

DIBRIS PhD Summer Course:

MLCI 2016

Machine Learning

**A Computational Intelligence
Approach**



S.H.R.O.



MLCI 2016 – Schedule

Monday, 20 June

10.00 - 13.00 **Francesco Masulli**, DIBRIS, University of Genova, Italy

Course organization – Introduction to Computational Intelligence and to Fuzzy Sets.

14.30 - 15.30 **Elena Bertozzi**, Quinnipiac University, Connecticut (USA)

Help Me Help Myself - Using Play to Empower Players and Motivate Pro-health Behaviors

15.30 - 17.30 **Stefano Rovetta**, DIBRIS, University of Genova, Italy

Artificial neural networks. Perceptual problems. Single-unit neural networks. The problem of classification: Bayes decision theory.

Tuesday, 21 June

10.00 - 13.00 **Stefano Rovetta**, DIBRIS, University of Genova, Italy

Characterization and evaluation of classifiers. Discriminative and generative classifiers. Sequential data. Classification of sequences. Learning as optimization. Representation problems.

14.00-15.00 **Nikesh Bajaj**, PhD Student, DITEN, University of Genova, Italy

Ensemble approaches for classification and regression.

15.00 – 17.00 **Francesco Masulli**, DIBRIS, University of Genova, Italy

Unsupervised learning: the clustering problem.

MLCI 2016 – Schedule

Wednesday, 22 June

10.00 – 13.00 **Francesco Masulli**, DIBRIS, University of Genova, Italy

Fuzzy clustering.

14.00 – 15.00 **Bukahally S. Harish**, S. J. College of Engineering, Mysore, India

Cluster Based Symbolic Representation and Feature Selection for Text Classification.

15.00 – 16.00 **Amr Abdullatif**, *PhD Student*, DIBRIS, University of Genova, Italy

Clustering methods to model and analyze non-stationary data streams and its applications.

16.00 -17.00 **Stefano Rovetta**, DIBRIS, University of Genova, Italy

Multi-layer neural networks. The error back-propagation algorithm. Principal Component Analysis and subspace methods. Autoencoders.

Thursday, 23 June

10.00 – 13.00 **Stefano Rovetta**, DIBRIS, University of Genova, Italy

Restricted Boltzmann Machines and Deep learning. Other feature learning methods.

14.00 – 15.00 **Bukahally S. Harish**, S. J. College of Engineering, Mysore, India

Symbolic Representation of Text Document.

15.00 - 16.00 **Francesco Masulli**, DIBRIS, University of Genova, Italy

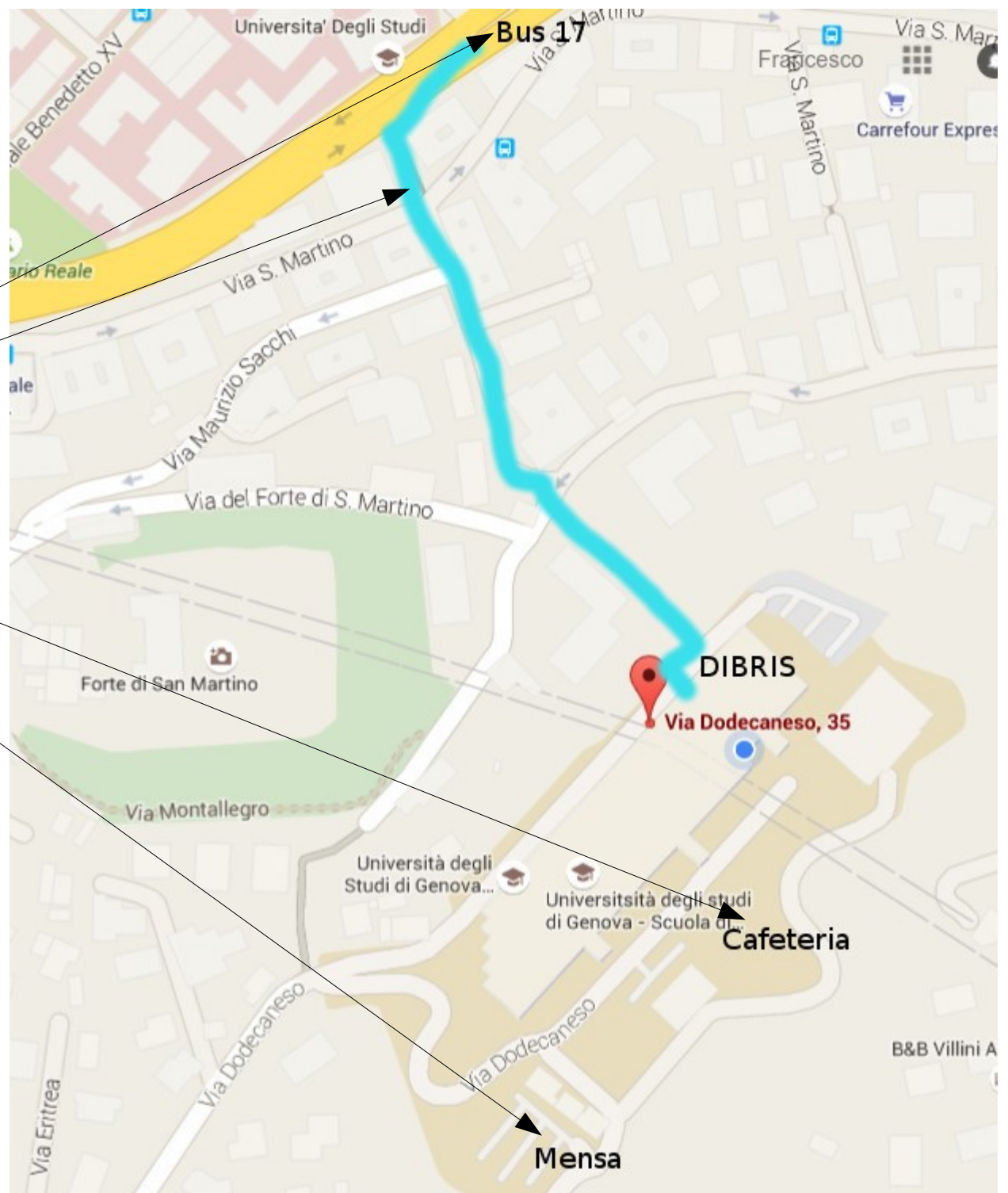
Kernel clustering. Spectral clustering.



Coffee: Vending machine
5th floor

Lunch:

Mensa:
soup + main course +
dessert = 6.5 Eur (on 2015)
(free beverage included)



Web page of the course

<https://dottorati.aulaweb.unige.it/course/view.php?id=155>

Lecture and paper collections will be also available at:

<http://www.disi.unige.it/person/MasulliF/lectures/ML-CI/>

Credits:

6 credits with the DIBRIS metric == 2 credits according to the ECTS grading scale.

Daily attendance signatures



Attendance attestation (on Thursday 23rd)

If you need an **evaluation**, the exam will consist in a sw project or in a seminar on a topic related to the course and possibly to your PhD project

Please contact us during or after the course for defining it.

Exam tentative date: Sept 15 2016 (in person or by skype call)