Conference of the European Chapter of the Association for Computational Linguistics! This is the largest ever EACL in terms of the number of papers being presented. We have a strong scientific program, including 14 workshops, six tutorials, a demos session, and a student research workshop. EACL received a record number of submissions this year, approximately 1,000 long and short papers combined, which reflects how broad and active our field is. We are also fortunate to have three excellent invited speakers: David Blei (University of Columbia), Devi Parikh (Virginia Tech), and Hinrich Schütze (LMU Munich). I hope that you will enjoy both the conference and Valencia.

I am deeply indebted to the Program Committee Chairs, Alexander Koller and Phil Blunsom, for their hard work. They put together a team of 27 area chairs who in turned assembled many reviewers and handled a large number of papers. The Workshop Chairs, Laura Rimmell and Richard Johansson, coordinated with the workshop chairs for ACL 2017 and EMNLP 2017 and succeeded in putting together an exciting and broad programme including 14 workshops. The student research workshop was organised by the student members of the EACL board — John Camilleri, Mariona Coll Ardanuy Uxoá Iñourrieta, and Florian Kunneman. With the help of Barbara Plank (Faculty advisor), they issued the call, organised a team of reviewers, assigned papers, coordinated and mediated among reviewers, and finally constructed a schedule consisting of 12 papers.

The Tutorial Chairs, Lucia Specia and Alexandre Klementiev, put together a very strong programme of six tutorials, which I hope many of us will attend. The publication chairs, Maria Liakata and Chris Biemann, have been short of amazing. They undertook the complex task of producing the conference proceedings and managed to make it seem easy, while being extremely thorough and paying attention to every detail. Chris Biemann deserves a double thank you for being Sponsorship Chair. Our demo chairs, Anselmo Peñas and André Martins, did a fantastic job selecting 30 demos for our demo session which I encourage you all to attend. I would also like to thank David Weir our publicity chair and the ACL business manager Priscilla Rassmussen, who knows more about our conferences than anyone else. Sincere thanks are due to the various sponsors for their generous contribution. I am grateful to all members of the EACL board for their advice and guidance, in particular to Lluís Márques and Walter Daelemans.

Last, but not least, this conference could not have taken place without the local organising committee who have worked tremendously hard to make EACL 2017 a success. The Local Chair, Paolo and Andrea Aldea from Grupo Pacifico, have brought together a fantastic local team and have dealt with many of the day-to-day tasks arising in organizing such a large conference expertly and efficiently.

I am always amazed by the dedication of our colleagues and their willingness to share knowledge and invest precious time in order to make our conferences a success. On that note, I would like to thank the authors who submitted their work to EACL and everyone else involved: area chairs, workshop organizers, tutorial presenters, reviewers, demo presenters, and participants of the conference.

Welcome to EACL 2017!

Mirella Lapata
General Chair

Preface: Programme Chairs

Welcome to the 15th Conference of the European Chapter of the Association for Computational Linguistics! In these proceedings you will find all the papers accepted for presentation at the conference in Valencia from the 3rd to the 7th of April 2017. The main conference program consists of both oral and poster presentations and also includes additional presentations of papers from the Transaction of the Association for Computational Linguistics (TACL), posters from the Student Research Workshop, and two demonstration sessions.

We received considerably more paper submissions than previous meetings of the EACL: 441 Long Papers and 502 Short Papers (excluding papers withdrawn or rejected for incorrect formatting). The Short Paper deadline was set after that for Long Papers and it is notable that we received more submissions of Short than Long papers. After the commendable reviewing efforts of our Program Committee we accepted 119 Long Papers, 78 as oral presentations and 41 posters, and 120 Short Papers, 47 orals and 73 posters. Overall the acceptance rates were 27% and 24% for the Long and Short Paper tracks respectively. The EACL 2017 programme also contained the oral presentations of four papers published in TACL.

It would not have been possible to produce such a high quality programme without the amazing effort and dedication of our Program Committee. We would like to thank all of those who served on the committee, which consisted of 27 Area Chairs and 612 Reviewers, drawn from a diverse range of fields and from both Europe and further afield. Each paper received at least three reviews. We selected the final programme based on the recommendations of the Area Chairs and reviewers, while aiming to ensure the representation of a wide variety of research areas. The Area Chairs were each asked to nominate candidate papers for the Outstanding Papers sessions, of which the Programme Chairs and General Chair selected three Long Papers and one Short Paper. These were allocated extra time in the programme for their oral presentations.

