**Georgios Spithourakis**

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**RESEARCH INTERESTS**

• Areas: natural language processing, machine learning, computational linguistics

• Interests: modelling text/categorical/continuous data, conditional and grounded language modelling, language generation, conversational agents, neural networks, numerical reasoning, structured prediction, forecasting

**RESEARCH EXPERIENCE**

**University College London**, UK

*PhD Candidate in Natural Language Processing*, September 2013 – present (submitting in July 2018)

Neural networks for modelling continuous/categorical/text data ⬩ Number-aware language models for error detection, error correction and text prediction for clinical and scientific data ⬩ Organised public engagement

**Amazon**, Cambridge, UK

*Research Scientist Intern*, July 2016 – February 2017

Question answering with neural networks for dialogue systems (related to Alexa product)

**Microsoft Research,** Redmond, Washington, US

*Research Intern*, June 2015 – August 2015

Conversation modelling with neural networks (related to Cortana product)

**Forecasting and Strategy Unit, National Technical University of Athens**, Greece

*Research Associate*, September 2011 – August 2012

Supply chain forecasting ⬩ Deployed and evaluated forecasting simulation platform for teaching forecasting at MSc level ⬩ Drafted research proposals

*Research Software Engineer*, September 2009 – August 2011

Developed web-based tools for time-series forecasting

**EDUCATION**

**University College London,** UK

*PhD Candidate in Natural Language Processing*, submitting in July 2018

• Thesis: “Numeracy of Language Models: Joint Modelling of Words and Numbers”

• Supervised by Sebastian Riedel and Steffen Petersen

• Funded by the Farr Institute of Health Informatics Research Studentship

**University College London,** UK

*MSc in Computational Statistics and Machine Learning*, 2013

• Themes:Supervised, unsupervised & reinforcement learning ⬩ Information retrieval ⬩ Machine vision

• Dissertation**:** “Column generation in loopy models”

• Supervised by Sebastian Riedel

• Funded by the Foundation for Education and European Culture (IPEP) Scholarship

**National Technical University of Athens,** Greece

*Diploma (BSc/MSc) in Electrical & Computer Engineering*, 2011

• GPA: 8.58/10.0 (28th out of 325 in year of graduation); completed the 5-year degree in 4 years

• Themes: Control theory & signal processing (speech, image, video) ⬩ Computer Networks (web application development, protocols, topology, hardware) ⬩ Management (decision support systems, forecasting)

• Dissertation**:** “Application of aggregate-disaggregate forecasting methodology to non-intermittent demand data”

• Supervised by Vasilis Assimakopoulos

• Funded by the Estate of Panagiotis Triadafyllidis Scholarship

**PROGRAMMING SKILLS**

Proficient in Python (including Tensorflow)

Previous experience with:

• Programming languages: Java, Scala, VB.NET, C++, MATLAB, R

• Web & Mobile Application Development: HTML, CSS, JavaScript, ASP.NET, AJAX, XML, JSON, Android

• Apache: Solr/Lucene, Hadoop, Spark

• Databases: SQL, MySQL

**TEACHING EXPERIENCE**

**Department of Computer Science, University College London,** UK

*Teaching Assistant*

• Natural Language Processing (MSc module, directed by S. Riedel), autumn terms 2013 – 2018

• Object-Oriented Programming (BSc module, directed by D. Mohamedally), spring terms 2014 – 2015

• Mobile App Design (MSc module, directed by D. Mohamedally), autumn terms 2013 – 2015

• Introductory Programming (MSc module, directed by Dean Mohamedally), autumn terms 2013 – 2014

*Senior Teaching Assistant*

• Introductory Programming (MSc module, directed by D. Mohamedally), autumn term 2015

**National Institute of Informatics (NII),** Tokyo, Japan

*Visiting Teaching Assistant/Project Advisor* (in collaboration with UCL)

• Project “Platform for E-Health Analytics and Collaborative Studies using Hadoop”, (1 week) 2016

**School of Electrical and Computer Engineering, National Technical University of Athens**, Greece

*Teaching Assistant*

• Forecasting Techniques (MSc module, directed by V. Assimakopoulos), spring terms 2010 – 2012

**MENTORING & STUDENT SUPERVISION**

Alexander Hoyle. Detecting statements that can be fact checked. Dissertation for MSc in Machine Learning, UCL, co-supervised with Jeff Mitchel, to finish in 2018.

Finneas Jacob Robson Catling. Towards automated clinical coding. Dissertation for MSc in Business Analytics (specialisation in Computer Science), UCL, co-supervised with Sebastian Riedel, 2017.

Jiayu Sherri Lee. Question-to-statement conversion using pivot translations. Dissertation for MSc in Computer Science, UCL, co-supervised with Sebastian Riedel, 2017.

Benjamin Riedel. Simple yet powerful: A system for news article stance detection. Dissertation for MSc in Machine Learning, UCL, co-supervised with Sebastian Riedel and Isabelle Augenstein, 2017.

Dhruv Ghulati. Distant Supervision and Cost Sensitive Classification for Weakly Supervised Claim Detection. Dissertation for MSc in Computer Science, UCL, co-supervised with Sebastian Riedel and Isabelle Augenstein, 2016.

Emanuel Mountalas. Empirical application, evaluation and comparison of forecasting methods for the electrical system’s System Marginal Price: a case study in Greek electricity market. Dissertation for diploma (BSc/MSc) in Electrical Engineering, 2012.

Triantafyllos Nikolaos Theodorou. Investment portfolio management with trend forecasting methods. Dissertation for diploma (BSc/MSc) in Electrical Engineering, NTUA, 2012.

Andreas Desalermos. Application and evaluation of optimisation techniques for exponential smoothing parameters. Dissertation for diploma (BSc/MSc) in Electrical Engineering, NTUA, co-supervised with Fotios Petropoulos, 2011.

