Alessandro Daducci, PhD

Assistant professor
Computer Science department
University of Verona, Italy

Birth:	23 March 1978	Email:	alessandro.daducci@univr.it
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Summary

- 51 journal papers (10 as first author), 50+ conference papers, 1550 citations, h-index 20.
- 7 international workshops/schools organization, many international active collaborations.
- 5 PhD students active supervision (several M.Sc. students).
- € 440K research grants as main applicant.
- € 1.1M research grants as co-applicant.

Research

Research interests

2011 – present	Diffusion MRI: application of compressed-sensing for accelerating data acquisition, improving local reconstruction quality and global tractography.
2009 – present	Diffusion MRI in clinical neuroscience: fiber-tracking and brain connectivity analysis. Structural MRI in clinical neuroscience: quantitative T1, T2* and MTR mapping.
2006 – 2009	Structural MRI in pre-clinical neuroscience: image acquisition, image processing and data analysis.

Research experience

Nov 2016 – Dec 2017	**Invited researcher at the Radiology Department, University Hospital Center (CHUV), Switzerland**
Feb 2016 – Oct 2016	**Chargé de recherche at the Radiology Department, University Hospital Center (CHUV), Switzerland**
Feb 2015 – Jan 2016	**Post-doctoral researcher at the Sherbrooke Connectivity Imaging Lab (SCIL), University of Sherbrooke, Quebec, Canada** Main projects: convex optimization modeling for microstructure imaging, microstructure informed tractography, improving tractography in superficial white matter, microstructure-driven tractography. Supervisor: Prof. Maxime Descoteaux
Jul 2014 – Jan 2015	**Senior post-doctoral researcher at the Radiology Department, University Hospital Center (CHUV), Switzerland** Main projects: convex optimization modeling for microstructure imaging, microstructure informed tractography. Supervisor: Prof. Jean-Philippe Thiran
May 2010 – Jun 2014	**Post-doctoral researcher at the Signal Processing Institute, Swiss Federal Institute of Technology (EPFL), Switzerland** Main projects: diffusion MRI acquisition and reconstruction, fiber-tracking and applications to clinical studies. Supervisor: Prof. Jean-Philippe Thiran

Dec 2010 – Aug 2012
Post-doctoral researcher at the Advanced Clinical Imaging Technology group, Swiss Federal Institute of Technology (EPFL), Switzerland
Main projects: structural MRI, quantitative T1, T2* and MTR mapping and applications to clinical studies.
Supervisor: Dr. Gunnar Krueger

Apr 2009 – Apr 2010
Research fellowship from the University of Verona, Italy (≈ €18K)
Project: "Definition of non-invasive methodologies for iron detection in biological tissues".

Apr 2009 – Dec 2009
Internship at the Signal Processing institute of the Swiss Federal Institute of Technology (EPFL), Switzerland
Project: "Post-stroke plasticity characterization with Diffusion Spectrum MRI".
Supervisor: Prof. Jean-Philippe Thiran

Aug 2007 – Apr 2009
Research fellowship from the University of Verona, Italy (≈ €30K)
Project: "Morphometric, MRI and optics images co-registration".

Nov 2006 – Jul 2007
Scholarship from the University of Verona, Italy (≈ €9K)
Project: "Analysis of images acquired using experimental MRI contrast agents".

May 2006 – Oct 2006
Scholarship from the University of Verona, Italy (≈ €6K)
Project: "Functional neuroimaging techniques for preclinical research".

Mar 2006 – Apr 2006
Internship at the MRI laboratory of the University of Verona, Italy
Project: "Implementation of an MRI acquisition sequence for Chemical Shift Imaging to separate fat/water signals".
Supervisor: Prof. Pasquina Marzola

Organization of workshops/conferences

Jun 2018
Organizing committee, workshop on "Axon diameter mapping with dMRI", that took place in Paris (France) on June 22nd, 2018.

Jun 2018
Organizing committee, member-initiated symposium on "Non-invasive axon diameter mapping: So fascinating, so challenging and so many questions", that took place in Paris (France) on June 18th, 2018 in the context of the International Society for Magnetic Resonance in Medicine (ISMRM 2018).

Oct 2017
Organizing committee, "Summer school on Brain Connectomics", that took place in Verona (Italy) from 9th to 13th October 2017.

Jun 2015
Organizing committee, "ISMRM 2015 Tractography Challenge", that took place in Toronto (Canada) on June 1st, 2015 in the context of the International Society for Magnetic Resonance in Medicine (ISMRM 2015).

May 2014
Organizing committee, "Verona Diffusion Workshop", that took place in Verona (Italy) on May 16th, 2014.

Apr 2013
Organizing committee and chair, workshop on "high angular resolution diffusion MR imaging (HARDI) reconstruction techniques", that took place in San Francisco (USA) on April 7th, 2013 in the context of the IEEE International Symposium on Biomedical Imaging (ISBI 2013).

