CURRICULUM VITÆ

Riccardo Zanella

Personal Data

Name	Riccardo Zanella
born in	Ferrara on January 5th, 1980
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Academic Curriculum

Since 01/01/2014 Researcher (art. 24 c.3-a L. 240/10) at "Department of Mathematics and Computer Science", University of Ferrara, academic discipline MAT/08 (Numerical Analysis).

01/11/2010 - 31/10/2013 Researcher (art.1 comma 14 L. 230/05) at "Laboratorio per le Tecnologie delle Terapie Avanzate" (LTTA), University of Ferrara, academic discipline MAT/08 (Numerical Analysis).

23/03/2010 Designation "Cultore della materia" for the academic discipline MAT/08 (Numerical Analysis) at the Mathematical, Physical and Natural Sciences Faculty of the University of Modena and Reggio Emilia.

01/01/2010 - 31/10/2010 Research Fellow at Department of Mathematics, SSD MAT/08, University of Modena and Reggio Emilia: Regularization techniques for inverse problems: applications in the ICT framework.

01/01/2007 - 31/12/2009 PhD student of the school "Multiscale Modelling, Computational Simulations and Characterization in Material and Life Sciences" at the Mathematics Department of the University of Modena and Reggio Emilia.

01/04/2006 - 31/12/2006 Research Fellow at Engineering Department, SSD ING-INF/03, University of Ferrara. Analysis of multimedia systems.

05/10/2005 - 20/12/2005 Temporary employment contract at Engineering Department, University of Ferrara. Development of interfaces for the simulation system.

Research Projects

FIRB 2012 *Learning meets time: a new computational approach to learning dynamic systems*, coordinator: Dott. Silvia Bonettini.

PRIN 2008 *Optimization Methods and Software for Inverse Problems*, coordinator: Prof. Valeria Ruggiero.

PRIN 2006 *Inverse Problems in Medicine and Astronomy*, coordinator: Prof. Mario Bertero.

ParGAMES ISCRA class C HPC research program Principal Investigator

PANOIP ISCRA class C HPC research program collaborator, (PI Prof. Luca Zanni)

ParJoinv ISCRA class C HPC research program collaborator, (PI Prof. Gaetano Zanghirati)

LaSPIM ISCRA class C HPC research program collaborator, (PI Prof. Gaetano Zanghirati)

Studies

08/03/2010 PhD in "Multiscale Modelling, Computational Simulations and Characterization in Material and Life Sciences" at the Mathematics Department of the University of Modena and Reggio Emilia. Thesis: Scaled Gradient Projection Methods for Image and Signal Reconstruction. Supervisors: Prof. Luca Zanni, Dr. Marco Prato.

13/10/2005 Second level Eng. Degree summa cum laude in Telecommunication Engineering, University of Ferrara.

19/12/2002 First level Eng. Degree summa cum laude in Telecommunication and Electronic Engineering, University of Ferrara.

Visiting Periods

- CMRE Visiting Researcher Programme (VRP), Centre for Maritime Research & Experimentation (CMRE), NATO Science & Technology Organization, La Spezia, June - November 2013.
- Université Libre de Bruxelles, tutor: Prof. Catherine De Mol, October-November 2009.
- Laboratoire D'Astrophisique, Université de Nice Sophia Antipolis, tutor: Prof. Henri Lanteri, March 2008.

