Edward T. Grefenstette

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Employment

Senior Research Scientist, Google DeepMind, London, November 2014 – Present.
CTO and Co-Founder, Dark Blue Labs, London, April 2014 – October 2014.
Fulford Junior Research Fellow, Somerville College, Oxford, October 2013. – Present.
Postdoctoral Research Assistant, Department of Computer Science, University of Oxford, October 2012 – September 2014.
College Lecturer, Hertford College, Oxford, September 2011 – September 2014.
College Lecturer, St Hilda's College, Oxford, September 2013 – September 2014.

Education

DPhil (PhD) Computer Science, Balliol College, University of Oxford, Examined June 2013.
- Thesis: "Category-Theoretic Quantitative Compositional Distributional Models of Natural Language Semantics".
- Supervised by Stephen Pulman, Bob Coecke and Mehrnoosh Sadrzadeh.
- Examined by Samson Abramsky and Shalom Lappin. Passed with minor corrections.

MSc Computer Science, Balliol College, University of Oxford, September 2009.
- Obtained with Distinction on coursework and dissertation.
- Dissertation: "Analysing Document Similarity Measures", supervised by Stephen Pulman.

MLitt Philosophy, University of St. Andrews, September 2008.
- Thesis: "Reviving Mathematical Intuition: Steps Towards a 'Neo-Poincaréan' Philosophy of Mathematics", supervised by Peter Clark.

BSc Physics and Philosophy, University of Sheffield, July 2007.
- Graduated with First Class Honours (*Summa Cum Laude*) in both subjects.
- Autumn Dissertation: "On an instrumentalist reading of Hilbert: a critique of Detlefsen", supervised by Bob Hale.
- Spring Dissertation: "Does Blackburn's quasi-realism threaten the foundations of Wright's minimalism?", supervised by Andrew Howat.
- Final year Physics Research Project: Designed a 10-lecture course on Quantum Computing.
- Final year Physics Research Paper: "Is String Theory Science?"

Baccalauréat OIB, CSI Europole, International High School, September 2003.
- Scientific Series ('Série S'): heavy emphasis on Mathematics, Physics & Chemistry, and Biology & Earth sciences. Specialisation in Physics & Chemistry in final year.

Scholarships, Prizes & Grants

*SEM 2013 Best Long Paper Award, awarded for the single-author paper "Towards a Formal Distributional Semantics: Simulating Logical Calculi with Tensors", June 2013.
Westerman Eastern Pathfinders Award, awarded by Balliol College, Oxford, May 2013.
Enhanced EPSRC Stipend, awarded by Oxford University Computing Laboratory, October 2010.
- Supplement to EPSRC DTA awarded in 2009.

- Awarded progressively, on the basis of good academic progression.

EPSRC Doctoral Training Account Scholarship, awarded by Oxford University Computing Laboratory, on behalf of Engineering and Physical Sciences Research Council, October 2009.
- Duration of 3.5 years, full scholarship (college and university fees, stipend, travel allowance).
- Awarded on the basis of academic merit.

Bishop Warner Bursary, awarded by Balliol College, Oxford, November 2008.

Books

Heunen, C., Sadrzadeh, M. and Grefenstette, E. (eds.) *Quantum physics and linguistics: a compositional, diagrammatic discourse*, Oxford University Press, February 2013.

Journal Articles

Grefenstette, E. and Sadrzadeh, M., Concrete Models and Empirical Evaluations for the Categorical Compositional Distributional Model of Meaning, upcoming in *Computational Linguistics*.

Coecke, B., Grefenstette, E. and Sadrzadeh, M., Lambek vs. Lambek: Functorial Vector Space Semantics and String Diagrams for Lambek Calculus, to appear in *Annals of Pure and Applied Logic*, Expected 2013.

Sadrzadeh, M. and Grefenstette, E., A Compositional Distributional Semantics, Two Concrete Constructions, and some Experimental Evaluations, *Lecture Notes in Computer Science: Quantum Interaction*, Springer, 2011.

