

Cari Colleghi,

comunico la mia intenzione a candidarmi come membro del Consiglio Scientifico del Gruppo Nazionale di Calcolo Scientifico.

Valutando che lo sviluppo del Calcolo Scientifico non può e non potrà prescindere da una forte interazione tra competenze di Analisi Numerica e di Informatica, soprattutto sulle tematiche di ricerca emergenti, il mio eventuale impegno nel Consiglio Scientifico sarà rivolto a promuovere attività che contribuiscano ad aumentare le collaborazioni tra i ricercatori del gruppo, al fine di accrescerne le potenzialità e valorizzarne il ruolo a livello nazionale e internazionale.

Ritengo che i membri del Consiglio Scientifico possano contribuire a raggiungere questi obiettivi operando in modo sinergico e supportando le iniziative di qualità presenti in tutte le aree di interesse del gruppo.

Allego il mio CV.

Cordiali saluti
Luca Zanni

CURRICULUM VITAE

Luca Zanni

Personal Data

Name: Luca Zanni
Citizenship: Italian
Date of Birth: August 22, 1965
Address: Dipartimento di Scienze Fisiche, Informatiche e Matematiche
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Current positions

- Professor, Numerical Analysis, Dipartimento di Scienze Fisiche, Informatiche e Matematiche, Università di Modena e Reggio Emilia, Italy

Academic career

1990: Laurea (cum laude) in Mathematics, University of Modena, Italy
1992 - 2000: Researcher in Numerical Analysis, Department of Mathematics, University of Modena, Italy
2000 – 2005: Associate Professor of Numerical Analysis, Department of Mathematics, University of Modena and Reggio Emilia, Italy
2005 – present: Full Professor of Numerical Analysis, Department of Mathematics, Affiliation after 2012: Department of Physics, Computer Science and Mathematics University of Modena and Reggio Emilia, Italy

Scientific Activity

The main research fields are mathematical programming, parallel computing, statistical learning and inverse problems. In the field of mathematical programming, theoretical and computational results are obtained for gradient projection iterative methods for variational inequalities and nonlinear programming problems. Furthermore, results on the numerical stability of direct elimination methods for quadratic programming and least squares problems are also obtained. In the fields of statistical learning, new methods have been introduced for the solution of large-scale optimization problems, such as those arising in training the learning methodology Support Vector Machines. Numerical solvers for the optimization problems in regularization approaches to ill-posed inverse problems are designed and applied to improve image deconvolution and denoising techniques.

Scientific performance indicators

- h-index: 17 (Scopus); 16 (WoS); 20 (Google Scholar)
- Total number of citations: 1282 (Scopus); 1051 (WoS); 2161 (Google Scholar)

Honors and Recognitions

- Inverse Problems Highlights of 2013
“On the filtering effect of iterative regularization algorithms for discrete inverse problems”; A Cornelio, F Porta, M Prato and L Zanni, 2013 *Inverse Problems* 29 125013
- Inverse Problems Highlights of 2010
“Nonnegative least-squares image deblurring: improved gradient projection approaches”; F Benvenuto, R Zanella, L Zanni and M Bertero, 2010 *Inverse Problems* 26 025004
- Inverse Problems Highlights of 2009

"A scaled gradient projection method for constrained image deblurring"; S Bonettini, R Zanella and L Zanni, 2009 *Inverse Problems* 25 015002

Coordination of research projects

Projects

- Emilia-Romagna Regional Operative Program 2007-2013, European Social Fund, 'High-complexity inverse problems in biomedical applications and social systems', (2012-2014)
- MIUR PRIN 2008, 'Optimization Methods and Software for Inverse Problems' (unit coordinator)
- MIUR PRIN 2006, 'Inverse Problems in Medicine and Astronomy' (unit coordinator)
- FIRB-Project 2001, 'Statistical Learning: Theory, Algorithms and Applications', (unit coordinator)
- MURST-Project 1997, 'Numerical Analysis: Methods and Mathematical Software' (unit coordinator)

Industrial contracts

- Joint Project iLD (in-Line Devices) - University of Modena and Reggio Emilia, 'Machine Learning Software for Sensor Modelling in Moisture Estimation' (2014)
- Joint Project Expert System S.p.A - University of Modena and Reggio Emilia, 'Machine Learning Algorithms for Text Categorization' (2010)
- Joint Project Edue Italia S.p.A. - University of Modena and Reggio Emilia, 'Machine Learning Technologies for Banknote Recognition' (2006)

Relevant Professional Activities

- Member of the Working Group 7.4 'Inverse Problems and Imaging', International Federation for Information Processing (IFIP) (2014 - present)
- Director, Department of Physics, Computer Science and Mathematics, University of Modena e Reggio Emilia, (2018 - present)
- Member of the Academic Senate, University of Modena e Reggio Emilia, (2018 - present)
- Vice-Director, Department of Physics, Computer Science and Mathematics, University of Modena e Reggio Emilia, (2012-2015)
- Director, Department of Mathematics, University of Modena e Reggio Emilia, (2010-2012)
- Vice-Principal, Facoltà di Scienze Matematiche, Fisiche e Naturali, University of Modena e Reggio Emilia, (2009-2012)
- Vice-Director, Department of Mathematics, University of Modena e Reggio Emilia, (2007-2010)
- Member of the PASCAL1 Network of Excellence (Pattern Analysis, Statistical Modelling and Computational Learning), 2006
- Associate Director, PhD School 'Multiscale Modelling, Computational Simulations and Characterization in Material and Life Sciences', University of Modena e Reggio Emilia (2005-2013)
- Referee for several international journals

