

Sebastian Ruder

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DeepMind c/o Google, 6 St Pancras Square, Kings Cross, N2C 4AG • London, UK

Education

- **National University of Ireland** **Galway, Ireland**
College of Engineering and Informatics, Ph.D. Natural Language Processing 10/2015 – 02/2019
 - **University of Copenhagen** **Copenhagen, Denmark**
Research visit, Natural Language Processing Group, Computer Science Department 04/2017 – 06/2017
 - **Trinity College** **Dublin, Ireland**
Semester abroad, School of Computer Science and Statistics, Computer Science and Language 09/2014 – 01/2015
 - **Ruprecht-Karls-Universität Heidelberg** **Heidelberg, Germany**
Institute of Computational Linguistics, B.A. Computational Linguistics, English Linguistics 10/2012 – 09/2015
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Experience

- **DeepMind** **London, United Kingdom**
Research Scientist 03/2019 – Present
 - **AYLIEN** **Dublin, Ireland**
Research Scientist 10/2015 – 02/2019
 - **IBM** **Munich, Germany**
Extreme Blue Intern, Watson 08/2015 – 09/2015
 - **Microsoft** **Dublin, Ireland**
Linguistic Engineering Intern, Xbox 02/2015 – 06/2015
 - **The OpenCog Foundation** **opencog.org**
Google Summer of Code Intern Summer 2014
 - **Lingenio GmbH** **Heidelberg, Germany**
Software Engineering Intern Spring 2014
 - **SAP** **Walldorf, Germany**
Working Student, Development University 02/2013 – 02/2014
 - **TEMIS** **Heidelberg, Germany**
Freelancing Developer 02/2013 – 10/2013
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Books

1. Anders Søgaard, Ivan Vulić, **Sebastian Ruder**, Manaal Faruqui (2019). Cross-lingual Word Embeddings. *Morgan & Claypool Publishers*.

PhD thesis

2. **Sebastian Ruder** (2019). Neural Transfer Learning for Natural Language Processing. *National University of Ireland, Galway*.

Refereed conference publications

3. Nicolas Garneau, Mareike Hartmann, Anders Sandholm, **Sebastian Ruder**, Ivan Vulić, Anders Søgaard (2021). Analogy Training Multilingual Encoders. In *Proceedings of AAAI 2021*.
4. Paula Czarnecka, **Sebastian Ruder**, Ryan Cotterell, Ann Copestake (2020). Morphologically Aware Word-Level Translation. In *Proceedings of COLING 2020*.

