Lorenzo Stella

Born	December 12, 1985	Address	ESAT, KU Leuven	Email	lorenzo.stella@imtlucca.it
In	Florence (Italy)		Kasteelpark Arenberg 10		lstella@esat.kuleuven.be
Nationality	Italian, American		3001 Leuven, Belgium	Web	lostella.github.io

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, exercises and laboratory sessions for the Optimization class (H03E3a, taught by Panos Patrinos).

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 M.S. 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 ODEs with respect to the conservation of energy in the case of Hamiltonian systems. Efficient implementation of such techniques, using a framework developed *ad hoc* in C.

2004 – 2008 B.S. 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. 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 Andreas Themelis, Lorenzo Stella, and Panagiotis Patrinos. Forward-backward envelope for the sum of two nonconvex functions: Further properties and nonmonotone line-search algorithms. *ArXiv preprint*, 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. *ArXiv preprint*, 2016

2014 Panagiotis Patrinos, Lorenzo Stella, and Alberto Bemporad. Douglas-Rachford splitting: complexity estimates and accelerated variants. *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. Proficient in Java, C++, C#. Familiar with Haskell, Scheme, Perl, Fortran.

Experience with Git for version control system, Cppunit for unit testing and Travis-CI for continuous integration.

Software projects

(GitHub: `github.com/lostella`)

ForBES Generic and efficient Matlab solver for nonsmooth optimization problems. The solver is provided with a library of mathematical functions used in applications, along with their gradient and proximal operations.

Web page: `kul-forbes.github.io/ForBES`

libForBES Framework in C++ for modeling and solving large-scale nonsmooth optimization problems. Started as a low-level implementation of ForBES, to overcome the drawbacks of Matlab, it will allow to interface many high-level languages (including R, Python, Julia) to a unique solver capable of addressing nonsmooth optimization problems from several application fields.

Web page: `kul-forbes.github.io/libForBES`

Languages

Italian Native

English Native

Updated June 20, 2016