Schools Attendance

- *Optimization Techniques for Inverse Problems II*,
  Workshop, Department of Mathematics,
  University of Modena and Reggio Emilia, April 20-21, 2012.
- *PRACE Winter School of Advanced Parallel Programming*,
  CINECA, Bologna, February 6-11, 2012.
- *Inverse Problems and Applications*,
  Workshop, Department of Computer Science (DISI),
  University of Genova, February 2, 2011.
- *Theoretical Foundations and Numerical Methods for Sparse Recovery*,
  Summer School, RICAM (Johann Radon Institute for Computational and Applied Mathematics),
  Linz, Austria, August 31-September 4, 2009.
- *Regularization Methods For High Dimensional Learning*,
  PhD Course on Learning Theory, Department of Computer Science (DISI),
  University of Genova, July 6-10, 2009.
- *Methodology of Pattern Recognition & Imaging*,
  PhD Course, University of Ferrara, 19-20 January, 19-20 February, March 9-10, 2009.
- *XVII Summer School in Parallel Programming*,
  CINECA, Bologna, September 8-19, 2008.
- *Optimization Techniques for Inverse Problems*,
  Workshop, Department of Mathematics,
  University of Modena and Reggio Emilia, April 28-29, 2008.
- *Linear and Nonlinear Optimization*,
  Prof. Roger Fletcher (University of Dundee, UK),
  PhD Course, Department of Mathematics, University of Ferrara, April 15-24, 2008.

Scientific Activities

Database	ISI WoS	Scopus	MathSciNet
# publications	11	15	9
# citations*	242	230	107
H-Index	7	6	5

* Excluding self-citations, last update 07/03/2016

ResearcherID	B-7927-2014
Scopus Author ID	26322198500
ORCID ID	orcid.org/0000-0002-2624-7947
MR Author ID	864403

Research Areas

- Inverse problems in microscopy and astronomy.
- Regularization techniques in numerical analysis.
- Parallel computing.

Articles in Referred Journals

1. Bonettini S. Zanella R. Zanni L. (2009)
   A scaled gradient projection method for constrained image deblurring
   Inverse Problems, Vol. 25 015002 Issue 1 (January 2009),
   ISSN: 0266-5611, DOI: 10.1088/0266-5611/25/1/015002,
   Scopus EID: 2-s2.0-62649113355, ISI WOS:000261696300003
   [JCR2009: IF=1.9, Rank= 14/203 JCR2012: IF=1.896, Rank= 16/247]

2. Zanella R. Boccacci P. Zanni L. Bertero M. (2009)
   Efficient gradient projection methods for edge-preserving removal of Poisson noise
   Inverse Problems, Vol. 25 045010 Issue 4 (April 2009),
   ISSN: 0266-5611, DOI: 10.1088/0266-5611/25/4/045010
   Scopus EID: 2-s2.0-70350309491, ISI WOS:000263553700010
   [JCR2009: IF=1.9, Rank= 14/203 JCR2012: IF=1.896, Rank= 16/247]

3. Loris I. Bertero M. De Mol C. Zanella R. Zanni L. (2009)
   Accelerating gradient projection methods for ℓ_1-constrained signal recovery by steplength selection
   Applied and Computational Harmonic Analysis, Vol. 27 Issue 2 (September 2009),
   ISSN: 1063-5203, DOI: 10.1016/j.acha.2009.02.003
   Scopus EID: 2-s2.0-67650436159, ISI WOS:000268473400007
   [JCR2009: IF=1.854, Rank= 15/203 JCR2012: IF=2.485, Rank= 5/247]

4. Ruggiero V. Serafini T. Zanella R. Zanni L. (2010)
   Iterative regularization algorithms for constrained image deblurring on graphics processors
   Journal of Global Optimization, Vol. 48, Issue 1 (September 2010), pp 145-157
   Published online: 16 January 2010
   ISSN: 0925-5001 (Print) 1573-2916 (Online), DOI: 10.1007/s10898-009-9516-x
   Scopus EID: 2-s2.0-77955515937, ISI WOS:000280701000012
   [JCR2010: IF=1.16, Rank= 61/236 JCR2012: IF=1.307, Rank= 48/247]

5. Benvenuto F. Zanella R. Zanni L. and Bertero M. (2010)
   Nonnegative least-squares image deblurring: improved gradient projection approaches
   Inverse Problems, Vol. 26 025004 Issue 2 (February 2010),
   ISSN: 0266-5611, DOI: 10.1088/0266-5611/26/2/025004
   Scopus EID: 2-s2.0-74849106173, ISI WOS:000273639400004
   [JCR2010: IF=2.138, Rank= 11/236 JCR2012: IF=1.896, Rank= 16/247]

