

Diego Antognini

Ph.D. Student in Natural Language Processing and Machine Learning

Contact

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Personal Information

28th Nov. 1993
Swiss citizen

Languages

French: Native
English: Full professional
German: Limited working
Spanish: Limited working

Networks

Github: Diego999 1.8k+ 🌟
LinkedIn: diegoantognini in
Skype: diegoantognini 📞
Scholar: diegoantognini 📄

Interests

Reading: self-help books
Sport: motorbike, fitness
Dancing: salsa, bachata
Traveling: 20 countries on
4 continents

Profile

Over five years of research experience in natural language processing (NLP) and machine learning. Experienced in the development of interpretable models that generate personalized and actionable textual explanations. Supervised 35+ B./M.Sc. projects/theses and assessed 60+ student projects. Consulting local companies in the areas of NLP, machine and deep learning.

Education








- 2017 - present **Ph.D. in Computer Science** EPFL, Lausanne, Switzerland
May - text understanding • explainable AI • conversational recommender • summarization
Advisor: Prof. Boi Faltings. Group: artificial intelligence laboratory (LIA).
Award: Won \$9,750 in total in the *IARPA Geopolitical Forecasting Challenge 2018*.
Press coverage: *EPFL News (English)*, *24 Heures*, *Radio 🎧 (French)*.
- 2014 - 2017 **M.Sc. in Computer Science** EPFL, Lausanne, Switzerland
Focus on NLP, ML, artificial intelligence and distributed systems. *GPA 5.5/6.0*
Thesis: From Relation Extraction to Knowledge Graphs.
- 2011 - 2014 **B.Sc. in Computer Science** University of Applied Sciences HE-Arc, Neuchâtel, Switzerland
Major software engineering. Thesis: Computing Brain Neuronal Maps. *GPA 5.6/6.0*
Awards: 1) Excellent thesis and 2nd best GPA. 2) Deserving student in 2nd year.

Experience


- 2017 - present **Research/Teaching Assistant** EPFL, Lausanne, Switzerland
May - Help in teaching: Intelligent Agents (2020), NLP (2017), Artificial Intelligence (2018-2021). Supervise B./M.Sc. projects & theses (40+). **Reviewer:** ACL 20', 21'; EMNLP 2021; IJCAI 2021. **Collaboration** with Swisscom AI (Dr. Claudiu Musat).
- 2016 - present **Owner - Consultant** Virtual Research GmbH, Neuchâtel, Switzerland
Offer consulting for local companies in the areas of deep and machine learning.
- 2015 - present **Expert B.Sc. & M.Eng. theses, CFC projects** HE-Arc / CPLN, Neuchâtel, Switzerland
Mar. - Consulting for industrial/research projects. Thesis expert B.Sc./M.Eng. (25+).
Expert of 50+ students for evaluating their CFC final projects.
- 2016 - 2017 **Machine Learning/Data Mining Intern** Iprova GmbH, EPFL Innovation Park, Switzerland
Sept. - Mar. Master thesis in the domains of natural language processing & machine learning.

Publications (Selected)

- IJCAI 2021 **Interacting with Explanations through Critiquing** 📄
Diego Antognini, Claudiu Musat, Boi Faltings
- AAAI 2021 **Multi-Dimensional Explanation of Target Variables from Documents** 📄
Diego Antognini, Claudiu Musat, Boi Faltings
- ACL 2021 **Rationalization through Concepts** 📄
Findings Diego Antognini and Boi Faltings

- UAI 2021 **Addressing Fairness in Classification with a Model-Agnostic Multi-Objective Algorithm** 
Kirtan Padh, [Diego Antognini](#), Emma L. Glaude, Boi Faltings, Claudiu Musat
- RecSys 2021 **Fast Critiquing with Self-Supervision for VAE-based Recommender Systems** 
Under Review [Diego Antognini](#) and Boi Faltings
- RecSys 2021 **Recommending Burgers based on Pizza Preferences: Addressing Data Sparsity with a Product of Experts** 
Under Review Martin Milenkoski, [Diego Antognini](#), Claudiu Musat
- AAAI 2020 **Multi-Gradient Descent for Multi-Objective Recommender Systems** 
Workshop Nikola Milojkovic, [Diego Antognini](#), Giancarlo Bergamin, Boi Faltings, Claudiu Musat
- LREC 2020 **HotelRec: a Novel Very Large-Scale Hotel Recommendation Dataset** 
[Diego Antognini](#) and Boi Faltings
- LREC 2020 **GameWikiSum: a Novel Large Multi-Document Summarization Dataset** 
[Diego Antognini](#) and Boi Faltings
- EMNLP 2019 **Learning to Create Sentence Semantic Relation Graphs for Multi-Doc Summarization** 
Workshop [Diego Antognini](#) and Boi Faltings

Talks (Selected)

- 2021 **Interacting with Explanations through Critiquing**
1) IJCAI 2021, Online; 2) University of Toronto, Online; 3) Swisscom Lab, Online.
- Multi-Dimensional Explanation of Target Variables from Documents**
AAAI 2021, Online.
- 2020 **T-RECS: a Recommender Generating Explanations and Integrating Critiquing**
ECAI 2020, Online.
- Multi-Dimensional Explanation of Ratings from Reviews**
1) University of Zürich, Zürich; 2) NLP Meetup , Zürich; 3) Swisscom AI, Online.
- 2019 **Learning to Create Sentence Semantic Relation Graphs for Multi-Doc. Summarization**
EMNLP 2019, Hong-Kong.
- Introduction to Dialogue Systems**
University of Applied Sciences HE-Arc, Neuchâtel.
- 2018 **Constraint Satisfaction Problem**
Artificial intelligence course at EPFL, Lausanne.
- 2017 **From Relation Extraction to Knowledge Graphs**
1) NLP Meetup, Zürich; 2) NLP course at EPFL, Lausanne; 3) HE-Arc, Neuchâtel.

