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| Title of the doctoral program |
| Computer and control engineering |
| Title of the research activity |
| Sparse and large-scale optimization methods with applications in machine learning and system identification |
| Short description of the research activity |
| <p>Important problems arising in diverse applicative fields such as medical imaging, computational biology, text analytics and system identification, require the processing and optimization over extremely large data sets ("big data" problems). Standard numerical techniques that are effective and reliable on medium-scale problems may well fail in practice when applied to very large scale problems, due to obvious issues of memory requirements and time to convergence. These problems require ad-hoc theory and algorithms.</p> <p>In this Ph.D. program, the candidate is expected to investigate advanced methodologies for large-scale optimization, with special emphasis on fast techniques for sparse optimization. Applications will include categorization and summarization of large textual sets (e.g., sentiment analysis on text data from Twitter), and identification of unknown models from data, where the model structure is unknown but expressed in the form of a large/huge-scale expansion of basis models, and sparsity arises since we seek a representation which is parsimonious in the basis cardinality.</p> |
| Scientific responsible (name, surname, role, email) |
| Giuseppe Calafiore, Full professor; giuseppe.calafiore@polito.it |
| Number of vacancies for XXXI cycle (3 years program) |
| 1 |
| Specific requirements (experiences, skills) |
| Basic knowledge of linear algebra, optimization, algorithms and computer programming (including matlab) is required. |
| Website of the research group (if any) |

http://www.dauin.polito.it/research/research_groups/sds_systems_and_data_science

http://staff.polito.it/giuseppe.calafiore/Home_Page/Home.html