Pasquale Minervini – Curriculum Vitæ

Contact Details

Laboratory Address	UCL Machine Reading, 1st Floor, 90 High Holborn, London, UK
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Employment History

10/2016 – *Current* — *Research Associate*
University College London, London, UK
Postdoctoral Research Associate in Statistical Natural Language Processing and Machine Learning in the UCL Machine Reading group. My position is fully funded by a Machine Reading grant from the Allen Institute for Artificial Intelligence (AI2).

12/2015 – 10/2016 — *Postdoctoral Fellow*
INSIGHT Centre, NUI Galway, Galway, Ireland
Researcher in the area of knowledge discovery from both structured and unstructured data on the Web. The project is fully funded by, and in close collaboration with, Fujitsu Laboratories Ltd. and Fujitsu Ireland.

10/2015 – 12/2015 — *Natural Language Processing (NLP) Engineer*
Aylien Ltd., Dublin, Ireland
Research and development of Deep Learning-based architectures for solving a variety of NLP tasks, with a focus on sentiment analysis of social media messages.

9/2014 – 9/2015 — *Postdoctoral Fellow*
Università degli Studi di Bari, Bari, Italy
Researcher for a research project titled "Methods and Techniques for Publishing and Mining in the Web of Data".

06/2010 – 01/2011 — *Research Software Engineer*
Università degli Studi di Bari, Bari, Italy
Software Engineer for DOMINUS, a research project aiming at realising an intelligent document management system.

04/2010 – 05/2010 — *Software Engineer*
Artificial Brain SRL, Bari, Italy
Software Engineer for a company created in the Knowledge Acquisition & Machine Learning Laboratory at Università degli Studi di Bari.

05/2009 – 09/2009 — *Software Engineer*
Google Inc.
Software Engineer for The Apertium Project, a Free/Open-Source Rule-Based Machine Translation platform developed at the Universitat d'Alacant (University of Alicante). The project was financed by Google Inc. through the Google Summer of Code 2009 program.

06/2007 – 10/2007 *Research Assistant*
Università degli Studi di Bari, Bari, Italy
Research Assistant for the MIUR FAR research project "Cultural Heritage fruition & e-learning applications of new Advanced (multimodal) Technologies" (CHAT).

Academic History

May 2014 **Ph.D.** in Computer Science
Institution: **Università degli Studi di Bari**, Bari, Italy
Thesis Title: "Mining Methods for the Web of Data"
Advisor: Prof. Nicola Fanizzi Viva: May 26th, 2014

February 2010 **Master's Degree** in Computer Science
Institution: **Università degli Studi di Bari**, Bari, Italy
Topics: Knowledge Bases, Data Mining, Machine Learning, Multi-Agent Systems, Natural Language Processing, Network Collaboration.
Grade: **110/110, summa cum laude** (highest possible grade)

February 2007 **Bachelor's Degree** in Computer Science
Institution: **Università degli Studi di Bari**, Bari, Italy
Thesis Title: "Theta-Subsumption between Horn Clauses: Reduction of a NP-complete problem to the Boolean Satisfiability Problem"
Advisor: Prof. Nicola Di Mauro
Grade: **110/110, summa cum laude** (highest possible grade)

Record of Research Funding

2018 **AdeptMind Scholarship**
Funding Body: **AdeptMind Inc.**
Value of Award: 30.000 USD
Type of Grant: Research Grant
Role on the Grant: Principal Investigator

2016, 2018 **Two NVIDIA Academic Hardware Grants**
Funding Body: **NVIDIA Corporation**
Value of Award: One NVIDIA Titan X GPU, One NVIDIA Titan Xp GPU
Type of Grant: Hardware Grant
Role on the Grant: Principal Investigator

2011 – 2014 **Merit-based Research Grant**
Funding Body: **Ministry of Education, Universities and Research** (Italy)
Value of Award: 36.000 EUR
Type of Grant: Scholarship
Role on the Grant: Student

Prizes

- Best Research Paper Award at the 19th International Conference on Knowledge Engineering and Knowledge Management (EKAW 2014)
- Best Research Paper Award at the 10th International Workshop on Uncertainty Reasoning for the Semantic Web (URSW 2014)

- □ Winner of the 4th Linked Data Mining Challenge (Know@LOD 2016)
- □ Ranked 5th in the Kaggle The Allen AI Science Challenge