Organization of schools, workshops and minisymposia (relevant)

- Minisymposium on "Numerical Optimization and Inverse Problems", THE XXI U.M.I CONGRESS, September 2-7, 2019, Pavia, Italy
- Member of the Scientific Committee: The 3rd International Conference and Summer School on 'Numerical Computations: Theory and Algorithms', June 15-21, 2019, Isola Capo Rizzuto, Italy
- Member of the Technical Program Committee: The 12th Learning and Intelligence OptimizatioN Conference, June 10-15, 2018, Kalamata, Greece
- Minisymposium on "Large scale optimization and applications", THE XIV BIENNIAL SIMAI CONGRESS, July 2-6, 2018, Rome, Italy

- Minisymposium on "Optimization methods for inverse problems in imaging", 18th French-German-Italian Conference on Optimization, September 25-28, 2017, Paderborn, Germany
- Member of the Technical Program Committee: The 11th Learning and Intelligence OptimizatioN Conference, Nizhny Novgorod 19-21 June 2017, Russia
- Member of the Technical Program Committee: The 12th Learning and Intelligent OptimizatioN Conference, Kalamata 10-15 June 2018, Greece
- Member of the Scientific Committee: The 2nd International Conference and Summer School on 'Numerical Computations: Theory and Algorithms', 2016, Pizzo Calabro, Italy.
- Member of the Scientific Committee: Workshop on 'Optimization Techniques for Inverse Problems III', 2016, Modena, Italy.
- Minisymposium on 'First Order Methods and Applications', SIAM Conference on Optimization 2014, San Diego, USA.
- Member of the Scientific Committee: International Workshop on Advances in Regularization, Optimization, Kernel methods and Support vector machines: theory and applications, 2013, Lueven, Belgium.
- Member of the Scientific Committee: Workshop on 'Optimization Techniques for Inverse Problems II', 2012, Modena, Italy.
- Minisymposium on 'Optimization Methods for Inverse Problems in Imaging and Machine Learning', SIMAI 2012, Torino, Italy.
- Minisymposium on 'Optimization-based Approaches in Image Processing', Applied Inverse Problems 2009, Vienna, Austria.
- Member of the Organizing Committee: Workshop on 'Optimization Techniques for Inverse Problems', 2008, Modena
- Member of the Scientific Committee: Second School on 'Computational Cell Biology', 2006, Modena, Italy.
- Member of the Scientific Committee: First School on 'Computational Cell Biology', 2005, Urbino, Italy.

Relevant Invited Talks

- Conference: "Variational Methods and Optimization in Imaging", Institut Henri Poincaré, February 4th-8th 2019, Paris, France
- INDAM intensive period on "Computational Methods for Inverse Problems in Imaging", Como, May 21 – July 20, 2018
- Conference: 'Calcolo scientifico e modelli matematici: alla ricerca delle cose nascoste attraverso le cose manifeste, Dipartimento di Matematica, Università di Como (2018)
- International Conference on Optimization and Decision Science, Sorrento, 4-7 September 2017
- Conference: 'Calcolo scientifico e modelli matematici: alla ricerca delle cose nascoste attraverso le cose manifeste, Dipartimento di Matematica, Università di Genova (2015)
- First French-German Mathematical Image Analysis Conference, Institut Henri Poincaré, Paris, France (2014)
- First Workshop on Optimization for Image and Signal Processing, Ecole Polytechnique Palaiseau, France, (2013)
- Workshop on 'Résolution de problèmes inverses : optimisation et parallélisation', Image, Signal, Information and Systems French Society, CNRS, Paris, France (2012).
- Minisymposium: 'New topics in numerical nonlinear optimization', SIMAI Conference, Roma, Italy (2008)
- Minisymposium: 'Industrial Applications of Nonlinear Programming Algorithms', 21st European Conference on Operations Research, Reykjavik, Iceland (2006).

Software

- SGP-IDL: An Interactive Data Language (IDL) package for the single and multiple deconvolution of 2D images corrupted by Poisson noise, with the optional inclusion of a boundary effect correction, by M. Prato, R. Cavicchioli, L. Zanni, P. Boccacci, M. Bertero (2011). <http://www.unife.it/prin/software>
- SGP-dec: A Matlab package for the deconvolution of 2D and 3D images corrupted by Poisson noise, by R. Zanella, L. Zanni, G. Zanghirati, R. Cavicchioli (2011). <http://www.unife.it/prin/software>

- GPDT: A gradient projection-based decomposition technique for large quadratic programs in training Support Vector Machines: serial and parallel software, by T. Serafini, G. Zanghirati, L. Zanni (2006). <http://dm.unife.it/gpdt/>.
- Software for the numerical evaluation of projection-type methods for large quadratic programs, by E. Galligani, V. Ruggiero L. Zanni (1997). <http://dmi.unife.it/it/ricerca-dmi/gruppi-di-ricerca-1/annum97>

Teaching Activities

- Courses in numerical analysis, numerical optimization, machine learning and parallel computing at the University of Modena and Reggio Emilia
- Supervisor of 7 PhD Thesis in mathematics; about 55 Thesis in mathematics; 7 Thesis in computer science.