Following the precedent set at ACL 2016, we decided to allocate Long Paper and Short Paper oral presentations 20 minute and 15 minute slots respectively, including time for questions and changing speakers. While this shorter scheduling requires presenters to be more concise in their presentation, it allowed us to accommodate a larger program of talks in the space available at the venue.

In addition to the main conference programme, a Student Research Workshop was held which selected 12 papers for presentation as posters, and two demonstration sessions were held during the evening poster sessions. We are particularly grateful to our three distinguished invited speakers, Devi Parikh (Georgia Tech), David Blei (Columbia University), and Hinrich Schütze (LMU Munich). They represent the amazing diversity of contemporary research being conducted across Computational Linguistics, Artificial Intelligence, and Machine Learning.

In total the programme contains 126 talks and 126 posters, making this the largest EACL conference by a considerable margin. Firstly this would not be possible without the authors who chose to submit their research papers for publication at EACL, and we thank them for choosing our conference. Obviously coordinating such a programme requires contributions from many people beyond the Programme Chairs. We would like to thank our Area Chairs who ensured the smooth running of the two reviewing cycles. We are also thankful for the support we received from the rest of the organising committee, including the Publication Chairs, Local Organisers, Workshop Chairs, Tutorial Chairs, Demo Chairs, the Handbook Chair, and the Student Research Workshop Chair, all listed in full later in the proceedings. We are also grateful for the technical support received from the START team. We would like to thank the Programme Chairs for ACL 2016, Katrin Erk and Noah Smith, who generously provided many insights and tips from their own experience to help us avoid pitfalls and ensure the smooth running of the reviewing process. Finally, we are thankful to have been blessed with an exceptionally calm and organised General Chair in Mirella Lapata, who ensured the smooth running of the organising process and the ultimate success of

this conference.

We hope you enjoy EACL 2017 in Valencia!

Phil Blunsom and Alexander Koller
EACL 2017 Programme Chairs

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Conference Program

Wednesday, April 5, 2017

9:30–10:50 *Invited talk: David Blei*

10:50–11:20 *Coffee break*

11:20–13:00 *Session 1A: Machine Learning (See Vol.1, LP)*

11:20–13:00 *Session 1B: Lexical Semantics (See Vol.1, LP)*

11:20–13:00 *Session 1C: Information Retrieval and Information Extraction (See Vol.1, LP)*

11:20–13:00 *Session 1D: Evaluation (See Vol.1, LP)*

13:00–14:30 *Lunch*

14:30–15:30 *Session 2A: Parsing 1 (See Vol.1, LP)*

14:30–15:30 *Session 2B: Social Media 1 (See Vol.1, LP)*

14:30–15:30 *Session 2C: Discourse and Dialogue (See Vol.1, LP)*

14:30–15:30 *Session 2D: Segmentation (See Vol.1, LP)*

15:30–16:00 *Coffee break*

Wednesday, April 5, 2017 (continued)

Session 3A: Syntax and Machine Learning

- 16:00–16:15 *Multilingual Back-and-Forth Conversion between Content and Function Head for Easy Dependency Parsing*
Ryosuke Kohita, Hiroshi Noji and Yuji Matsumoto
- 16:15–16:30 *URIEL and lang2vec: Representing languages as typological, geographical, and phylogenetic vectors*
Patrick Littell, David R. Mortensen, Ke Lin, Katherine Kairis, Carlisle Turner and Lori Levin
- 16:30–16:45 *An experimental analysis of Noise-Contrastive Estimation: the noise distribution matters*
Matthieu Labeau and Alexandre Allauzen
- 16:45–17:00 *Robust Training under Linguistic Adversity*
Yitong Li, Trevor Cohn and Timothy Baldwin
- 17:00–17:15 *Using Twitter Language to Predict the Real Estate Market*
Mohammadzaman Zamani and H. Andrew Schwartz

Session 3B: Generation, Summarisation, and QA

- 16:00–16:15 *Lexical Simplification with Neural Ranking*
Gustavo Paetzold and Lucia Specia
- 16:15–16:30 *The limits of automatic summarisation according to ROUGE*
Natalie Schluter
- 16:30–16:45 *Crowd-Sourced Iterative Annotation for Narrative Summarization Corpora*
Jessica Ouyang, Serina Chang and Kathy McKeown
- 16:45–17:00 *Broad Context Language Modeling as Reading Comprehension*
Zewei Chu, Hai Wang, Kevin Gimpel and David McAllester
- 17:00–17:15 *Detecting negation scope is easy, except when it isn't*
Federico Fancellu, Adam Lopez, Bonnie Webber and Hangfeng He
- 17:15–17:30 *MT/IE: Cross-lingual Open Information Extraction with Neural Sequence-to-Sequence Models*
Sheng Zhang, Kevin Duh and Benjamin Van Durme