Skills

Software: Python, PyTorch, spaCy, Tensorflow, Spark, C++, CUDA, Java, SQL, PHP, HTML/CSS.
Miscellaneous: Git, PyCharm, IntelliJ IDEA, Astah, Balsamiq Mockups, Visual Studio, Eclipse.

References

Prof. Boi Faltings

Full Professor, CS,
Thesis advisor,
EPFL, Switzerland.
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Dr. Claudiu Musat

Director of research,
Data, Analytics and AI,
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Prof. Willy Zwaenepoel

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University of Sydney, Australia.
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Projects (Before Ph.D.)

- 2016 - 2017 **From Relation Extraction to Knowledge Graphs** *lprova* | M.Sc. thesis (Dr. J-C Chappelier)
Sept. - Mar. *Machine learning, Natural language processing, Knowledge Graphs*
This master thesis tackles the problem of building a Knowledge Graph of concepts using Relation Extraction from texts. Concepts consist of short phrases made of adjectives and nouns. The first part of the work relates to developing different models (CNN, RNN, Bi-RCNN) to classify the semantic relationship among two concepts (Relation Classification). The second part of this work focuses on building a dataset containing the type of relations *lprova* is interested in, train our best model on it and apply it on concepts with sentences extracted from different corpora in order to build representative Knowledge Graphs from them. Finally, this kind of Knowledge Graph currently does not exist (at least publicly) up to our knowledge. We bring a tool to model domains of interest, providing related concepts with relations among them and a state of the art model for the Relation Classification task of *SemEval-2010 Task 8*.
- 2016 **Hurricane** EPFL | Semester project (Prof. Willy Zwaenepoel)
Feb. - Jun. *Distributed systems, C++, Thrift, ZeroMQ*
Hurricane is a scalable decentralized system that aggregates secondary storage devices in a cluster with the aim of supporting parallel scans of data stored across them. Hurricane spreads input and output data uniformly at random and leverages the absence of order between data blocks to seamlessly balance load and mitigate the effect of stragglers. Hurricane is implemented with an HDFS-like RPC interface to facilitate interoperability and show that the resulting system is scalable and seamlessly achieves I/O balance at near-maximal bandwidth.
- 2014 **NeoBrain - Computing neuronal maps** HE-Arc | B.Sc. thesis (Prof. Cédric Bilat)
Mar. - Jul. *GPU programming with CUDA, Computer graphics, C++*
The goal of NeoBrain was to use MRI and MEG scans jointly to produce 3D brain models with neuronal activity animation directly on the cerebral cortex. We developed a multi-GPUs algorithm to compute an accurate 3D real-time rendering of the brain's electromagnetic activities. We achieved a speedup of 100K, reducing computation time from 20h to 700ms.
- 2015 **Optimized flocking algorithm for e-pucks** EPFL | course Distributed intelligent systems
Oct. - Dec. *Robotic, Swarm, Flocking, Reynolds, Particle Swarm Optimization, C*
We implemented, tested, analyzed, and optimized a flocking algorithm for e-pucks robots. The algorithm provided the robots with the ability 1) to avoid obstacles while retaining the collective formation, and 2) to maintain collective formation while two different flocks of robots cross each other, moving in opposite directions. Particle swarm optimization was used to optimize behavior. We showed that our algorithm supported more than 20 robots. Additionally, the swarm moved into a coherent and fluent movement.
- 2015 **Image classification** EPFL | course Pattern classification and machine learning
Nov. - Dec. *Machine learning, Matlab*
The purpose of this project was to classify images into one of the four categories: it contains an airplane, it contains a car, it contains a horse, or other. The prediction was made for 15,000 images with an error of 8%. We have used the histogram of oriented gradients and OverFeat ImageNet CNN features as features in order to distinguish them. Best models we obtained used neural networks and SVM.
- 2014 **Facial recognition among profiles** HE-Arc | course Image processing
Mar. - May *Machine learning, Image processing, Qt, C++*
We designed a neural model to detect whether a person wore sunglasses using a set of profile pictures of different people. Each one of them had pictures with different head positions, humor, and with/without sunglasses. Our model had a success rate near 95%.
- 2014 **Recommender System challenge** HE-Arc | Semester project
Feb. - Mar. *Machine learning, Recommender system, Natural language processing, Java*
Third task of the challenge of European Semantic Web Conference on a Top-N recommendation of books. We ended up fourth out of eleven teams.
- 2013 - 2014 **Social Recommendation System** HE-Arc | Semester project
Sept. - Feb. *Machine learning, Recommender system, Natural language processing, Python*
Recommender systems for events based on user's data and Facebook profiles.