

# DANI YOGATAMA

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## PROFESSIONAL EXPERIENCE

**DeepMind**, London, UK

*Staff Research Scientist*

*Senior Research Scientist*

*Research Scientist*

April 2019–present

April 2017–March 2019

March 2016–March 2017

**Baidu Research AI Lab**, Sunnyvale, CA, USA

*Research Scientist*

August 2015–March 2016

**Google Research**, Mountain View, CA, USA

*Software Engineering Intern*

*Software Engineering Intern*

June 2014–September 2014

June 2013–September 2013

## EDUCATION

**Carnegie Mellon University**

*Ph.D. and M.S. in Language Technologies*

Language Technologies Institute

School of Computer Science

Advisor: Noah A. Smith

September 2010–August 2015

**The University of Tokyo**

*M.S. in Information Science and Technology*

Department of Creative Informatics

Graduate School of Information Science and Technology

Advisor: Kumiko Tanaka-Ishii

October 2008–September 2010

*Non-degree research student*

Department of Creative Informatics

Graduate School of Information Science and Technology

April 2008–September 2008

**Institut Teknologi Bandung, Indonesia**

*Sarjana Teknik (B. Eng.) with honors, early graduation*

Department of Informatics

School of Electrical Engineering and Informatics

August 2004–March 2008

## PUBLICATIONS

Episodic Memory in Lifelong Language Learning.

Cyprien de Masson d'Autume, Sebastian Ruder, Lingpeng Kong, and **Dani Yogatama**.

In *Proceedings of the Conference on Neural Information Processing Systems*.

Vancouver, Canada, December 2019.

**NeurIPS 2019**

Achieving Verified Robustness to Symbol Substitutions via Interval Bound Propagation.

Po-Sen Huang, Robert Stanforth, Johannes Welbl, Chris Dyer, **Dani Yogatama**, Sven Gowal, Krishnamurthy Dvijotham, and Pushmeet Kohli.

In *Proceedings of the Conference on Empirical Methods in Natural Language Processing*.

Hong Kong, China, November 2019.

**EMNLP 2019**

Grandmaster Level in StarCraft II using Multi-agent Reinforcement Learning.

Oriol Vinyals, Igor Babuschkin, Wojciech Czarnecki, Michael Mathieu, Andrew Dudzik, Junyoung Chung, David Choi, Richard Powell, Timo Ewalds, Petko Georgiev, Junhyuk Oh, Dan Horgan, Manuel Kroiss, Ivo Danihelka, Aja Huang, Laurent Sifre, Trevor Cai, John Agapiou, Max Jader-

berg, Alexander Vezhnevets, Remi Leblond, Tobias Pohlen, Valentin Dalibard, David Budden, Yury Sulsky, James Molloy, Tom Paine, Caglar Gulcehre, Ziyu Wang, Tobias Pfaff, Yuhuai Wu, Roman Ring, **Dani Yogatama**, Dario Wunsch, Katrina McKinney, Oliver Smith, Tom Schaul, Timothy Lillicrap, Koray Kavukcuoglu, Demis Hassabis, Chris Apps, David Silver.  
*Nature*, 575:350–354, October 2019. **Nature 2019**

Jointly Learning Sentence Embeddings and Syntax with Unsupervised Tree-LSTMs.  
Jean Maillard, Stephen Clark, and **Dani Yogatama**.  
*Journal of Natural Language Engineering*, 25(4):433–449, July 2019. **JNLE 2019**

Variational Smoothing in Recurrent Neural Network Language Models.  
Lingpeng Kong, Gabor Melis, Wang Ling, Lei Yu, and **Dani Yogatama**.  
In *Proceedings of the International Conference on Learning Representations*.  
New Orleans, LA, USA, May 2019. **ICLR 2019**