Book Chapters

Clark, S., Coecke, B., Grefenstette, E., Pulman, S. and Sadrzadeh, S., A quantum teleportation inspired algorithm produces sentence meaning from word meaning and grammatical structure, `arXiv:1305.0556`, to appear in Springer volume, expected 2014.

Grefenstette, E., Sadrzadeh, M., Clark, S., Coecke, B. and Pulman, S., Concrete Compositional Sentence Spaces, *Computing Meaning, Vol. 4* (Bunt, H., Bos, J. and Pulman, S. eds.), Springer, 2013.

Refereed Conference Papers

Grefenstette, E., Blunsom, P., de Freitas, N. and Hermann, K.M., A Deep Architecture for Semantic Parsing, *Proceedings of the ACL 2014 Workshop on Semantic Parsing*, 2014.

Kalchbrenner, N., Grefenstette, E. and Blunsom, P., A Convolutional Neural Network for Modelling Sentences, *Proceedings of the 52nd Annual Meeting of the Association for Computational Linguistics*, 2014.

Maillard J., Clark, S. and Grefenstette, E., A Type-Driven Tensor-Based Semantics for CCG, *EACL 2014 Type Theory and Natural Language Semantics Workshop*, 2014.

Hermann K. M., Grefenstette, E. and Blunsom, P., "Not not bad" is not "bad": A distributional account of negation, *Proceedings of the 2013 Workshop on Continuous Vector Space Models and their Compositionality*, 2013.

Grefenstette, E., Towards a Formal Distributional Semantics: Simulating Logical Calculi with Tensors, *Proceedings of the Second Joint Conference on Lexical and Computational Semantics*, 2013.

Grefenstette, E., Dinu, G., Zhang, Y., Sadrzadeh, M., and Baroni, M., Multi-Step Regression Learning for Compositional Distributional Semantics, *Proceedings of the 10th International Conference on Computational Semantics (IWCS 2013)*, 2013.

Grefenstette, E. and Sadrzadeh, M., Experimenting with transitive verbs in a DisCoCat, *Proceedings of the GEMS 2011 Workshop on GEometrical Models of Natural Language Semantics*, 2011.

Grefenstette, E. and Sadrzadeh, M., Experimental Support for a Categorical Compositional

Distributional Model of Meaning, *Proceedings of the 2011 Conference on Empirical Methods in Natural Language Processing*, 2011.

Grefenstette, E., Sadrzadeh, M., Clark, S., Coecke, B., and Pulman, S., Concrete Sentence Spaces for Compositional Distributional Models of Meaning, *Proceedings of the 9th International Conference on Computational Semantics (IWCS 2011)*, 2011.

Invited Talks

Oxford Christmas Science Lectures, Oxford University, Oxford, "Can Machines Think?," December 11, 2013.

Departmental Seminar, HKUST, Hong Kong, "Quantum Information Flow made Classical: New Mathematics for Natural Language Compositionality," September 2nd, 2013.

CQT Seminar, National University of Singapore, Singapore, "From Quantum Teleportation to Neural Tensor Networks," August 28th, 2013.

Departmental Seminar, School of Computer Science, Carnegie Mellon University, Pittsburgh, "Categories, Vectors and Tensors, Oh My!: Pure Mathematics Meets Machine Learning," August 15th, 2013.

CIMeC Research Seminar, University of Trento, Rovereto, "DisCoCat: A (Cat)egorical Framework for (Dis)tributional (Co)mpositional semantics," June 23rd, 2011.

Mavir Seminar, UNED, Madrid, "Empirical Validation of Compositional Distributional Models of Meaning," April 28th, 2011.

NLP Seminar, University of Sheffield Department of Computer Science, Sheffield, "Categorical Compositionality for Distributional Semantics, Without Tears," April 7th, 2011.

NLIP Seminar, University of Cambridge Computer Laboratory, Cambridge, "Categorical Compositionality for Distributional Semantics" February 25th, 2011.

Flowin'Cat 2010, Oxford, "Concrete Sentence Spaces," October 31st, 2010.

Tutorials

ACL 2014 Tutorial, *New Directions in Vector Space Models of Meaning,* with Phil Blunsom, Karl Moritz Hermann, Georgiana Dinu, June 22, 2014.

