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

ProximalOperators.jl	Julia package to compute the proximal operator of several functions commonly used in nonsmooth optimization problems. Useful as building block to implement large scale optimization algorithms such as ADMM. Web page: `github.com/kul-forbes/ProximalOperators.jl`
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 October 26, 2016