Teaching and Mentoring

Teaching

- □ Guest Lecturer at University College London (UCL)
  Module: Statistical Natural Language Processing
  Topic: Recurrent Neural Networks, Years: 2016, 2017
- □ Lecturer at the Summer School on Statistical Relational Artificial Intelligence
  Module: Differentiable Program Interpreters

Mentoring

- □ **Zheng, Zhedong**.
  Link Prediction as Natural Language Inference.
  Degree Programme: UCL MSc ML Year: 2018
- □ **Cowen-Rivers, Alexander**.
  Neural Variational Knowledge Graph Embeddings.
  Degree Programme: UCL MSc ML Year: 2018
- □ **Weber, Philipp Leon**.
  NLProlog - Reasoning with Weak Unification for NLP.
  Degree Programme: Humboldt University of Berlin MSc CS Year: 2018
- □ **Alakuijala, Minttu**.
  Reinforcement Learning for Query Reformulation and Multi-Step Question Answering.
  Degree Programme: UCL MEng CS Year: 2017-2018
- □ **Benfatti, Andrea**.
  Multi-Task Learning Applied to Question Answering.
  Degree Programme: UCL MSc ML Year: 2017
- □ **Zhang, Wenbo**.
  A Reinforcement Learning Model for Multiple Choice Question Answering.
  Degree Programme: UCL MSc DS Year: 2017
- □ **Inglis, Rogan**.
  Machine Reading for Scientific Publications Using Generative Regularisation.
  Degree Programme: UCL MSc ML Year: 2017
- □ **Coppola, Marco**.
  Predictive Ranking Systems for Resources of Linked Open Data.
  Degree Programme: UNIBA BSc CS Year: 2012-2013

Invited Talks

06/10/2018 - Representation Learning and Neuro-Symbolic Reasoning in Knowledge Graphs and Natural Language - Uber AI Labs - San Francisco, California, US

03/08/2018 - Representation Learning in Knowledge Graphs
Insight Centre for Data Analytics - Galway, Ireland

27/02/2018 - Background Knowledge and Regularisation
BenevolentAI, London, UK

14/11/2017 - Adversarial Sets for Regularising Neural Link Predictors
Copenhagen NLP Meetup, Copenhagen, Denmark

26/09/2017 - Adversarial Sets for Regularising Neural Link Predictors
Google NLP Summit, Zurich, Switzerland

Administrative Activities

PC Member

- IEEE International Conference on Data Mining (IEEE ICDM) 2017-2018
- IEEE International Conference on AI and Knowledge Engineering (IEEE AIKE) 2018
- ACM Symposium on Applied Computing (ACM SAC) 2013-2019
  - Semantic Web and Applications (SWA) Track (2013-2019)
  - Knowledge and Language Processing (KLP) Track (2019)
- International Workshop on Statistical Relational AI (StarAI) 2017
- Knowledge Representation in Natural Language (KRNL) 2018
- Biennial Conference on Language, Data and Knowledge (LDK 2019)
- Workshop on Neural Abstract Machines & Program Induction (NAMPI) 2018

Reviewer

Conference on Neural Information Processing Systems (NIPS), International Conference on Learning Representations (ICLR), IEEE International Conference on Data Mining (ICDM), Conference on Empirical Methods in Natural Language Processing (EMNLP), Conference on Natural Language Learning (CoNLL), International Conference on Computational Linguistics (COLING), ACM Symposium on Applied Computing (SAC), IEEE Transactions on Knowledge and Data Engineering (TKDE), IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI), Journal of Web Semantics (JWS), IEEE International Conference on Semantic Computing (ICSE), International Journal of Semantic Computing (IJSC), Semantic Web Journal (SWJ), Information Sciences Journal, Elsevier (ISJ), Workshop on Automated Knowledge Base Construction (AKBC), Big Data and Cognitive Computing (BDCC), Artificial Intelligence Review (AIRE), Czech Science Foundation, and several others.

Publications, Tutorials, and Patents

Patent Applications

- **Minervini**, Costabello, Muñoz Jiménez, Nováček, Vandenbussche - Method and Apparatus for Completing a Knowledge Graph - US Patent Office, Application no. 15821088, US Patent App. 15/821,088, Applicant: Fujitsu Ltd.

