Selime Gürol

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Personal Information

Date of Birth	**12 October 1981**.
Place of Birth	**Wiesbaden, Germany**.
Nationality	**Turkish**.
Languages	**Turkish (native), English (fluent), French (intermediate)**.

Education

2010–2013	**PhD Fellow**, CERFACS, France.
title	Solving regularized nonlinear least-squares problem in dual space (with application to variational data assimilation)
supervisors	Serge Gratton (ENSEEIHT, France) and Philippe Toint (FUNDP, Belgium)
2003–2005	**M.Sc. in Scientific Computing**, *Institute of Applied Mathematics*, METU, Turkey.
title	Statistical learning and optimization methods to improve landscape image clustering and classification
supervisors	Hakan Öktem (METU, Turkey) and Bülent Karasözen (METU, Turkey)
1999–2003	**B.Sc. in Mathematics**, *Department of Mathematics*, Ankara University, Turkey.

Professional Experience

2014–present	**Senior Researcher**, Parallel Algorithms team, CERFACS (Centre Européen de Recherche et de Formation Avancé en Calcul Scientifique), Toulouse, France.
description	I am working on the projects related with *data assimilation and optimization*
2013–2014	**PostDoc**, ECMWF, Reading, UK.
description	Designing preconditioners for saddle point systems and implementing minimization algorithms into Object Oriented Prediction System (OOPS) software platform.
February, 2012	**Invited scientific visitor**, *Global Modeling and Assimilation Office*, NASA, USA.
description	Clarification of technical issues on minimization algorithms for 4D-VAR data assimilation problems and implementation of the Ritz-Limited Memory preconditioner

2005–2010	**Senior Researcher**, *Signal Processing and Remote Sensing Group*, TUBITAK Space Technologies of Research Institute, Turkey.
description	Responsible for the geometric and radiometric calibration of satellite images from the BILSAT, RASAT and GK2 Earth Observation satellites. Project coordinator of CONTROLS (COmparisons to maiNtain TRaceability for OpticaL Sensors) project financed by the European Space Agency.

Computer skills

Programming Languages	Matlab, Scilab, Fortran 90, C++, Python
Softwares	Latex, Beamer, ERDAS (Remote sensing software), PCI (Remote sensing software)
Operating Systems	Linux Variants, Windows Variants

Refereed Journal Publications

A. M. Moore, C. A. Edwards, J. Fiechter, P. Drake, H. G. Arango, E. Neveu, S. Gürol, and A. T. Weaver. A 4D-Var Analysis System for the California Current: A Prototype for an Operational Regional Ocean Data Assimilation System. In S. K. Park and Liang Xu, editors, *Data Assimilation for Atmospheric, Oceanic and Hydrological Applications*. Springer, 2013.

A. T. Weaver, S. Gürol, J. Tshimanga, M. Chrust, and A. Piacentini. Time-parallel diffusion-based correlation operators. *Quarterly Journal of the Royal Meteorological Society*, 2018.

S. Gratton, S. Gürol, E. Simon, and Ph. L. Toint. A note on preconditioning weighted linear least squares, with consequences for weakly-constrained variational data assimilation. *Quarterly Journal of the Royal Meteorological Society*, 2018.

S. Gratton, S. Gürol, E. Simon, and Ph. L. Toint. Guaranteeing the convergence of the saddle formulation for weakly-constrained 4D-VAR data assimilation. *Quarterly Journal of the Royal Meteorological Society*, 2018.

F. Mercier, S. Gürol, P. Jolivet, Y. Michel, and T. Montmerle. Block Krylov methods for accelerating ensembles of variational data assimilations. *Quarterly Journal of the Royal Meteorological Society*, 2017.

M. Fisher and S. Gürol. Parallelisation in the time dimension of four-dimensional variational data assimilation. *Quarterly Journal of the Royal Meteorological Society*, 143(703):1136–1147, 2017.

J. Mandel, E. Bergou, S. Gürol, and S. Gratton. Hybrid Levenberg–Marquardt and weak-constraint ensemble Kalman smoother method. *Nonlinear Processes in Geophysics Discussions*, 23(2):59–73, 2016.

M. Fisher, S. Gratton, S. Gürol, Y. Trémolet, and X. Vasseur. Low rank updates in preconditioning the saddle point systems arising from data assimilation problems. *Optimization Methods and Software*, 33(1):45–69, 2018.

E. Emili, S. Gürol, and D. Cariolle. Accounting for model error in air quality forecasts: an application of 4DEnVar to the assimilation of atmospheric composition using QG-Chem 1.0. *Geoscientific Model Development*, 9(11):3933–3959, 2016.

S. Gürol, A. T. Weaver, A. M. Moore, A. Piacentini, H. G. Arango, and S. Gratton. B Preconditioned Minimization Algorithms for Variational Data Assimilation with the Dual Formulation. *Quarterly Journal of the Royal Meteorological Society*, 140(679), 2014.

S. Gratton, S. Gürol, and Ph. L. Toint. Preconditioning and globalizing conjugate gradients in dual space for quadratically penalized nonlinear-least squares problems. *Computational Optimization and Applications*, 54:1–25, 2013.

S. Gürol, I. Behnert, H. Özen, A. Deadman, N. Fox, and U. M. Leloğlu. Tuz gölü: new CEOS reference standard test site for infrared visible optical sensors. *Canadian Journal of Remote Sensing*, 36(5):553–565, 2010.