6. Bertero M. Boccacci P. Talenti G. Zanella R. and Zanni L. (2010)
   A discrepancy principle for Poisson data
   Inverse Problems, Vol. 26 105004 Issue 10 (August 2010),
   ISSN: 0266-5611, DOI: 10.1088/0266-5611/26/10/105004
   Scopus EID: 2-s2.0-78049442605, ISI WOS:000282068000004
   [JCR2010: IF=2.138, Rank= 11/236 JCR2012: IF=1.896, Rank= 16/247]

7. Grillo V. Marrucci L. Karimi E. Zanella R. and Santamato E. (2013)
   Quantum simulation of a spin polarization device in an electron microscope
   New Journal of Physics, Vol. 15 Issue 9 093026 (September 2013),
   ISSN: 1367-2630, DOI: 10.1088/1367-2630/15/9/093026
   Scopus EID: 2-s2.0-84885034162, ISI WOS:000324369300002

8. Zanella R. Zanghirati G. Cavicchioli R. Zanni L. Boccacci P. Bertero M. and Vicidomini G. (2013)
   Towards real-time image deconvolution: application to confocal and STED microscopy
   Scientific Reports, 2013; 3; 2523,
   ISSN: 2045-2322, DOI: 10.1038/srep02523
   Scopus EID: 2-s2.0-84883421556, ISI WOS:000323596800003
   [JCR2013: IF=2.927, Rank= 8/56]

9. Zanella R. Boccacci P. Zanni L. Bertero M. (2013)
   Corrigendum: Efficient gradient projection methods for edge-preserving removal of Poisson noise
   Inverse Problems, Vol. 29 119501 Issue 11 (November 2013),
   ISSN: 0266-5611, DOI: 10.1088/0266-5611/29/11/119501,
   Scopus EID: 2-s2.0-84888158213, ISI WOS:000326729500016

10. Porta F. Zanella R. Zanghirati G. and Zanni L. (2014)
Limited-memory scaled gradient projection methods for real-time image deconvolution in microscopy
Communications in Nonlinear Science and Numerical Simulation,
Volume 21, Issues 13, April 2015, Pages 112127(Available online 19 September 2014),
ISSN: 1007-5704, DOI: 10.1016/j.cnsns.2014.08.035,
Scopus EID: 2-s2.0-84908424190, ISI WOS:000345699900010

11. Galasso M. Dama P. Previati M. Sandhu S. Palatini J. Coppola V. Warner S. Sana M.E. Zanella R. Abujarour R. Desponts C. Teitell M. A. Garzon R. Calin G. Croce C.M. and Volinia S. (2014)
A large scale expression study associates uc.283-plus lncRNA with pluripotent stem cells and human glioma,
Genome Medicine, Volume 6, Issue 10, Oct 2014
ISSN: 1756-994X, DOI: 10.1186/s13073-014-0076-4,
ISI WOS:000344568200001

Articles in Referred Conference Proceedings

12. Bonettini S. Zanella R. Zanni L. and Bertero M. (2008)
Accelerated gradient methods for constrained image deblurring
Journal of Physics: Conference Series
6th International Conference on Inverse Problems in Engineering: Theory and Practice, Vol. 135 Issue 1 (2008),
ISSN: 17426588, DOI: 10.1088/1742-6596/135/1/012022
Scopus EID: 2-s2.0-65249141598

13. Bonettini S. Benvenuto F. Zanella R. Zanni L. and Bertero M. (2009)
Gradient Projection Approaches for Optimization Problems in Image Deblurring and Denoising
Proceedings of the 17th European Signal Processing Conference (EUSIPCO) 2009,
Pages 1384–1388 ISSN: 22195491
Scopus EID: 2-s2.0-84863737045