Wednesday, April 5, 2017 (continued)

Session 3C: Semantics

- 16:00–16:15 *Learning to Negate Adjectives with Bilinear Models*
Laura Rimell, Amandla Mabona, Luana Bulat and Douwe Kiela
- 16:15–16:30 *Instances and concepts in distributional space*
Gemma Boleda, Abhijeet Gupta and Sebastian Padó
- 16:30–16:45 *Is this a Child, a Girl or a Car? Exploring the Contribution of Distributional Similarity to Learning Referential Word Meanings*
Sina Zarrieß and David Schlangen
- 16:45–17:00 *The Semantic Proto-Role Linking Model*
Aaron Steven White, Kyle Rawlins and Benjamin Van Durme
- 17:00–17:15 *The Language of Place: Semantic Value from Geospatial Context*
Anne Cocos and Chris Callison-Burch
- 17:15–17:30 *Are Emojis Predictable?*
Francesco Barbieri, Miguel Ballesteros and Horacio Saggion

Session 3D: Morphology and Psycholinguistics

- 16:00–16:15 *A Rich Morphological Tagger for English: Exploring the Cross-Linguistic Tradeoff Between Morphology and Syntax*
Christo Kirov, John Sylak-Glassman, Rebecca Knowles, Ryan Cotterell and Matt Post
- 16:15–16:30 *Context-Aware Prediction of Derivational Word-forms*
Ekaterina Vylomova, Ryan Cotterell, Timothy Baldwin and Trevor Cohn
- 16:30–16:45 *Comparing Character-level Neural Language Models Using a Lexical Decision Task*
Gaël Le Godais, Tal Linzen and Emmanuel Dupoux
- 16:45–17:00 *Optimal encoding! - Information Theory constrains article omission in newspaper headlines*
Robin Lemke, Eva Horch and Ingo Reich
- 17:00–17:15 *A Computational Analysis of the Language of Drug Addiction*
Carlo Strapparava and Rada Mihalcea

Wednesday, April 5, 2017 (continued)

17:30–19:30 *Long Posters 1 (See Vol.1, LP)*

17:30–19:30 *Short Posters 1*

Short Posters 1

A Practical Perspective on Latent Structured Prediction for Coreference Resolution
Iryna Haponchyk and Alessandro Moschitti

Do We Need Cross Validation for Discourse Relation Classification?
Wei Shi and Vera Demberg

Using the Output Embedding to Improve Language Models
Ofir Press and Lior Wolf

Identifying beneficial task relations for multi-task learning in deep neural networks
Joachim Bingel and Anders Søgaard

Effective search space reduction for spell correction using character neural embeddings
Harshit Pande

Explaining and Generalizing Skip-Gram through Exponential Family Principal Component Analysis
Ryan Cotterell, Adam Poliak, Benjamin Van Durme and Jason Eisner

Latent Variable Dialogue Models and their Diversity
Kris Cao and Stephen Clark

Age Group Classification with Speech and Metadata Multimodality Fusion
Denys Katerenchuk

Automatically augmenting an emotion dataset improves classification using audio
Egor Lakomkin, Cornelius Weber and Stefan Wermter

On-line Dialogue Policy Learning with Companion Teaching
Lu Chen, Runzhe Yang, Cheng Chang, Zihao Ye, Xiang Zhou and Kai Yu

Wednesday, April 5, 2017 (continued)

Hybrid Dialog State Tracker with ASR Features

Miroslav Vodolán, Rudolf Kadlec and Jan Kleindienst

Morphological Analysis without Expert Annotation

Garrett Nicolai and Grzegorz Kondrak

Morphological Analysis of the Dravidian Language Family

Arun Kumar, Ryan Cotterell, Lluís Padró and Antoni Oliver

BabelDomains: Large-Scale Domain Labeling of Lexical Resources

Jose Camacho-Collados and Roberto Navigli

JFLEG: A Fluency Corpus and Benchmark for Grammatical Error Correction

Courtney Napoles, Keisuke Sakaguchi and Joel Tetreault

A Parallel Corpus for Evaluating Machine Translation between Arabic and European Languages

