Lorenzo Stella

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Professional Experience

Feb 2013 – now PhD student at IMT School for Advanced Studies, Lucca (Italy) `www.imtlucca.it` and KU Leuven, Leuven (Belgium). `www.esat.kuleuven.be/stadius`

Nonsmooth optimization algorithms, applications to optimal control, distributed optimization, large-scale machine learning, image processing. Teaching assistant, exercises and laboratory sessions for the "Optimization" class, taught by Panos Patrinos, at KU Leuven.

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 M.S. in Computer Science, University of Florence. Final grade: 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 ODEs with respect to the conservation of energy in the case of Hamiltonian systems. Efficient implementation of such techniques using a framework developed in C.

2004 – 2008 B.S. in Computer Science, University of Florence. Final grade: 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 computation of the stationary point of the associated Markov chain. Experimental results obtained with Matlab simulations.

Publications

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

2016 A. Themelis, L. Stella, and P. Patrinos, *Forward-backward envelope for the sum of two nonconvex functions: Further properties and nonmonotone line-search algorithms*, ArXiv preprint, (2016)

L. Stella, A. Themelis, and P. Patrinos, *Forward-backward quasi-Newton methods for nonsmooth optimization problems*, ArXiv preprint, (2016)

P. Latafat, L. Stella, and P. Patrinos, *New primal-dual proximal algorithms for distributed optimization*, Accepted to the 55th IEEE Conference on Decision and Control, Las Vegas, NV, USA, (2016)

2014 P. Patrinos, L. Stella, and A. Bemporad, *Douglas-Rachford splitting: complexity estimates and accelerated variants*, Proceedings of the 53rd IEEE Conference on Decision and Control, Los Angeles, CA, USA, (2014)

——, *Forward-backward truncated Newton methods for convex composite optimization*, ArXiv preprint, (2014)

Talks and seminars

Nov. 2015 "Proximal quasi-Newton methods for nonsmooth composite optimization problems," at the KU Leuven Optimization in Engineering Center (OPTEC), Spa, Belgium.

Jul. 2015 "Accelerated L-BFGS for large scale nonsmooth convex optimization," at the 22nd International Symposium on Mathematical Programming (ISMP 2015), Pittsburgh, PA, USA.

Dec. 2014	"Douglas-Rachford splitting: complexity estimates and accelerated variants," at the 53rd IEEE Conference on Decision and Control (CDC 2014), Los Angeles, CA, USA.

Software projects

ForBES	MATLAB solver for nonsmooth optimization, contains a library of mathematical functions to formulate problems arising in control, machine learning, image and signal processing. Web page: `kul-forbes.github.io/ForBES`
libForBES	C++ framework for modeling and solving large-scale nonsmooth optimization problems, allows to interface many high-level languages (including R, PYTHON, JULIA) to a unique solver capable of addressing nonsmooth problems from several application fields. Web page: `kul-forbes.github.io/libForBES`
libLBFGS	C library providing the structures and routines to implement the limited-memory BFGS algorithm (L-BFGS) for large-scale smooth unconstrained optimization. Contains a MEX interface to MATLAB. Web page: `github.com/lostella/libLBFGS`

Programming skills

Proficient	C, MATLAB, PYTHON, JULIA, JAVA, C++
Familiar	C#, HASKELL

Languages

English	Native
Italian	Native

Updated August 4, 2016