14. Serafini T. Zanella R. and Zanni L. (2010)
Gradient projection methods for image deblurring and denoising on graphics processors
Conference Proceedings of International Conference on Parallel Computing (ParCo '09),
Advances in Parallel Computing Vol. 19 (2010), Parallel Computing: From Multicores and GPU's to Petascale,
Pages 59–66, ISSN: 09275452, ISBN 978-1-60750-529-7 (Print) 978-1-60750-530-3 (Online)
DOI: 10.3233/978-1-60750-530-3-59
Scopus EID: 2-s2.0-78049429276

15. Zanella R. and Ceccon F. (2014)
TEMPeRA: TEmplate Massively PaRAllel Library for Efficient N-Dimensional Signal Processing
Proceedings of the 2014 International Conference on High Performance Computing and Simulation, HPCS 2014,
Pages 643–650, ISBN 978-147995312-7, DOI: 10.1109/HPCSim.2014.6903748,
Scopus EID: 2-s2.0-84908621907

16. Zanella R. (2014)
A Master-Slave MPI Approach for NGS Data Mining
Proceedings of the 2014 International Conference on Bioinformatics & Computational Biology (BIOCOMP 2014), ISBN 1-60132-265-8

Chapters in Books

17. Cavicchioli R. Prearo A. Zanella R. Zanghirati G. and Zanni L. (2012)
Optimization methods for digital image restoration on MPP multicore architectures
Quaderni di Matematica, Vol. 27,
"Recent advances in nonlinear optimization and equilibrium problems: a tribute to Marco D'Apuzzo",
pp 93-116, (V. De Simone, D. di Serafino and G. Toraldo eds.), ISBN:9788854856875,
Dipartimento di Matematica, Seconda Università degli Studi di Napoli

Technical Reports

- Bonettini S. Zanella R. and Zanni L. (2007)
A scaled gradient projection method for constrained image deblurring
Tech. Rep. N.78, Department of Mathematics, University of Modena and Reggio Emilia

- Cavicchioli R. Prearo A. Zanella R.Zanghirati G. Zanni L. (2011)
  Iterative optimization methods for efficient image restoration on multicore architectures
  Preprint N. 373 - 2011, Department of Mathematics, University of Ferrara

- Porta F. Zanella R. Zanghirati G. Zanni L. (2014)
  Limited-memory scaled gradient projection methods for real-time image deconvolution in microscopy
  Preprint N. 382 - 2014, Department of Mathematics, University of Ferrara

Talks in Meetings/Workshops

As speaker:

- *Analisi dello steplength nei metodi del gradiente: applicazione alla ricostruzione di immagini*,
  "Congresso Unione Matematica Italiana 2015 (UMI2015)", September 7-12, 2015, Siena, Italy

- *Scaled gradient projection method for linear system identification*,
  "Applied Inverse Problems 2015 (AIP2015)", May 25-29, 2015, Helsinki, Finland

- *TEMPeRA: TEmplate Massively PaRAllel Library for Efficient N-Dimensional Signal Processing*,
  "High Performance Computing & Simulation Conference (HPCS 2014)", July 21-25, 2014, Bologna, Italy

- *A Master-Slave MPI Approach for NGS Data Mining*,
  "The 2014 International Conference on Bioinformatics & Computational Biology (BIOCOMP 14)", July 21-24, 2014, Las Vegas, Nevada, USA

- *First-order methods for Image Deconvolution in Microscopy*,
  "Siam Conference on Optimization (SIOPT 2014)', San Diego (CA), May 19-22, 2014

- *Optimization methods for real-time image deconvolution on GPU architectures*,
  "Numerical Computations: Theory and Algorithms", NUMTA2013, Falerna (CZ), Italy, 17-23 June 2013

- *Constrained optimization methods for image reconstruction on multicore systems*
  "XV Austrian-French-German conference on Optimization", Toulouse, France, 19-23 September 2011.