Jan 2013
Local organizing committee, "Biomedical and Astronomical Signal Processing (BASP) frontiers" workshop, that took place in Villars-sur-Ollon (Switzerland) from January 27th to 1st February 2013.

May 2012
Organizing committee and chair, workshop on "high angular resolution diffusion MR imaging (HARDI) reconstruction techniques", that took place in Barcelona (Spain) on May 2nd, 2012 in the context of the IEEE International Symposium on Biomedical Imaging (ISBI 2012).

Sep 2011 | Local organizing committee, international "Biomedical and Astronomical Signal Processing (BASP) frontiers" workshop, that took place in Villars-sur-Ollon (Switzerland) from 4^{th} to 9^{th} September 2011.

Publications

51 journal papers (10 as first author), 50+ conference papers, 1550 citations, h-index 20.
For the full list of publications, please see: scholar.google.com

Funding

As principal investigator

2016 | Computer science department, University of Verona
"Towards quantitative and biologically oriented connectivity analyses with multi-contrast MRI"
Daducci A
≈ EUR 50 000 (over 2 years)

Faculté de biologie et de médecine, University of Lausanne
"Development of advanced biophysical tissue-models for multi-contrast MRI for the microstructural characterization of axonal damage using a murine model of multiple sclerosis"
Daducci A, Pot C, Kunz N
≈ EUR 187 000 (over 2 years)

The Italian Ministry of University and Research
Rita Levi Montalcini program for young researchers
Daducci A
≈ EUR 200 000 (over 3 years)

As co-investigator

2019 | Quebec Bio-Imaging Network
"Microstructure-informed tractography: using orientation-specific T1 maps to inform tractography in areas of crossing fibres"
Tardif R, Descoteaux M, Pike B, Daducci A
≈ EUR 12 000 (over 1 year)

2016 | Australian research council, Discovery Projects
"Exploring Brain Structure: Advancing Diffusion Magnetic Resonance Imaging using Spherical Signal Processing"
Kennedy R, Sadeghi P, Daducci A
≈ EUR 265 000 (over 3 years)

2014 | Swiss National Science Foundation
"Towards micro-structure-based tractography for quantitative brain connectivity analysis"
Thiran JP, Daducci A
≈ EUR 365 000 (over 3 years)

Swiss National Science Foundation
"Quantitative characterization of the connectome in the progression of psychosis"
Hagmann P, Conus P, Thiran JP, Daducci A
≈ EUR 465 000 (over 3 years)

Education

Apr 2010 | **Ph.D. in "Multimodal imaging in biomedicine" from the University of Verona, Italy**
Thesis: "Advanced image-processing techniques in Magnetic Resonance Imaging for the investigation of brain pathologies and tumour angiogenesis".
Supervisors: Prof. Pasquina Marzola & Prof. Andrea Sbarbati

Apr 2006	**Academic master in "Biomedical data processing and remote-control in medicine" from the University of Verona, Italy** Course topics: introduction to imaging modalities, image processing techniques, robotics, data mining etc.
Sep 2004	**M.Sc. in Computer Science with full marks (110/110 cum laude) from the University of Verona, Italy** Thesis: "Analysis and simulation of a genetic algorithm in the finite population case". Supervisor: Dr. Roberto Posenato

Short courses

May 2008	Advanced course on "Image Registration – 2D, 3D, Rigid and Deformable Scenes" from April 28th to May 16th, 2008. Speaker: Prof. Adrien Bartoli, LASMEA laboratory, Clermont-Ferrand, France.
Apr 2007	Advanced course "ParaVision Programming Course" from April 16th to 20th, 2007 at Bruker BioSpin GmbH, Germany. Course topic: sequence programming for MRI acquisitions.
Jul 2006	Advanced course "Magnetic Resonance for Imaging" from 5th to 7th July, 2006 at Bruker Biospin srl, Italy. Course topic: introduction to magnetic resonance imaging and acquisition sequences.

Skills

Languages	Italian (mother tongue) English (fluent, written and spoken) French (basic)
Programming	C/C++, Matlab, mex, Python, OpenGL, shell scripting, html, PHP, MySQL/PostegreeSQL.

Teaching

2010 – present	Active supervision of 5 PhD students and several M.Sc. students.
2016 – present	Biomedical image processing (M.Sc.), teacher. University of Verona, Italy.
2018 – present	Image processing (B.Sc.), teacher. University of Verona, Italy.
2009 – 2011	Image processing, assistant. Swiss Federal Institute of Technology (EPFL), Switzerland.
2009	Human-Computer interaction, teacher and collaborator. University of Verona, Italy.

Past employment

Apr 2005 – Apr 2006	**Web developer at Sitek s.p.a., Italy** Main activity: development of the company's web corporate portal.

Publications of Alessandro Daducci

For a full list of publications, please see here: scholar.google.com