5. Jonas Pfeiffer, Andreas Rücklé, Clifton Poth, Aishwarya Kamath, Ivan Vulić, **Sebastian Ruder**, Kyunghyun Cho, Iryna Gurevych (2020). AdapterHub: A Framework for Adapting Transformers. In *Proceedings of EMNLP 2020: System Demonstrations*.
6. Jonas Pfeiffer, Ivan Vulić, Iryna Gurevych, **Sebastian Ruder** (2020). MAD-X: An Adapter-based Framework for Multi-task Cross-lingual Transfer. In *Proceedings of EMNLP 2020*.
7. Marcin Kardas, Piotr Czapla, Pontus Stenetorp, **Sebastian Ruder**, Sebastian Riedel, Ross Taylor, Robert Stojnic (2020). AxCell: Automatic Extraction of Results from Machine Learning Papers. In *Proceedings of EMNLP 2020*.
8. Ivan Vulić*, **Sebastian Ruder***, Anders Søgaard* (2020). Are All Good Word Vector Spaces Isomorphic? In *Proceedings of EMNLP 2020*.
9. Junjie Hu*, **Sebastian Ruder***, Aditya Siddhant, Graham Neubig, Orhan Firat, Melvin Johnson (2020). XTREME: A Massively Multilingual Multi-task Benchmark for Evaluating Cross-lingual Generalization. In *Proceedings of ICML 2020*.
10. Mikel Artetxe*, **Sebastian Ruder***, Dani Yogatama, Gorka Labaka, Eneko Agirre (2020). A Call for More Rigor in Unsupervised Cross-lingual Learning. In *Proceedings of ACL 2020*.
11. Mikel Artetxe, **Sebastian Ruder**, Dani Yogatama (2020). On the Cross-lingual Transferability of Monolingual Representations. In *Proceedings of ACL 2020*.
12. Cyprien de Masson d’Autume, **Sebastian Ruder**, Lingpeng Kong, Dani Yogatama (2019). Episodic Memory in Lifelong Language Learning. In *Proceedings of NeurIPS 2019*.
13. Julian Eisenschlos*, **Sebastian Ruder***, Piotr Czapla*, Marcin Kadras*, Sylvain Gugger, Jeremy Howard (2019). MultiFiT: Efficient Multi-lingual Language Model Fine-tuning. In *Proceedings of EMNLP 2019*.
14. Paula Czarowska, **Sebastian Ruder**, Edouard Grave, Ryan Cotterell, Ann Copestake (2019). Don’t Forget the Long Tail! A Comprehensive Analysis of Morphological Generalization in Bilingual Lexicon Induction. In *Proceedings of EMNLP 2019*.
15. Goran Glavaš, Robert Litschko, **Sebastian Ruder**, Ivan Vulić (2019). How to (Properly) Evaluate Cross-Lingual Word Embeddings: On Strong Baselines, Comparative Analyses, and Some Misconceptions. In *Proceedings of ACL 2019, Florence, Italy*.
16. **Sebastian Ruder**, Joachim Bingel, Isabelle Augenstein, Anders Søgaard (2019). Latent Multi-task Architecture Learning. In *Proceedings of AAAI 2019, Honolulu, Hawaii*.
17. Victor Sanh, Thomas Wolf, **Sebastian Ruder** (2019). A Hierarchical Multi-task Approach for Learning Embeddings from Semantic Tasks. In *Proceedings of AAAI 2019, Honolulu, Hawaii*.
18. **Sebastian Ruder***, Ryan Cotterell*, Yova Kementchedjheva, Anders Søgaard (2019). A Discriminative Latent-Variable Model for Bilingual Lexicon Induction. In *Proceedings of EMNLP 2018, Brussels, Belgium*.
19. Yova Kementchedjheva, **Sebastian Ruder**, Ryan Cotterell, Anders Søgaard (2018). Generalizing Procrustes Analysis for Better Bilingual Dictionary Induction. In *Proceedings of CoNLL 2018, Brussels, Belgium*.
20. **Sebastian Ruder**, Barbara Plank (2018). Strong Baselines for Neural Semi-supervised Learning under Domain Shift. In *Proceedings of ACL 2018, Melbourne, Australia*.
21. Jeremy Howard*, **Sebastian Ruder*** (2018). Universal Language Model Fine-tuning for Text Classification. In *Proceedings of ACL 2018, Melbourne, Australia*.
22. Anders Søgaard, **Sebastian Ruder**, Ivan Vulić (2018). On the Limitations of Unsupervised Bilingual Dictionary Induction. In *Proceedings of ACL 2018, Melbourne, Australia*.
23. **Sebastian Ruder**, John Glover, Afshin Mehrabani, Parsa Ghaffari (2018). 360° Stance Detection. In *Proceedings of NAACL-HLT 2018: System Demonstrations, New Orleans, US*.
24. Isabelle Augenstein*, **Sebastian Ruder***, Anders Søgaard (2018). Multi-task Learning of Pairwise Sequence Classification Tasks Over Disparate Label Spaces. In *Proceedings of NAACL-HLT 2018, New Orleans, US*.
25. **Sebastian Ruder**, Barbara Plank (2017). Learning to select data for transfer learning with Bayesian Optimization. In *Proceedings of the 2017 Conference on Empirical Methods in Natural Language Processing, Copenhagen, Denmark*.

*Equal contribution.

26. **Sebastian Ruder**, Parsa Ghaffari, John G. Breslin (2016). A Hierarchical Model of Reviews for Aspect-based Sentiment Analysis. In *Proceedings of the 2016 Conference on Empirical Methods in Natural Language Processing*, pages 999–1005, Austin, Texas, US.

Journal publications

27. **Sebastian Ruder**, Ivan Vulić, Anders Søgaard (2019). A Survey Of Cross-lingual Word Embedding Models. *Journal of Artificial Intelligence Research*.

Tutorials

28. **Sebastian Ruder**, Anders Søgaard, Ivan Vulić (2019). Unsupervised Cross-Lingual Representation Learning. In *Proceedings of ACL 2019: Tutorial Abstracts*, pages 31–38.
29. **Sebastian Ruder**, Matthew E. Peters, Swabha Swayamdipta, Thomas Wolf (2019). Transfer Learning in Natural Language Processing. In *Proceedings of the NAACL 2019: Tutorials*, pages 15-18.

Refereed workshop publications

30. Aida Nematzadeh*, **Sebastian Ruder***, Dani Yogatama* (2020). On Memory in Human and Artificial Language Processing Systems. In *Proceedings of the Bridging AI and Cognitive Science Workshop at ICLR 2020*.
31. Matthew Peters*, **Sebastian Ruder***, Noah A. Smith (2019). To Tune or Not to Tune? Adapting Pretrained Representations to Diverse Tasks. In *Proceedings of Repl4NLP at ACL 2019*, Florence, Italy.
32. **Sebastian Ruder**, Parsa Ghaffari, John G. Breslin (2016). Towards a continuous modeling of natural language domains. In *Proceedings of EMNLP 2016 Workshop on Uphill Battles in Language Processing: Scaling Early Achievements to Robust Methods*, pages 53-57, Austin, Texas, US.
33. Ian D. Wood and **Sebastian Ruder** (2016). Emoji as emotion tags for tweets. In *Emotion and Sentiment Analysis Workshop, LREC*, Portorož, Slovenia.
34. **Sebastian Ruder**, Parsa Ghaffari, John G. Breslin (2016). INSIGHT-1 at SemEval-2016 Task 4: Convolutional Neural Networks for Sentiment Classification and Quantification. In *Proceedings of the 10th International Workshop on Semantic Evaluation (SemEval 2016)*, San Diego, US.
35. **Sebastian Ruder**, Parsa Ghaffari, John G. Breslin (2016). INSIGHT-1 at SemEval-2016 Task 5: Convolutional Neural Networks for Multilingual Aspect-based Sentiment Analysis. In *Proceedings of the 10th International Workshop on Semantic Evaluation (SemEval 2016)*, San Diego, US.