Tutorials

- Costabello, Lecue, Giannotti, Guidotti, Hitzler, **Minervini**, Sarker - On Explainable AI: From Theory to Motivation, Applications and Limitations - Half-day (3.5 hours) Tutorial for the Thirty-Third AAAI Conference on Artificial Intelligence (**AAAI** 2019)

Papers

- **Minervini**, Riedel - Adversarially Regularising Neural NLI Models to Integrate Logical Background Knowledge - SIGNLL Conference on Computational Natural Language Learning (**CoNLL** 2018, 20.65% acceptance rate)
- Bosnjak*, **Minervini***, Campero, Rocktäschel, Grefenstette, Riedel - Neural Theorem Proving on Natural Language - International Conference on Probabilistic Programming (**PROBPROG** 2018)

- □ **Minervini***, Bosnjak*, Rocktäschel, Riedel - Towards Neural Theorem Proving at Scale - Workshop on Neural Abstract Machines & Program Induction (**NAMPI** 2018)
- □ Mitchell, **Minervini**, Stenetorp, Riedel - Extrapolation in NLP - Workshop on Generalization in the Age of Deep Learning (**NAACL** 2018)
- □ Weissenborn, **Minervini**, Dettmers, Augenstein, Welbl, Rocktäschel, Bosnjak, Mitchell, Demeester, Stenetorp, Riedel - Jack the Reader – A Machine Reading Framework - Annual Meeting of the Association for Computational Linguistics (**ACL** 2018), System Demonstrations
- □ Dettmers, **Minervini**, Stenetorp, Riedel - Convolutional 2D Knowledge Graph Embeddings - 31st AAAI Conference on Artificial Intelligence (**AAAI** 2018, 24.6% acceptance rate)
- □ **Minervini**, Tresp, d'Amato, Fanizzi - Adaptive Knowledge Propagation in Web Ontologies - ACM Transactions on the Web (**TWEB** 2018)
- □ **Minervini**, Demeester, Rocktäschel, Riedel - Adversarial Sets for Regularising Neural Link Predictors - 33rd Conference on Uncertainty in Artificial Intelligence (**UAI** 2017)
- □ **Minervini**, Costabello, Muñoz, Nováček, Vandenbussche - Regularizing Knowledge Graph Embeddings via Equivalence and Inversion Axioms - European Conference on Machine Learning & Principles and Practice of Knowledge Discovery in Databases (**ECML-PKDD** 2017) (27% acceptance rate)
- □ **Minervini**, d'Amato, Fanizzi - Efficient Energy-Based Embedding Models for Link Prediction in Knowledge Graphs - Journal on Intelligent Information Systems (**JIIS** 2016), Recent Advances in Mining Patterns from Complex Data, ISSN 1573-7675, June 2016
- □ **Minervini**, d'Amato, Fanizzi, Tresp - Discovering Similarity and Dissimilarity Relations for Knowledge Propagation in Web Ontologies - Journal on Data Semantics (**JoDS** 2016), ISSN 1861-2040, May 2016
- □ **Minervini**, d'Amato, Fanizzi - Leveraging the Schema in Latent Factor Models for Knowledge Graph Completion - Proceedings of the ACM Symposium on Applied Computing - Semantic Web Track (**ACM SAC** 2016), Pisa, Italy (24% acceptance rate)
- □ Yumusak, Muñoz, **Minervini**, Dogdu, Kodaz – A Hybrid Method for Rating Prediction Using Linked Data Features and Text Reviews – (KNOW@LOD/CoDeS)@ESWC 2016
- □ **Minervini**, d'Amato, Fanizzi, Esposito - Scalable Learning of Entity and Predicate Embeddings for Knowledge Graph Completion - 14th IEEE International Conference on Machine Learning and Applications, (**ICMLA** 2015), ISBN 978-1-5090-0287-0, Miami, FL, USA
- □ **Minervini**, d'Amato, Fanizzi, Esposito - Efficient Learning of Entity and Predicate Embeddings for Link Prediction in Knowledge Graphs - Proceedings of the 11th International Workshop on Uncertainty Reasoning for the Semantic Web (**URSW** 2015), Bethlehem, USA, October 12 2015
- □ **Minervini**, d'Amato, Fanizzi, Esposito - A Gaussian Process Model for Knowledge Propagation in Web Ontologies - IEEE International Conference on Data Mining (**ICDM** 2014), ISBN 978-1-4799-4302-9, Shenzhen, China (19% acceptance rate)
- □ **Minervini**, d'Amato, Fanizzi, Esposito - Adaptive Knowledge Propagation in Web Ontologies - Proceedings of the 19th International Conference on Knowledge Engineering and Knowledge Management (**EKAW** 2014), ISBN 978-3-319-13703-2, Linköping, Sweden (**best research paper award**)
- □ **Minervini**, d'Amato, Fanizzi, Esposito - Graph-Based Regularization for Transductive Class-Membership Prediction. In: Uncertainty Reasoning for the Semantic Web III -

