Poggiali Davide

Current Occupation: Data & Analytics Lead at FAR Networks srl.
Past occupation: PostDoc fellow in Numerical Analysis at the PNC - Padova Neuroscience Center, University of Padova.
Profile: PhD in Neurosciences and MD in Mathematics, keen on numerical analysis and biomedical imaging, used to teamwork with people of different formation.
Research fields: *Numerical Analysis, Neuroimaging, Nuclear Medicine Imaging, Data Science, Programming.*

Personal Data

Born in Fiesole (Florence), January 25, 1987

Citizenship: Italian

Tel.: +39 3284832960
email: poggiali.davide@gmail.com

Recent working experience

09/2021-	Data Scientist at FAR Networks srl. Data & Analytics Chapter Lead.
09/2019 - 08/2021	PostDoc fellow in Numerical Analysis at PNC - Padova Neuroscience Center, University of Padova.
07/2019	Tutor at the Master Week in Game Design at SPARX Summer Camp (H-Farm Roncade TV).
2019	High School teacher Mathematics and Physics (Padova PD).
2018	PostDoc fellow in Numerical Analysis at the Department of Mathematics, University of Padova.

Studies and experiences

01/2014 - 03/2017 PhD student in Medical, Clinical, Experimental Sciences, curriculum Neurosciences at the "Università degli Studi di Padova", involved in Multiple Sclerosis research group. Research areas: RM and PET/RM post-processing techniques, Multiple Sclerosis, Alzheimer's Disease, Brain Tumors, Parkinson's Disease. Title of the thesis: "**Postprocessing Neuroimaging methods in MRI and PET/MRI with applications to Multiple Sclerosis and other Neurological diseases** ".
Supervisor: Prof E. Pegoraro.
Co-supervisor: Prof P. Gallo.

05-07/2016 **Abroad experience** at Centre for Medical Image Computing (CMIC) UCL, London, under the supervision of Prof D. Alexander.

01/2010 - 10/2012 Student at the "Università degli Studi di Padova". Master's Degree in Mathematics. Title of the thesis: "**Reconstruction of medical images from Radon data in transmission and emission tomography**".
Supervisor: Prof S. De Marchi.
Co-supervisor: Prof D. Cecchin. Final note: 102/110.

10/2006 - 12/2009 Student at the "Università degli Studi di Firenze".
Bachelor's degree in Mathematics. Title of the thesis:
"**Il Modello Lotka-Volterra**".
Supervisor: Prof G. Villari. Final note: 98/110.

2001 - 2006 Senior high school in science education, "Liceo scientifico" - ISS E. Balducci, Pontassieve (Florence).

Skills

Languages
- **Italian**: Mother-tongue.
- **English**: Good.
- **French**: Good.

Numerical Analysis advanced numerical skills: multivariate interpolation and approximation, error analysis, kernel methods, numerical quadrature. Good knowledge of System Theory and regularization methods.

Applied mathematics machine learning techniques (scikit-learn, tensorflow) and statistical analysis (with R).

Neuroimaging good experience of Freesurfer, FSL, ANTs, mipav, and Python packages for numerical neuroimaging.

Programming
- **Matlab/Octave/Scilab, LaTeX, Python**: Advanced
- **R, Julia, bash, Power BI**: Intermediate
- **C/C++, html/css, SQL**: Beginner

O.S. Linux, Windows, Mac OS X.

Other software Microsoft Office, [Libre,Open]Office

Certificates Power BI Data Analyst Associate, Certified Scilab Professional, ECDL

Research Areas

Numerical Analysis Multivariate Interpolation, Numerical Imaging, Quadrature.

Data Science Data Visualization, Data Analysis in Biomedical Imaging.

Medical Imaging PET/MRI neuroimaging, Neurodegenerative Diseases, Nuclear Medicine Imaging.

