Lorenzo Stella

Email lorenzostella@gmail.com
Web lostella.github.io
GitHub github.com/lostella

Education

2013 – now | PhD in Computer, Decision and Systems Science, IMT Lucca (Italy), jointly with ESAT – Department of Electrical Engineering, KU Leuven (Belgium).

Supervisors: Panos Patrinos (KU Leuven), Alberto Bemporad (IMT Lucca). Algorithms for large-scale nonsmooth optimization problems, with applications to optimal control, distributed optimization, machine learning, image processing, recommender systems.

2008 – 2011 | MSc in Computer Science, University of Florence (Italy).

2004 – 2008 | BSc in Computer Science, University of Florence (Italy).

Experience

Fall 2015 | Teaching assistant, optimization course (by Panos Patrinos), KU Leuven (Belgium).

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

Analysis and simulation of stochastic models in systems biology (PK/PD, metabolic, gene regulatory networks). Collaboration with researchers and programmers to develop tools for the stochastic simulation of biological systems (**link**).

Publications

Google Scholar profile: **link**

2017 | L. Stella, A. Themelis, and P. Patrinos. Forward-backward quasi-Newton methods for nonsmooth optimization problems. *Computational Optimization and Applications*, April 2017. Online: **link**

L. Stella, A. Themelis, P. Sopasakis, and P. Patrinos. A simple and efficient algorithm for nonlinear model predictive control. Submitted, March 2017

L. Stella, A. Themelis, and P. Patrinos. Newton-type alternating minimization algorithm for convex optimization. Submitted, February 2017

2016 | P. Latafat, L. Stella, and P. Patrinos. New primal-dual proximal algorithm for distributed optimization. In *55th IEEE Conference on Decision and Control (CDC)*, pages 1959–1964, December 2016. Online: **link**

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 e-prints*, June 2016. Online: **link**

2014 | P. Patrinos, L. Stella, and A. Bemporad. Douglas-Rachford splitting: Complexity estimates and accelerated variants. In *53rd IEEE Conference on Decision and Control (CDC)*, pages 4234–4239, December 2014. Online: **link**

P. Patrinos, L. Stella, and A. Bemporad. Forward-backward truncated Newton methods for convex composite optimization. *ArXiv e-prints*, February 2014. Online: **link**

Programming skills

MATLAB	I worked with MATLAB since my BSc and used it on a daily basis during my PhD to implement **optimization algorithms** and perform numerical simulations.
JULIA	I worked with JULIA since Summer 2016 and used it ever since. I **contribute** to the package ecosystem, and intend to keep working with JULIA as I generally prefer it over MATLAB.
PYTHON	I am proficient with the language, although it rarely was the main tool in my workflow. I am particularly interested in working with modern numerical and ML frameworks such as TensorFlow, Caffe, Theano.
C	I am fully proficient with the language and often use it to implement efficient routines when this is not possible with high-level languages, like **in this case**.

Software projects

GitHub profile: **link**

Proximal Operators.jl	JULIA package to compute the proximal operator of several functions commonly used in optimization. The purpose is to have a toolbox of efficiently implemented operators, to be used as building blocks for large scale, nonsmooth optimization algorithms such as (fast) proximal gradient methods, ADMM, and primal-dual splitting algorithms. Web page: `github.com/kul-forbes/ProximalOperators.jl`
ForBES	MATLAB framework to develop solvers for nonsmooth optimization, contains a library of mathematical functions to formulate problems arising in control, machine learning, image and signal processing. Contains novel, efficient, Newton-type algorithms for nonsmooth problems based on my PhD research. Web page: `kul-forbes.github.io/ForBES`

Languages

Native	English, Italian
Elementary	German