

# Curriculum Vitae - Octavian-Eugen Ganea

## CONTACT

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## EDUCATION

**April 2014 - May 2019: PhD candidate**, ETH Zurich, Switzerland.

- Advisor: Thomas Hofmann, Data Analytics Group
- Research areas: Machine Learning, Deep Learning, Natural Language Processing, Hyperbolic Embeddings
- Thesis topic: Non-Euclidean Word and Entity Representations

**2010 - 2012: MSc in Computer Science**, Ecole Polytechnique Fédérale de Lausanne (EPFL), Switzerland.

- MSc thesis - Google Zurich - "Ranking entities in a geographic search engine using Bayesian networks".
- **Overall GPA** 5.68 /6.0

**2006 - 2010: BSc in Computer Science**, University Politehnica of Bucharest (UPB)

- BSc thesis: Specification and Validation of a Real-Time Simple Parallel Kernel for Dependable Distributed Systems, grade 10/10
- **Overall GPA:** 9.40/10.0

## RESEARCH PUBLICATIONS

- *Hyperbolic Neural Networks*  
**O-E. Ganea\***, G. Bécigneul\*, T. Hofmann  
Spotlight at NIPS 2018: Conference on Neural Information Processing Systems
- *Hyperbolic Entailment Cones for Learning Hierarchical Embeddings*  
**O-E. Ganea**, G. Bécigneul, T. Hofmann  
Oral talk at ICML 2018: International Conference on Machine Learning.
- *End-to-end Neural Entity Linking*  
N. Kolitsas\*, **O-E. Ganea\***, T. Hofmann  
CoNLL 2018: Conference on Natural Language Learning.
- *Poincaré GloVe: Hyperbolic Word Embeddings*  
A. Tifrea\*, G. Bécigneul\*, **O-E. Ganea\***<sup>1</sup>  
Arxiv preprint and ICLR'19 submission.
- *Riemannian Adaptive Optimization Methods*  
G. Bécigneul, **O-E. Ganea**  
ICLR 2019 submission, likely to be accepted.
- *Deep Joint Entity Disambiguation with Local Neural Attention*  
**O-E. Ganea**, T. Hofmann  
EMNLP 2017: Conference on Empirical Methods in Natural Language Processing
- *Probabilistic Bag-Of-Hyperlinks Model for Entity Linking*  
**O-E. Ganea**, M. Ganea, A. Lucchi, C. Eickhoff, T. Hofmann  
WWW'16: International World Wide Web Conference
- *Learning and Evaluating Sparse Interpretable Sentence Embeddings*  
V. Trifonov, **O-E. Ganea**, A. Potapenko, T. Hofmann  
EMNLP Workshop on the analysis and interpretation of neural networks for Natural Language Processing, 2018

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<sup>1</sup>The \* denotes equal contribution.

- *Neural Multi-Step Reasoning for Question Answering on Semi-Structured Tables*  
T. Haug, **O-E. Ganea**, P. Grnarova  
ECIR 2018: European Conference on Information Retrieval .
- *Web2Text: Deep Structured Boilerplate Removal*  
T. Vogels, **O-E. Ganea**, C. Eickhoff  
ECIR 2018: European Conference on Information Retrieval .

## PROFESSIONAL EXPERIENCE

- June 2018 - Oct 2018:** *Software engineer intern in research, Google Brain Zurich*
- Breaking the softmax bottleneck for text generation.
- May 2017 - Aug 2017:** *Software engineer intern in research, Google Mountain View*
- Knowledge graph completion using deep learning and order embeddings.
- 2013:** *Research intern, Algorithms & Data Structures lab, ETH-Zurich*
- Optimization techniques and dynamic programming algorithms for de novo peptide sequencing.
- Feb 2012 - Oct 2012:** *Software engineer intern, Google Zurich*
- Implemented a Bayesian network model for ranking query suggestions in Google Maps.
- Jun 2011 - Sep 2011:** *Software engineer intern, Google Mountain View*
- Worked in the AdSense infrastructure team.
- 2010 - present:** *Teaching Assistant, ETH Zurich, EPFL & UPB*
- Deep Learning (2017, 2018), Computational Intelligence Lab (2015, 2016, 2017, 2018), Information Retrieval (2014, 2015, 2016), Advanced Algorithms (2011), Graph Theory (2011), Concurrency (2011), Numerical Methods (2008-2009)
- 2007 - 2010,** *Lecturer for Mathematics Olympiads and Competitions*
- Was a member of the national selection committee of Romanian Mathematical Olympiad. I taught preparatory lectures to the romanian team for the International Mathematical Olympiad. Several students of mine won prizes and medals at international contests.

## SUPERVISED THESES/PROJECTS:

I proposed and (co-)supervised **12** MSc and BSc theses (6 months projects) for the following students at ETH Zurich, some resulting in research publications (see above):

- Alexandru Tifrea: *Poincaré Glove: Hyperbolic Word Embeddings*, 2018
- Kolitsas Nikolaos: *End-to-end Neural Entity Linking*, 2018
- Valentin Trivonov: *Sparse and Interpretable Sentence Embeddings*
- Igor Petrovski: *Hyperbolic Sentence Embeddings*, 2018
- Junlin Yao: *Detecting Medication and Adverse Drug Events from Electronic Health Records*, 2018
- Andreas Hess: *Reinforcement Learning for Question Answering with Semi-structured Tables*, 2017
- Yifan Su: *Deep Structured Prediction for Joint Entity Linking and Coreference Resolution*, 2016
- Till Haug: *Convolutional and Recursive Neural Networks for Question Answering on Semi-structured Tables*, 2017
- Severin Bahman: *Memory Networks for Entity Linking*, 2016
- Andreas Georgiadis: *Learning Sentence and Entity Representations for QA*, 2016
- Thijs Vogels: *Structured Prediction for Web Page Content Extraction*, 2016
- Monteiro João Pedro: *Unsupervised Knowledge Base Fact Prediction using Matrix Word Embeddings*, 2016

## HONORS AND AWARDS

- 2007, 2008, 2009 - **1<sup>st</sup> and 2<sup>nd</sup> prizes** - International Mathematical Contest for University Students IMC ([www.imc-math.org](http://www.imc-math.org))
- 2008, 2007 - **Gold Medal and Silver Medal** - South Eastern Mathematical Olympiad for University Students - SEEMOUS, Greece / Cyprus
- 2008, 2009 - Honorable Mention - ACM programming contest, SouthEastern European Region (<http://www.acm.ro/>)
- 2005 - **Silver Medal (3<sup>rd</sup> place)** - Tuymada International Olympiad in Mathematics, Yakutsk, Russia
- 2005 - **Silver Medal** - Balkan Mathematical Olympiad, organised in Iasi, Romania
- 2001 - 2006 - one of the first 7 places every year at National Mathematical Olympiad
- Top 5% in Code Jam 2013.

## PROGRAMMING LANGUAGES

- Machine learning & deep learning software: PyTorch, Tensorflow
- Python, Java, Lua, Scala, C++, Matlab

## MISC

- Finished seven mountain & road marathons
- Climbed 9 four-thousand summits in the Alps - [short movie of my Monch climb](#)
- Did the longest via ferrata in Switzerland (Leukerbad)