Nizar Habash, Nasser Zalmout, Dima Taji, Hieu Hoang and Maverick Alzate

The Parallel Meaning Bank: Towards a Multilingual Corpus of Translations Annotated with Compositional Meaning Representations

Lasha Abzianidze, Johannes Bjerva, Kilian Evang, Hessel Haagsma, Rik van Noord, Pierre Ludmann, Duc-Duy Nguyen and Johan Bos

Cross-lingual tagger evaluation without test data

Željko Agić, Barbara Plank and Anders Søgaard

Legal NERC with ontologies, Wikipedia and curriculum learning

Cristian Cardellino, Milagro Teruel, Laura Alonso Alemany and Serena Villata

The Content Types Dataset: a New Resource to Explore Semantic and Functional Characteristics of Texts

Rachele Sprugnoli, Tommaso Caselli, Sara Tonelli and Giovanni Moretti

Continuous N-gram Representations for Authorship Attribution

Yunita Sari, Andreas Vlachos and Mark Stevenson

Reconstructing the house from the ad: Structured prediction on real estate classifieds

Giannis Bekoulis, Johannes Deleu, Thomas Demeester and Chris Develder

Neural vs. Phrase-Based Machine Translation in a Multi-Domain Scenario

M. Amin Farajian, Marco Turchi, Matteo Negri, Nicola Bertoldi and Marcello Federico

Wednesday, April 5, 2017 (continued)

Improving ROUGE for Timeline Summarization

Sebastian Martschat and Katja Markert

Cutting-off Redundant Repeating Generations for Neural Abstractive Summarization

Jun Suzuki and Masaaki Nagata

To Sing like a Mockingbird

Lorenzo Gatti, Gözde Özbal, Oliviero Stock and Carlo Strapparava

K-best Iterative Viterbi Parsing

Katsuhiko Hayashi and Masaaki Nagata

PP Attachment: Where do We Stand?

Daniël de Kok, Jianqiang Ma, Corina Dima and Erhard Hinrichs

Don't Stop Me Now! Using Global Dynamic Oracles to Correct Training Biases of Transition-Based Dependency Parsers

Lauriane Aufrant, Guillaume Wisniewski and François Yvon

Joining Hands: Exploiting Monolingual Treebanks for Parsing of Code-mixing Data

Irshad Bhat, Riyaz A. Bhat, Manish Shrivastava and Dipti Sharma

Multilingual Lexicalized Constituency Parsing with Word-Level Auxiliary Tasks

Maximin Coavoux and Benoit Crabbé

Be Precise or Fuzzy: Learning the Meaning of Cardinals and Quantifiers from Vision

Sandro Pezzelle, Marco Marelli and Raffaella Bernardi

Improving a Strong Neural Parser with Conjunction-Specific Features

Jessica Fidler and Yoav Goldberg

17.30–19.30 *Student Research Workshop (See Vol.4, SRW)*

17.30–19.30 *Demos (See Vol.3, Demos)*

Thursday, April 6, 2017

9:30–10:50 *Invited talk: Devi Parikh*

10:50–11:20 *Coffee break*

11:20–12:40 *Session 4A: TACL (See Vol.1, LP)*

11:20–12:40 *Session 4B: Semantic Analysis (See Vol.1, LP)*

11:20–12:40 *Session 4C: Knowledge Bases (See Vol.1, LP)*

11:20–12:40 *Session 4D: Generation (See Vol.1, LP)*

13:00–14:30 *Lunch*

14:30–15:30 *Session 5A: Parsing 2 and Psycholinguistics (See Vol.1, LP)*

14:30–15:30 *Session 5B: Entailment (See Vol.1, LP)*

14:30–15:30 *Session 5C: Social Media 2 (See Vol.1, LP)*

14:30–15:30 *Session 5D: Word Representations (See Vol.1, LP)*

Thursday, April 6, 2017 (continued)

Session 6A: Machine Translation

- 16:00–16:15 *Neural Automatic Post-Editing Using Prior Alignment and Reranking*
Santanu Pal, Sudip Kumar Naskar, Mihaela Vela, Qun Liu and Josef van Genabith
- 16:15–16:30 *Improving Evaluation of Document-level Machine Translation Quality Estimation*
Yvette Graham, Qingsong Ma, Timothy Baldwin, Qun Liu, Carla Parra and Carolina Scarton
- 16:30–16:45 *Neural Machine Translation by Minimising the Bayes-risk with Respect to Syntactic Translation Lattices*
Felix Stahlberg, Adrià de Gispert, Eva Hasler and Bill Byrne
- 16:45–17:00 *Producing Unseen Morphological Variants in Statistical Machine Translation*
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- 17:15–17:30 *Neural Machine Translation with Recurrent Attention Modeling*
Zichao Yang, Zhiting Hu, Yuntian Deng, Chris Dyer and Alex Smola