LSTMs Can Learn Syntax-Sensitive Dependencies Well, but Modeling Structure Makes Them Better.  
Adhiguna Kuncoro, Chris Dyer, John Hale, **Dani Yogatama**, Stephen Clark, Phil Blunsom.  
In *Proceedings of the Annual Meeting of the Association for Computational Linguistics*.  
Melbourne, Australia, July 2018. **ACL 2018**

Memory Architectures in Recurrent Neural Network Language Models.  
**Dani Yogatama**, Yishu Miao, Gabor Melis, Wang Ling, Adhiguna Kuncoro, Chris Dyer, and Phil Blunsom.  
In *Proceedings of the International Conference on Learning Representations*.  
Vancouver, Canada, April 2018. **ICLR 2018**

Program Induction for Rationale Generation: Learning to Solve and Explain Algebraic Word Problems.  
Wang Ling, **Dani Yogatama**, Chris Dyer, and Phil Blunsom.  
In *Proceedings of the Annual Meeting of the Association for Computational Linguistics*.  
Vancouver, Canada, July 2017. **ACL 2017**

Learning to Compose Words into Sentences with Reinforcement Learning.  
**Dani Yogatama**, Phil Blunsom, Chris Dyer, Edward Grefenstette, and Wang Ling.  
In *Proceedings of the International Conference on Learning Representations*.  
Toulon, France, April 2017. **ICLR 2017**

End-to-End Speech Recognition in English and Mandarin.  
Dario Amodei, Rishita Anubhai, Eric Battenberg, Carl Case, Jared Casper, Bryan Catanzaro, Jingdong Chen, Mike Chrzanowski, Adam Coates, Greg Diamos, Erich Elsen, Jesse Engel, Linxi Fan, Christopher Fougner, Awni Y. Hannun, Billy Jun, Tony Han, Patrick LeGresley, Xiangang Li, Libby Lin, Sharan Narang, Andrew Y. Ng, Sherjil Ozair, Ryan Prenger, Sheng Qian, Jonathan Raiman, Sanjeev Satheesh, David Seetapun, Shubho Sengupta, Chong Wang, Yi Wang, Zhiqian Wang, Bo Xiao, Yan Xie, **Dani Yogatama**, Jun Zhan, and Zhenyao Zhu.  
In *Proceedings of the International Conference on Machine Learning*.  
New York, NY, USA, July 2016. **ICML 2016**

Lookahead Convolution Layer for Unidirectional Recurrent Neural Networks.  
Chong Wang\*, **Dani Yogatama\***, Adam Coates, Tony Han, Awni Hannun, and Bo Xiao.  
In *Proceedings of the International Conference on Learning Representations — Workshop Track*.  
San Juan, Puerto Rico, May 2016. **ICLR Workshop 2016**

A Sparse and Adaptive Prior for Time-Dependent Model Parameters.  
**Dani Yogatama**, Bryan R. Routledge, and Noah A. Smith.  
In *Proceedings of the NeurIPS Time Series Workshop*.  
Montreal, Canada, December 2015. **NeurIPS Time Series Workshop 2015**

Extractive Summarization by Maximizing Semantic Volume.

**Dani Yogatama**, Fei Liu, and Noah A. Smith.

In *Proceedings of the Conference on Empirical Methods in Natural Language Processing (short papers)*.

Lisbon, Portugal, September 2015.

**EMNLP (short) 2015**

Bayesian Optimization of Text Representations.

**Dani Yogatama**, Lingpeng Kong, and Noah A. Smith.

In *Proceedings of the Conference on Empirical Methods in Natural Language Processing (short papers)*.

Lisbon, Portugal, September 2015.

**EMNLP (short) 2015**

Learning Word Representations with Hierarchical Sparse Coding.

**Dani Yogatama**, Manaal Faruqui, Chris Dyer, and Noah A. Smith.

In *Proceedings of the International Conference on Machine Learning*.

Lille, France, July 2015.

**ICML 2015**

Embedding Methods for Context Dependent Fine Grained Entity Type Classifications.

**Dani Yogatama**, Dan Gillick, and Nevena Lazic.

In *Proceedings of the Annual Meeting of the Association for Computational Linguistics (short papers)*.