**PUBLICATIONS**

*Conference Proceedings*

**G. Spithourakis** and S. Riedel. Numeracy for Language Models: Evaluating and Improving their Ability to Predict Numbers. *ACL* 2018 (under review, decision pending).

N. Mostafazadeh, C. Brockett, B. Dolan, M. Galley, J. Gao, **G. Spithourakis** and L. Vanderwende. Image-Grounded Conversations: Multimodal Context for Natural Question and Response Generation. *IJCNLP* 2017.

**G. Spithourakis**, I. Augenstein and S. Riedel. Numerically Grounded Language Models for Semantic Error Correction. *EMNLP* 2016.

J. Li, M. Galley, C. Brockett, **G. Spithourakis**, J. Gao, B. Dolan. A Persona-Based Neural Conversation Model. *ACL*, 2016.

N. Theodorou, **G. Spithourakis** and V. Assimakopoulos. Investment portfolio management with trend forecasting methods. Paper presented at *the Operational Research Society Annual Conference (OR54)*, 2012.

E. Mountalas, **G. Spithourakis** and V. Assimakopoulos. Empirical application, evaluation and comparison of forecasting methods for the electrical system’s System Marginal Price: a case study in Greek electricity market. In *Proceedings of the 23rd National Conference of the Hellenic Operational Research Society*, pages 9-13, 2012.

*Workshop Proceedings*

**G. Spithourakis**, S. Petersen and S. Riedel. Clinical Text Prediction with Numerically Grounded Conditional Language Models. *EMNLP-LOUHI workshop* 2016.

**G. Spithourakis,** S. Petersen, and S. Riedel. Harnessing the predictive power of clinical narrative to resolve inconsistencies and omissions in EHRs. *2nd Workshop on Machine Learning for Clinical Data Analysis, Healthcare and Genomics, NIPS* 2014.

*Journals*

**G. Spithourakis,** F. Petropoulos, K. Nikolopoulos and V. Assimakopoulos. Amplifying the learning effect via a forecasting and foresight support system. *International Journal of Forecasting*, 31(1):20-32, 2015.

**G. Spithourakis**, F. Petropoulos, K. Nikolopoulos and V. Assimakopoulos. A systemic view of the ADIDA framework. *IMA Journal of Management Mathematics*, 25(2): 125-137, 2014.

F. Petropoulos, K. Nikolopoulos**, G. Spithourakis** and V. Assimakopoulos. Empirical heuristics for improving intermittent demand forecasting. *Industrial Management & Data Systems*, 113(5):683-696, 2013.

**G. Spithourakis,** F. Petropoulos, M.Z. Babai, K. Nikolopoulos and V. Assimakopoulos. Improving the performance of popular supply chain forecasting techniques: an empirical investigation. *Supply Chain Forum: an International Journal*, 12(4):16-25, 2012.

*Arxiv*

B. Riedel, I. Augenstein, **G. Spithourakis** and S. Riedel. A simple but tough-to-beat baseline for the Fake News Challenge stance detection task. arXiv preprint, 2017.

*Dissertations*

**G. Spithourakis.** Column generation in loopy models. *MSc in Computational Statistics and Machine Learning, UCL*, supervised by Sebastian Riedel, 2013.

**G. Spithourakis.** Application of aggregate-disaggregate forecasting methodology to non-intermittent demand data. *Diploma (BSc/MSc) in Electrical & Computer Engineering, NTUA*, supervised by Vasilis Assimakopoulos, 2011.

**INVITED TALKS**

Human Code Computer Tongue: A Human Neural Network. *Welcome/EPSRC Centre for Interventional and Surgical Sciences (WEISS)*, London, UK, March 2018

Human Code Computer Tongue: A Human Neural Network. *UCL Culture*, London, UK, January 2018

Numerically Grounded Language Models. Cambridge NLIP seminar series, *University of Cambridge*, UK, 2017

Text Mining and Sentiment Analysis. Operations Analytics course, *University of Cardiff*, UK, March 2015

**SCHOLARSHIPS, GRANTS & AWARDS**

*Scholarships*

• PhD Studentship, The Farr Institute of Health Informatics Research, 2013 – 2016

• MSc Scholarship, Foundation for Education and European Culture (IPEP), 2012 – 2013

• BSc/MSc Scholarship, Estate of Panagiotis Triadafyllidis, 2007 – 2011

*Grants & Awards*

• Prize (for 3rd place out of 50 in stance detection task), Fake News Challenge, 2017

• Grant (for organising public engagement project), UCL Train and Engage, 2017

• Grant (for travelling to present at conference), EMNLP Student Scholarship Programme, 2016

• Award (for exceptional score in nationwide university entrance exams), President of the Hellenic Republic, 2008

• Award (for 1st place among municipality in nationwide university entrance exams), Eurobank EFG Group (“Great Moment for Education” Programme), 2007

**OTHER SKILLS & ACTIVITIES**

*Languages*

Greek (Mother Tongue) ⬩ English (Proficient/C2) ⬩ German (Advanced/C1) ⬩ Japanese (Intermediate/JLPT N3) ⬩ Spanish (Intermediate)

*Activities*

• Organiser of public engagement project “Human Code Computer Tongue” (series of events for teaching about neural networks through poetry generation: performance, December 2017; workshop, October 2017; workshop, February 2017), in collaboration with Zena Edwards and Apples & Snakes, funded by UCL Train and Engage.

• Student volunteer, EMNLP conference, November 2016

• Volunteer in environmental programme, Wales, UK, (2 weeks) 2012

• Volunteer in Japanese-to-Greek translation of Junko Morimoto’s short story “Watashi no Hiroshima” (“My Hiroshima”), 2011