Lorenzo Stella

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General information

Born | December 12, 1985 in Bagno a Ripoli, Florence (Italy)

Nationality | Italian, USA

Professional Experience

Sept 2015 – now | Visiting PhD student at KU Leuven, Leuven (Belgium), Departement Elektrotechniek (ESAT), Stadius division. www.esat.kuleuven.be/stadius

Teaching assistant for the Optimization class (exercises and laboratory sessions).

Feb 2013 – now | PhD student at IMT School for Advanced Studies, Lucca (Italy). www.imtlucca.it

Convex optimization, operator splitting methods. Derivation, analysis and implementation of line-search methods based on the concept of *splitting envelope* function, to tackle nonsmooth (possibly constrained) optimization problems (both convex and nonconvex) with classical smooth unconstrained techniques. Applications to optimal control problems, distributed optimization and large-scale problems arising in machine learning, image processing.

2011 – 2012 | Research Analyst at COSBI, Trento (Italy). www.cosbi.eu

Analysis and simulation of stochastic models in systems biology (PK/PD, metabolic networks). Inference and analysis of gene regulatory networks. Development of tools for stochastic simulation and network analysis in C#, Python and MATLAB languages.

Education

2008 – 2011 | MSc in Computer Science, University of Florence, 110/110 cum laude.

Thesis, supervised by Prof. Luigi Brugnano:

Efficient methods for the numerical solution of Hamiltonian problems

Analysis of the effectiveness of numerical methods for differential equations with respect to the preservation of qualitative properties of the simulated system, with particular attention to energy conservation in the case of Hamiltonian systems and to the efficient implementation of such techniques, using a framework developed *ad hoc* in C.

2004 – 2008 | BSc in Computer Science, University of Florence, 110/110.

Thesis, supervised by Prof. Luigi Brugnano:

Numerical methods in Linear Algebra with applications to Google's Pagerank

Study of the *random surfer* model and possible approaches to the calculation of the stationary point of the Markov chain associated with it, with the aim of combining modeling and mathematical aspects of the problem with those of its efficient resolution on a computer. The approaches and algorithms presented were compared on the basis of experimental results obtained with MATLAB implementations.

Publications

(Google Scholar: scholar.google.com/citations?user=Y3ag8YsAAAAJ)

2016 Lorenzo Stella, Andreas Themelis, and Panagiotis Patrinos. Forward-backward quasi-Newton methods for nonsmooth optimization problems. *ArXiv preprint*, 2016

Puya Latafat, Lorenzo Stella, and Panagiotis Patrinos. New primal-dual proximal algorithms for distributed optimization. *Submitted to the 55th IEEE Conference on Decision and Control*, 2016

2014 Panagiotis Patrinos, Lorenzo Stella, and Alberto Bemporad. Douglas-Rachford splitting: complexity estimates and accelerated variants. *Proceedings of the 53rd IEEE Conference on Decision and Control*, 2014

Panagiotis Patrinos, Lorenzo Stella, and Alberto Bemporad. Forward-backward truncated Newton methods for convex composite optimization. *ArXiv preprint*, 2014

2013 Marco Scotti, Lorenzo Stella, Emily J. Shearer, and Patrick J. Stover. Modeling cellular compartmentation in one-carbon metabolism. *Wiley Interdisciplinary Reviews: Systems Biology and Medicine*, 2013

Technical skills

Programming Excellent knowledge of C, Python, MATLAB. Good skills in Java, C++, C#. Familiar with Haskell, Scheme, Perl, Fortran. Experience with the Git version control system, the Cppunit unit testing framework and continuous integration tools.

Software projects

(GitHub: github.com/lostella)

ForBES Generic and efficient MATLAB solver for nonsmooth optimization problems.
Web page: kul-forbes.github.io/ForBES

libForBES Framework in C++ for modeling and solving large-scale convex and nonconvex optimization problems.
Web page: kul-forbes.github.io/libForBES

Languages

Italian Native

English Full professional proficiency

Updated June 12, 2016