Beijing, China, July 2015.

**ACL (short) 2015**

Sparse Binary Word Vector Representations.

Manaal Faruqui, Yulia Tsvetkov, **Dani Yogatama**, Chris Dyer, and Noah A. Smith.

In *Proceedings of the Annual Meeting of the Association for Computational Linguistics*, Beijing, China, July 2015.

**ACL 2015**

Making the Most of Bag of Words: Sentence Regularization with Alternating Direction Method of Multipliers.

**Dani Yogatama** and Noah A. Smith.

In *Proceedings of the International Conference on Machine Learning*.

Beijing, China, June 2014.

**ICML 2014**

Linguistic Structured Sparsity in Text Categorization.

**Dani Yogatama** and Noah A. Smith.

In *Proceedings of the Annual Meeting of the Association for Computational Linguistics*.

Baltimore, MD, USA, June 2014.

**ACL 2014**

Dynamic Language Models for Streaming Text.

**Dani Yogatama**, Chong Wang, Bryan R. Routledge, Noah A. Smith, and Eric P. Xing.

*Transactions of the Association for Computational Linguistics*, 2:181–192, April 2014.

**TACL 2014**

Efficient Transfer Learning Method for Automatic Hyperparameter Tuning.

**Dani Yogatama** and Gideon Mann.

In *Proceedings of the International Conference on Artificial Intelligence and Statistics*.

Reykjavik, Iceland, April 2014.

**AISTATS 2014**

A Penny for Your Tweets: Campaign Contributions and Capitol Hill Microblogs.

Tae Yano, **Dani Yogatama**, and Noah A. Smith.

In *Proceedings of the International AAAI Conference on Web and Social Media*.

Boston, MA, USA, July 2013.

**ICWSM 2013**

A Probabilistic Model for Canonicalizing Named Entity Mentions.

**Dani Yogatama**, Yanchuan Sim, and Noah A. Smith.

In *Proceedings of the Annual Meeting of the Association for Computational Linguistics*.

Jeju, South Korea, July 2012.

**ACL 2012**

Predicting a Scientific Community's Response to an Article.

**Dani Yogatama**, Michael Heilman, Brendan O'Connor, Chris Dyer, Bryan R. Routledge, and Noah A. Smith.

In *Proceedings of the Conference on Empirical Methods in Natural Language Processing*.  
Edinburgh, UK, July 2011. **EMNLP 2011**

Part-of-Speech Tagging for Twitter: Annotation, Features, and Experiments.  
Kevin Gimpel, Nathan Schneider, Brendan O'Connor, Dipanjan Das, Daniel Mills, Jacob Eisenstein, Michael Heilman, **Dani Yogatama**, Jeffrey Flanigan, and Noah A. Smith.  
In *Proceedings of the Annual Meeting of the Association for Computational Linguistics (short papers)*.  
Portland, OR, USA, June 2011. **ACL (short) 2011**

Multilingual Spectral Clustering Using Document Similarity Propagation.  
**Dani Yogatama** and Kumiko Tanaka-Ishii.  
In *Proceedings of the Conference on Empirical Methods in Natural Language Processing*.  
Singapore, Singapore, August 2009. **EMNLP 2009**

## PREPRINTS

Reducing Sentiment Bias in Language Models via Counterfactual Evaluation.  
Po-Sen Huang, Huan Zhang, Ray Jiang, Robert Stanforth, Johannes Welbl, Jack Rae, Vishal Maini, **Dani Yogatama**, Pushmeet Kohli.  
*arXiv 1911.03064*, November 2019. **arXiv 2019**

On the Cross-Lingual Transferability of Monolingual Representations.  
Mikel Artetxe, Sebastian Ruder, and **Dani Yogatama**.  
*arXiv 1910.11856*, October 2019. **arXiv 2019**