Students

Jianpeng Cheng, *Investigating the Role of Prior Disambiguation in Deep-learning Compositional Models of Meaning*, MSc Computer Science, University of Oxford, 2014.

Wenjie Guan, *Theory of and Applications for Log-Bilinear Models*, MSc Computer Science, University of Oxford, 2014.

Reviewing

Journal Reviewing: Journal of Artificial Intelligence Research; International Journal of Computer Mathematics; Computational Linguistics; Journal of Logic, Language and Information (JoLLI); Language and Linguistics Compass.

Programme Committees: ICML 2015, NAACL 2015, IWCS 2015, WOOT14 (USENIX), EMNLP 2014, ACL 2014, EACL 2014, IJCNLP 2013 (Syntax and Semantics), *SEM 2013 (Morphology and Semantics), *SEM 2013 (Sentence-level Semantic Processing), ACL 2013 (Student Workshops), NAACL 2013 (Semantics), IWCS 2013, TFDS (IWCS Workshop) 2013, *SEM 2012, EACL 2011 (Semantics).

Reviewer, "Doing Philosophy: A Practical Guide for Students", Higher Education Academy PRS Subject Centre, Continuum Press, April 2008.

Conference Organisation & Professional Activities

Workshop Organiser, 3rd Workshop on Continuous Vector Space Models and their

Compositionality at ACL 2015, July 26/27, 2015.
Area Chair, Distributional Semantics at *SEM 2015.
Workshop Organiser, 2nd Workshop on Continuous Vector Space Models and their Compositionality at EACL 2014, April 27, 2014.

Teaching

Lecturer, Formal Foundations of Linguistics, Oxford University Faculty of Linguistics, Philology and Phonetics, October 2013 – December 2013.

Lecturer, Computational Linguistics, Oxford University Department of Computer Science (DCS), January 2013 – April 2013.

College Tutor, Discrete Mathematics, Probability, Functional Programming, Design and Analysis of Algorithms, Hertford College, Oxford, October 2012 – Present.

Practical Demonstrator, Information Retrieval, Oxford University DCS, January 2011 – December 2012.

Class Tutor, Computational Linguistics, Oxford University DCS, October 2011 – December 2011.

Practical Demonstrator, Intelligent Systems, Oxford University DCS, October 2011 – December 2011.

Class Tutor, Information Retrieval, Oxford University Computing Laboratory (OUCL), January 2011 – April 2011.

Practical Demonstrator, Reasoning about Information Update, OUCL, January 2011 – April 2011.

College Tutor, Object-Oriented Programming, Balliol College, Oxford, October 2010 – December 2010.

Class Tutor, Computational Linguistics, OUCL, October 2010 – December 2010.

Teaching Assistant, Information Retrieval, OUCL, January 2010 – March 2010.

Practical Demonstrator, Intelligent Systems II, OUCL, January 2010 – March 2010.

Private Tutor, PPE Prelim Formal Logic. Oxford, United Kingdom, April 2009 – July 2009.

English Language Teacher, Kokusai Eiken Center, International School of Sacred Heart, Tokyo, Japan, July 2007 – August 2007.

Private Tutor, French, Mathematics. Sheffield, United Kingdom, November 2004 – July 2006.

Assistant English Language Teacher, Kokusai Eiken Center, St. Mary's International School, Tokyo, Japan, July 2003 – August 2003 and July 2005 – August 2005.

Programming

- Proficient in C, C++, Python.
- Working knowledge of Java, Haskell, MATLAB, Scala.

Personal

Birth Date: October 7th 1985, Chambray-les-Tours, France. US & French Citizen.
Fluent in French & English. Some knowledge of Italian (5 years) and Japanese (2 years).
Sports: Squash, Fencing, Aikido, Kendo, Cricket (Balliol MCR team: 2009 – 2011), Rowing (BCBC: Michaelmas 2009 – 2011), Karate (Oxford University, Michaelmas 2011 – 2014).
Sang in Balliol College Chapel Choir, October 2009 – June 2011.

Latest revision: November 4, 2014.