\*\* Postdoc position in Geometric Methods for Machine Learning and

Deep Learning at RIST \*\*

Subject: Postdoc position in Machine Learning (1 year, renewable up to 2 years)

Institution: RIST - Romanian Institute of Science and Technology, Cluj-Napoca

Keywords: Geometry of Latent Spaces, Optimization over Manifolds, Information Geometry, Natural Gradient, Riemannian Geometry

Application deadline: 10 January 2019 (applicants are encouraged to apply earlier)

Salary: around 2200 euro net

The Romanian Institute of Science and Technology (RIST) has an opening for a postdoc position, in the context of the DeepRiemann project ?Riemannian Optimization Methods for Deep Learning?, funded by European structural funds through the Competitiveness Operational Program (POC 2014-2020). The appointments will be for 1 year, with possible extensions up to 2 years.

The DeepRiemann project aims at the design and analysis of novel training algorithms for Neural Networks in Deep Learning, by applying notions of Riemannian optimization and differential geometry. The task of the training a Neural Network is studied by employing tools from Optimization over Manifolds and Information Geometry, by casting the learning process to an optimization problem defined over a statistical manifold, i.e., a set of probability distributions. The project is highly interdisciplinary, with competences spanning from Machine Learning to Optimization, Deep Learning, Statistics, and Differential Geometry. The objectives of the project are multiple and include both theoretical and applied research, together with industrial activities oriented to transfer knowledge, from the institute to a startup or spin-off of the research group.

The positions will be part of the new Machine Learning and Optimization group <u>https://rist.ro/en/teams.html</u>, which performs research at the intersection of Machine Learning, Stochastic Optimization, Deep Learning, and Optimization over Manifolds, using geometric methods based on Information Geometry. The group is one of two newlyformed groups in Machine Learning at RIST. The official job announcement can be seen here: https://rist.ro/postdoc-position-in-deep-learningand-machine-learning/

Informal inquiries can be sent to Dr. Luigi Malagò <<u>malago@rist.ro</u>>, principal investigator of the DeepRiemann project.

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