A Mutual Information Maximization Perspective of Language Representation Learning.  
Lingpeng Kong, Cyprien de Masson d'Autume, Wang Ling, Lei Yu, Zihang Dai, and **Dani Yogatama**.  
*arXiv 1910.08350*, October 2019. **arXiv 2019**

Learning and Evaluating General Linguistic Intelligence.  
**Dani Yogatama**, Cyprien de Masson d'Autume, Jerome Connor, Tomas Kocisky, Mike Chrzanowski, Lingpeng Kong, Angeliki Lazaridou, Wang Ling, Lei Yu, Chris Dyer, and Phil Blunsom.  
*arXiv 1901.11373*, January 2019. **arXiv 2019**

Generative and Discriminative Text Classification with Recurrent Neural Networks.  
**Dani Yogatama**, Chris Dyer, Wang Ling, and Phil Blunsom.  
*arXiv 1703.01898*, March 2017. **arXiv 2017**

## INVITED TALKS

**Keynote Speaker, Deep Learning Day Japan**. Tokyo, Japan. January 2018  
Structured Sequential Models.

**ICML Workshop on Learning to Generate Natural Language**. Sydney, Australia. August 2017  
Latent Structures in Natural Language Generation.

**Distinguished Lecture Program, KU Leuven**. Leuven, Belgium. May 2017  
Learning Deep Representations in Natural Language Processing.

**University of Cambridge**. Cambridge, UK. March 2017  
Learning Hierarchical Word and Sentence Representations.

**UNC Chapel Hill**. Chapel Hill, NC, USA. February 2016  
Learning to Represent Language: Embeddings and Optimization.

**University of Toronto**. Toronto, Canada. February 2016  
Learning to Represent Language: Embeddings and Optimization.

|  |               |
|--|---------------|
| <b>Toyota Technological Institute at Chicago.</b> Chicago, IL, USA.<br>Learning to Represent Language: Embeddings and Optimization.                  | January 2016  |
| <b>Stony Brook University.</b> Stony Brook, NY, USA.<br>Learning to Represent Language: Embeddings and Optimization.                                 | December 2015 |
| <b>Google Research.</b> New York, NY, USA.<br>Bring Your Own Model: Model-Agnostic Improvements in NLP.  | May 2015      |
| <b>Facebook AI Research.</b> New York, NY, USA.<br>Bring Your Own Model: Model-Agnostic Improvements in NLP.   | April 2015    |
| <b>University of Massachusetts, Amherst.</b> Amherst, MA, USA.<br>Bring Your Own Model: Model-Agnostic Improvements in NLP.                          | April 2015    |
| <b>Allen Institute for Artificial Intelligence.</b> Seattle, WA, USA.<br>Bring Your Own Model: Model-Agnostic Improvements in NLP.                   | April 2015.   |
| <b>Carnegie Mellon University-Qatar.</b> Doha, Qatar.<br>Linguistic structured sparsity in text categorization.                                      | October 2014  |
| <b>Google PhD Intern Research Conference.</b> Mountain View, CA, USA.<br>Learning word representations with hierarchical sparse coding.              | June 2014     |
| <b>Carnegie Mellon University Machine Learning Lunch.</b> Pittsburgh, PA, USA,<br>Time-dependent model parameters.                                   | October 2012. |
| <b>Text as Data Conference, Northwestern University.</b> Evanston, IL, USA.<br>Time-series dynamics of ideas: Predicting text production and impact. | March 2011    |

## TEACHING EXPERIENCE

|  |             |
|--|-------------|
| Tutorial at the <i>Conference of the European Chapter of the Association for Computational Linguistics</i> .<br>Structured Sparsity in Natural Language Processing: Models, Algorithms and Applications.<br>With Andre F. T. Martins, Mario A. T. Figueiredo, and Noah A. Smith. | EACL 2014   |
| Teaching assistant for 10-701/15-781 Machine Learning course.<br>Prof. Barnabas Poczos and Prof. Aarti Singh.  | Spring 2014 |
| Teaching assistant for 11-411/11-611 Natural Language Processing course.<br>Prof. Noah A. Smith.   | Spring 2013 |