Preprints

36. Yi Tay*, Mostafa Dehghani*, Samira Abnar, Yikang Shen, Dara Bahri, Philip Pham, Jinfeng Rao, Liu Yang, **Sebastian Ruder**, Donald Metzler (2020). Long Range Arena: A Benchmark for Efficient Transformers. arXiv preprint arXiv:2011.04006.
 37. Hyung Won Chung, Thibault Févry, Henry Tsai, Melvin Johnson, **Sebastian Ruder** (2020). Rethinking embedding coupling in pre-trained language models. arXiv preprint arXiv:2010.12821
 38. Jonas Pfeiffer*, Aishwarya Kamath*, Iryna Gurevych, **Sebastian Ruder** (2019). What do Deep Networks Like to Read? arXiv preprint arXiv:1909.04547.
 39. Chris Hokamp, **Sebastian Ruder**, John Glover (2018). Off-the-Shelf Unsupervised NMT. arXiv preprint arXiv:1811.02278.
 40. **Sebastian Ruder** (2017). An Overview of Multi-Task Learning in Deep Neural Networks. arXiv preprint arXiv:1706.05098.
 41. **Sebastian Ruder**, Parsa Ghaffari, John G. Breslin (2017). Data Selection Strategies for Multi-Domain Sentiment Analysis. arXiv preprint arXiv:1702.02426.
 42. **Sebastian Ruder**, Parsa Ghaffari, John G. Breslin (2017). Knowledge Adaptation: Teaching to Adapt. arXiv preprint arXiv:1702.02052.
 43. **Sebastian Ruder** (2016). An overview of gradient descent optimization algorithms. arXiv preprint arXiv:1609.04747.
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Certificates and awards

- CogX Outstanding Contribution in AI – PhD thesis 06/2019
 - Google Developer Expert – Machine Learning 12/2017 – 02/2019
 - Scholarship of the Irish Research Council 10/2015 – 02/2019
 - Scholarship of the *Cusanuswerk*, one of the 13 German sponsorship organizations 04/2014 – 09/2015
 - Microsoft Certified Professional (Programming in C#) 06/2015
 - Best Delegate award in various Model United Nations conferences 11/2012 – 01/2014
 - Second and third prizes *Bundeswettbewerb Fremdsprachen*, national foreign languages competition 2007 – 2008
 - First and second prizes *Landeswettbewerb Mathematik*, state mathematics competition 2006 – 2008
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Languages and Technologies

Programming Languages: Python, Java, C#, R, C, \LaTeX , Prolog, JavaScript, SPARQL

Technologies: SciPy, NumPy, Keras, TensorFlow, DyNet, scikit-learn, NLTK, CoreNLP, MALLET, Weka, UNIX, Git

Natural Languages: Fluent in German and English, advanced in French and Spanish, beginner in Portuguese and Latin

Open Source Contributions: The OpenCog Foundation

Service and professional activities

Organizing

- **Conferences:** Program chair at EurNLP 2019¹
- **Tutorials:** Transfer Learning in NLP at NAACL-HLT 2019; Unsupervised Cross-lingual Representation Learning at ACL 2019
- **Workshops:** 4th Workshop on Representation Learning for NLP (RepL4NLP) at ACL 2019
- **Sessions:** NLP Session at Deep Learning Indaba 2018², 2019
- **Meetups:** NLP Dublin Meetup³

Conference chairing

- **Senior area chair:** COLING 2020; ACL 2021
- **Area chair:** ACL 2020; EMNLP 2020; EACL 2021
- **Publication chair:** CoNLL 2019
- **Publicity chair:** EMNLP 2019

Reviewing

- **Journals:** Transactions on Audio, Speech and Language Processing; Artificial Intelligence; IEEE Computational Intelligence Magazine; Natural Language Engineering; Journal of Artificial Intelligence Research
 - **Conferences:** ACL 2018, 2019; ICML 2019, 2020; NeurIPS 2019, 2020; NAACL-HLT 2019; ICLR 2019, 2020; EMNLP 2018, 2019; CoNLL 2018; AACL 2020
 - **Workshops:** RepL4NLP 2018, DeepLo 2018, SemEval-2016 Task 5, ACL SRW 2020
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Talks

Talks are available at <http://ruder.io/talks/>.

¹<https://www.eurnlp.org/>

²<http://www.deeplearningindaba.com/schedule-2018.html>

³<https://www.meetup.com/NLP-Dublin/>