Daniele **Grattarola**

Ph.D. Student · Machine learning

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Summary

I am a Ph.D. student in machine learning from Univeristà della Svizzera italiana (Lugano, Switzerland).
My research focuses on predicting and controlling anomalies on graphs. I mostly work with graph neural networks and reinforcement learning, with applications in neuroscience. I like to code in Python and Tensorflow, and I am the main developer of Spektral, an open source library for deep learning on graphs.

Education

Ph.D. student. *Lugano, Switzerland*

Università della Svizzera italiana *Nov. 2017 - Now*

- **Machine learning** for relational data. Researching a methodology for predicting, localising, and controlling anomalies on graphs.
- Research interests include **graph neural networks**, **neuroscience** and epilepsy, and **non-Euclidean geometry**.
- Advisors: Prof. C. Alippi (U. della Svizzera italiana, Politecnico di Milano), Prof. L. Livi (U. of Manitoba, U. of Exeter).

M.Sc. in Computer Science and Engineering, *cum laude*. *Milan, Italy*

Politecnico di Milano *Sep. 2015 - Oct. 2017*

- Thesis: "Deep Feature Extraction for **Sample-Efficient Reinforcement Learning**" (supervised by Prof. M. Restelli).
- Coursework: machine learning, AI, game theory, recommender systems, natural language processing, software engineering.

B.Sc. in Computer Science and Engineering. *Milan, Italy*

Politecnico di Milano *Sep. 2012 - Jun. 2015*

Publications

Autoregressive Models for Sequences of Graphs. *IJCNN (2019)*

D. Zambon, D. Grattarola, L. Livi, C. Alippi. `arxiv.org/abs/1903.07299`

Graph Neural Networks with Convolutional ARMA Filters. *Under review (2019)*

F. M. Bianchi, D. Grattarola, L. Livi, C. Alippi. `arxiv.org/abs/1901.01343`

Adversarial Autoencoders with Constant Curvature Latent Manifolds. *Applied Soft Computing (2019)*

D. Grattarola, L. Livi, C. Alippi. `arxiv.org/abs/1812.04314`

Change Detection in Graph Streams by Learning Graph Embeddings on Constant Curvature Manifolds. *Under review (2018)*

D. Grattarola, D. Zambon, C. Alippi, L. Livi. `arxiv.org/abs/1805.06299`

Content-Based Approaches for Cold-Start Job Recommendations. *ACM Recsys Challenge (2017)*

M. Bianchi, F. Cesaro, F. Ciceri, M. Dagrada, A. Gasparin, D. Grattarola, I. Inajjar, A. M. Metelli, L. Cella. `dx.doi.org/10.1145/3124791.3124793`

Experience

Spektral. `danielegrattarola.github.io/spektral`

Developed an open source Python library for creating graph neural networks in Tensorflow/Keras, focusing on ease of use and quick deployment.

Supervisor for Master's thesis.

"Predicting Epileptic Seizures from Intracranial Electroencephalogram Signals." - A. Ruggeri

Representative of Ph.D. students (a.y. 18/19).

Acted as official point of contact between USI's Faculty of Informatics and its Ph.D. students, participating in faculty meetings and contributing to the strategical decisions of the faculty.

Reviewer.

Reviewed articles for top journals and conferences, including JMLR, IEEE TNNLS, Elsevier ASOC, and IJCNN.

Skills

Programming	Python, JavaScript, Java
ML tools	TensorFlow, Keras, Numpy, Scikit-learn, Pandas
Tech stack	Ubuntu, PyCharm, Git
Languages	Italian (native), English (C2), Spanish (A2)