Session 6B: Word Embeddings

- 16:00–16:15 *Inducing Embeddings for Rare and Unseen Words by Leveraging Lexical Resources*
Mohammad Taher Pilehvar and Nigel Collier
- 16:15–16:30 *Large-scale evaluation of dependency-based DSMs: Are they worth the effort?*
Gabriella Lapesa and Stefan Evert
- 16:30–16:45 *How Well Can We Predict Hypernyms from Word Embeddings? A Dataset-Centric Analysis*
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Thursday, April 6, 2017 (continued)

17:15–17:30 *The Interplay of Semantics and Morphology in Word Embeddings*
Oded Avraham and Yoav Goldberg

Session 6C: Document Analysis

16:00–16:15 *Bag of Tricks for Efficient Text Classification*
Armand Joulin, Edouard Grave, Piotr Bojanowski and Tomas Mikolov

16:15–16:30 *Pulling Out the Stops: Rethinking Stopword Removal for Topic Models*
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17:15–17:30 *Derivation of Document Vectors from Adaptation of LSTM Language Model*
Wei Li and Brian Mak

Session 6D: Dialogue

16:00–16:15 *Real-Time Keyword Extraction from Conversations*
Polykarpos Meladianos, Antoine Tixier, Ioannis Nikolentzos and Michalis Vazirgiannis

16:15–16:30 *A Copy-Augmented Sequence-to-Sequence Architecture Gives Good Performance on Task-Oriented Dialogue*
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Thursday, April 6, 2017 (continued)

17:00–17:15 *Unsupervised Dialogue Act Induction using Gaussian Mixtures*
Tomáš Brychcín and Pavel Král

17:30–19:30 *Long Posters 2 (See Vol.1, LP)*

17:30–19:30 *Short Posters 2*

Short Posters 2

Grounding Language by Continuous Observation of Instruction Following
Ting Han and David Schlangen

Mapping the Perfect via Translation Mining
Martijn van der Klis, Bert Le Bruyn and Henriëtte de Swart

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Hangfeng He and Xu Sun

Thursday, April 6, 2017 (continued)

Discriminative Information Retrieval for Question Answering Sentence Selection

Tongfei Chen and Benjamin Van Durme

Effective shared representations with Multitask Learning for Community Question Answering

Daniele Bonadiman, Antonio Uva and Alessandro Moschitti

Learning User Embeddings from Emails

Yan Song and Chia-Jung Lee

Temporal information extraction from clinical text

Julien Tourille, Olivier Ferret, Xavier Tannier and Aurelie Neveol

Neural Temporal Relation Extraction

Dmitriy Dligach, Timothy Miller, Chen Lin, Steven Bethard and Guergana Savova

End-to-End Trainable Attentive Decoder for Hierarchical Entity Classification

Sanjeev Karn, Ulli Waltinger and Hinrich Schütze

17:30–19:30 *Demos (See Vol.3, Demos)*

Friday, April 7, 2017

9:30–10:50 *Invited talk: Hinrich Schütze*

10:50–11:20 *Coffee break*

11:20–13:00 *Session 7A: Machine Translation and Multilinguality (See Vol.1, LP)*

11:20–13:00 *Session 7B: Document Analysis (See Vol.1, LP)*

11:20–12:40 *Session 7C: Entity and Relation Extraction (See Vol.1, LP)*

11:20–13:00 *Session 7D: Historical and Literary Language (See Vol.1, LP)*

Friday, April 7, 2017 (continued)

13:00–14:30 *Lunch*

14:30–15:30 *Business Meeting*

15:30–16:00 *Coffee break*

16:00–16:50 *Session 8A: Outstanding Papers 1 (See Vol.1, LP)*

Best Short Paper

16:25–16:50 *Neural Graphical Models over Strings for Principal Parts Morphological Paradigm Completion*

Ryan Cotterell, John Sylak-Glassman and Christo Kirov

16:00–16:50 *Session 8B: Outstanding Papers 2 (See Vol.1, LP)*

16:55–17:10 *Closing Session*