- *Metodi di ottimizzazione vincolata per la ricostruzione di immagini su sistemi multicore*,
  "XIX Congresso dell'Unione Matematica Italiana", Bologna, 12-17 September 2011.

- *Optimization Approaches for Image Reconstruction on Multiprocessor Systems*,
  "Inverse Problems and Application (Workshop in honour of Mario Bertero)", DISI, Genova, 2 February 2011.

- *Ottimizzazione numerica in problemi di imaging*,
  "Matematica, Forme Immagini", DISI, Genova, 18-19 March 2010.

- *Scaled gradient projection methods in image deblurring and denoising*,
  "Conference on Applied Inverse Problems", Vienna (Austria), 20-24 July 2009.

As co-author:

- *Accelerated gradient projection algorithm for sparse channel estimation: an application in underwater communications*, International Conference on Inverse Problems in Engineering (ICIPE 2014), Cracow, Poland, May 12-15, 2014

- *Gradient Projection Methods for image deblurring and denoising on graphics processors*,
  Parallel Computing (ParCo), Lione, 1-4 September 2009.

- *Gradient projection approaches for optimization methods in image denoising and deblurring*,
  17th European Signal Processing Conference (EUSIPCO), Glasgow, UK, 24-28 August 2009.

- *Scaled Gradient Projection Methods for Constrained Image Deblurring*,
  SIMAI 2008, Roma, 15-19 September 2008.

- *Accelerated gradient methods for constrained image deblurring*,
  International Conference on Inverse Problems in Engineering: Theory and Practice (ICIPE), Dourdan (Paris), France, 15-19 June 2008.

Teaching Activity

A.Y. 2015/2016 Algorithms for Parallel Computing, Bachelor's Degree in Computer Science, University of Ferrara.

A.Y. 2014/2015 Algorithms for Parallel Computing, Bachelor's Degree in Computer Science, University of Ferrara.

A.Y. 2013/2014 Algorithms for Parallel Computing, Bachelor's Degree in Computer Science, University of Ferrara.

A.Y. 2012/2013 Algorithms for Parallel Computing, Bachelor's Degree in Computer Science, University of Ferrara.

A.Y. 2011/2012 Algorithms for Parallel Computing, Bachelor's Degree in Computer Science, University of Ferrara.

A.Y. 2010/2011 Tutor of Computer Architecture, Bachelor's Degree in Computer Science, University of Ferrara.

A.Y. 2008/2009 Tutor of Parallel Computing, Bachelor's Degree in Computer Science, University of Modena and Reggio Emilia.

Degree Thesis Advisor

- *Rappresentazione sparsa di immagini: implementazione mediante OpenMP* Bachelor's Degree in Computer Science, University of Ferrara, A.Y. 2014/2015.
- *Towards an object-oriented and massively parallel library for efficient N-dimensional data handling in signal processing: C++/CUDA implementation*, Bachelor's Degree in Computer Science, University of Ferrara, A.Y. 2013/2014.
- *ParGAMES++: un codice parallelo ad oggetti per l'analisi di dati genomici acquisiti con sequenziatori di nuova generazione*, Bachelor's Degree in Computer Science, University of Ferrara, A.Y. 2011/2012.
- *GAMES++: un software C++ per l'analisi e l'annotazione di dati biologici derivanti da sequenziatori di nuova generazione*, Bachelor's Degree in Computer Science, University of Ferrara, A.Y. 2011/2012.

Degree Thesis Co-advisor

- *Tecniche di ottimizzazione per un algoritmo FDTD*, Master's Degree in Engineering and Technology for Telecommunication and Electronics, A.Y. 2011/2012.
- *Optimization methods for large-scale image deblurring on multi-core architectures*, Master's Degree in Computer Science, University of Modena and Reggio Emilia, A.Y. 2009/2010.