## PATENTS, FELLOWSHIPS, AND AWARDS

|  |          |
|--|----------|
| <b>US 2017/0148431 A1. End-to-End Speech Recognition.</b><br>Bryan Catanzaro, Jingdong Chen, Mike Chrzanowski, Erich Elsen, Jesse Engel, Christopher Fougner, Xu Han, Awni Hannun, Ryan Prenger, Sanjeev Satheesh, Shubhabrata Sengupta, <b>Dani Yogatama</b> , Chong Wang, Jun Zhan, Zhenyao Zhu, Dario Amodei          | May 2017 |
| <b>US 2017/0148433 A1. Deployed End-to-End Speech Recognition.</b><br>Bryan Catanzaro, Jingdong Chen, Mike Chrzanowski, Erich Elsen, Jesse Engel, Christopher Fougner, Xu Han, Awni Hannun, Ryan Prenger, Sanjeev Satheesh, Shubhabrata Sengupta, <b>Dani Yogatama</b> , Chong Wang, Jun Zhan, Zhenyao Zhu, Dario Amodei | May 2017 |
| <b>Google Cloud Platform award</b><br>10,000 USD in Google Cloud Platform credit (with Noah A. Smith).   | 2015     |
| <b>ICML student travel award</b>   | 2014     |

**Japanese government (Monbukagakusho: MEXT) scholarship** April 2008 - September 2010  
With a recommendation from the Embassy of Japan in Indonesia.

## SERVICE

### Journal Reviewing

Elite reviewer (member of the standing review committee) for the journal Transactions of the Association for Computational Linguistics (2014–present), IEEE Transactions on Pattern Analysis and Machine Intelligence (2016), Journal of Artificial Intelligence Research (2018–2019).

### Conference Area Chair

ICLR (2020), ACL (2020).

### Conference Program Committee

NeurIPS (2017–2019), ACL (2015–2019), ICML (2018–2019), EMNLP (2015–2019), ICLR (2017–2019), WWW (2018), IJCAI (2016), NAACL (2015–2016), AISTATS (2014), EACL (2014), CoNLL (2013).

### Organizers

|   |                      |
|---|----------------------|
| The Second Southeast Asia Machine Learning School, Vietnam.         | Summer 2020          |
| The First Southeast Asia Machine Learning School, Depok, Indonesia. | July 2019            |
| CL+NLP Lunch Seminar at Carnegie Mellon University.                 | August 2012–May 2014 |

## ADVISING

|   |              |
|---|--------------|
| <b>Lingpeng Kong</b> , Research Scientist, DeepMind.                    | 2018–present |
| <b>Kris Cao</b> , Research Scientist, DeepMind.                         | 2018–present |
| <b>Cyprien de Masson d’Autume</b> , Research Engineer, DeepMind.        | 2018–present |
| <b>Mikel Artetxe</b> , Research Intern, DeepMind.                       | 2019         |
| <b>Anna Potapenko</b> , Research Engineer, DeepMind.                    | 2019         |
| <b>Mike Chrzanowski</b> , Research Engineer, DeepMind.                  | 2018         |
| <b>Jerome Connor</b> , Research Engineer, DeepMind.                     | 2018         |
| <b>Yishu Miao</b> , Research Intern, DeepMind.                          | 2017         |
| <b>Bill McDowell</b> , Research Programmer, Carnegie Mellon University. | 2014         |

## REFERENCES

### Noah A. Smith

Professor of Computer Science and Engineering  
University of Washington  
nasmith@cs.washington.edu

### Chris Dyer

Senior Staff Research Scientist, Consulting Professor of Computer Science  
DeepMind, Carnegie Mellon University  
cdyer@google.com

### Kyunghyun Cho

Associate Professor of Computer Science and Data Science  
New York University  
kyunghyun.cho@nyu.edu