ISWC International Workshops, **URSW** 2011-2013, Revised Selected Papers - Springer, ISBN: 978-3-319-13412-3

- **Minervini**, d'Amato, Fanizzi, Esposito - Learning Probabilistic Description Logic Concepts Under Alternative Assumptions on Incompleteness. In: Uncertainty Reasoning for the Semantic Web III - ISWC International Workshops, **URSW** 2011-2013, Revised Selected Papers - Springer, ISBN: 978-3-319-13412-3
- **Minervini**, d'Amato, Fanizzi, Tresp - Learning to Propagate Knowledge in Web Ontologies. - Proceedings of the 10th International Workshop on Uncertainty Reasoning for the Semantic Web (**URSW** 2014), Riva del Garda, Italy, October 19 2014 (**best research paper award**)
- **Minervini**, Fanizzi, d'Amato, Esposito - Rank Prediction for Semantically Annotated Resources - Proceedings of the ACM Symposium on Applied Computing - Semantic Web Track (**ACM SAC** 2013), ISBN 978-1-4503-1656-9, Coimbra, Portugal (24% acceptance rate)
- **Minervini**, d'Amato, Fanizzi, Esposito - Transductive Inference for Class-Membership Propagation in Web Ontologies - The Semantic Web: Semantics and Big Data (**ESWC** 2013), ISBN 978-3-642-38287-1, Montpellier, France (26% acceptance rate)
- **Minervini**, d'Amato, Fanizzi - A Graph Regularization Based Approach to Transductive Class-Membership Prediction - Proceedings of the 8th International Workshop on Uncertainty Reasoning for the Semantic Web (**URSW** 2012), Boston, USA, November 11 2012
- Fanizzi, d'Amato, Esposito, **Minervini** - Numeric Prediction on OWL Knowledge Bases through Terminological Regression Trees - International Journal on Semantic Computing (**IJSC**) 2012
- **Minervini**, d'Amato, Fanizzi - Learning Terminological Bayesian Classifiers: A Comparison of Alternative Approaches to Dealing with Unknown Concept Memberships - Proceedings of the 9th Italian Convention on Computational Logic (**CILC** 2012), Rome, Italy, June 6-7, 2012
- **Minervini**, d'Amato, Fanizzi - Learning Terminological Naive Bayesian Classifiers under Different Assumptions on Missing Knowledge. Proceedings of the 7th International Workshop on Uncertainty Reasoning for the Semantic Web (**URSW** 2011), CEUR Workshop Proceedings vol. 778 ISSN 1613-0073, Bonn, Germany, pg. 63-74
- **Minervini**, d'Amato, Fanizzi - Learning Probabilistic Description Logic Concepts Under Different Assumptions on Missing Knowledge. Proceedings of the ACM Symposium on Applied Computing - Semantic Web Track (**ACM SAC** 2012), ISBN 978-1-4503-0857-1, Riva del Garda, Italy (26% acceptance rate)
- Calefato, Lanubile, **Minervini** - Can Real-Time Machine Translation Overcome Language Barriers in Distributed Requirements Engineering? - 5th IEEE International Conference on Global Software Engineering (**ICGSE** 2010), Princeton, NJ, USA, 23-26 August, 2010. IEEE 2010, ISBN 978-1-4244-7619-0
- **Minervini** - Apertium goes SOA: an efficient and scalable service based on the Apertium rule-based machine translation platform - Proceedings of the First International Workshop on Free/Open-Source Rule-Based Machine Translation (**FreeRBMT** 2009), ISBN-13: 978-8-46-136188-5, 59-65, Alacant, Spain, 2009