Bibliometric indices

Source	Publications	Citations	H-index
Scopus	26	925	13
Web Of Science	46	255	10
Google Scholar	58	1662	15
ResearchGate	48	1818	16

Publications on referred journals (inverse chronological order)

2023 G. Cappellazzo, W. Erb, F. Marchetti, **D. Poggiali**, *On Kosloff Tal-Ezer least-squares quadrature formulas*, BIT Numer. Math., 2023, 63(1), 15, https://dx.doi.org/10.1007/s10543-023-00948-0

2022 E. Peira, **D. Poggiali**, M. Pardini, H. Barthel, O. Sabri, S. Morbelli, A. Cagnin, A. Chincarini, D. Cecchin, *A comparison of advanced semi-quantitative amyloid PET analysis methods*, Eur. J. Nucl. Med. Mol. Imaging, 49 (12), 4097-4108, http://dx.doi.org/10.1007/s00259-022-05846-1

2022 G. Elefante, W. Erb, F. Marchetti, E. Perracchione, **D. Poggiali**, G. Santin, *Interpolation with the polynomial kernels*, Dolomites Res. Notes Approx., 2022, 15(4), pp. 45–60, https://dx.doi.org/10.14658/pupj-drna-2022-4-5

2022 **D. Poggiali**, D. Cecchin, S. De Marchi,*Reducing the Gibbs effect in multimodal medical imaging by the Fake Nodes approach*, J. Comput. Math. Data Sci., 4, 100040, http://dx.doi.org/10.1016/j.jcmds.2022.100040

2022 S. De Marchi, F. Lot, F. Marchetti, **D. Poggiali**, *Variably Scaled Persistence Kernels (VSPKs) for persistent homology applications*, J. Comput. Math. Data Sci., 4, 100050, http://dx.doi.org/10.1016/j.jcmds.2022.100050

2021 G. Zorzi, **D. Poggiali**, D. Cecchin, A. Cagnin, *The role of cerebellum in visual hallucinations: A metabolic point of view. A commentary on Lawn and ffytche (2021)*, Cortex, , 2021, 143, pp. 295–297, http://dx.doi.org/10.1016/j.cortex.2021.04.005

2021 **D. Poggiali**, D. Cecchin, C. Campi, S. De Marchi, *Oversampling Errors in Multimodal Medical Imaging Are Due to the Gibbs Effect*, Mathematics, 2021, 9(12), 1348, http://dx.doi.org/10.3390/math9121348

2021 R. Gau, S. Noble, K. Heuer, et al., *Brainhack: Developing a culture of open, inclusive, community-driven neuroscience*, Neuron, 2021, 109(11), pp. 1769–1775, http://dx.doi.org/10.1016/j.neuron.2021.04.001

2021 S. De Marchi, F. Marchetti, E. Perracchione, **D. Poggiali**, *Multivariate approximation at fake nodes*, Appl. Math. Comput., 2021, 391, 125628, http://dx.doi.org/10.1016/j.amc.2020.125628

2021 S. De Marchi, G. Elefante, E. Perracchione, **D. Poggiali**, *Quadrature at Fake Nodes*, Dolomites Res. Notes Approx., 2021, 14, pp. 39–45, http://dx.doi.org/10.14658/pupj-drna-2021-2-6

2020 M. Margoni, **D. Poggiali**, S. Zywicki, M. Rubin, A. Lazzarotto, S. Franciotta, M. G. Anglani, F. Causin, F. Rinaldi, P. Perini, M. Filippi, P. Gallo, *Early*

red nucleus atrophy in relapse-onset multiple sclerosis, Hum. Brain Mapp., , 2021, 42(1), pp. 154–160, http://dx.doi.org/10.1002/hbm.25213 **selected as cover image paper for Jan 2021 HBM issue**.

2020 M. Margoni, S. Franciotta, **D. Poggiali**, A. Riccardi, F. Rinaldi, M. Nosadini, S. Sartori, M. G. Anglani, F. Causin, P. Perini, P. Gallo, *Cerebellar gray matter lesions are common in pediatric multiple sclerosis at clinical onset*, J. Neurol., 2020, 267(6), pp. 1824–1829, http://dx.doi.org/10.1007/s00415-020-09776-6

2020 A. Lazzarotto, M. Margoni, S. Franciotta, S. Zywicki, A. Riccardi, **D. Poggiali**, M. Anglani, P. Gallo, *Selective Cerebellar Atrophy Associates with Depression and Fatigue in the Early Phases of Relapse-Onset Multiple Sclerosis*, Cerebellum, 2020, 19(2), pp. 192–200, http://dx.doi.org/10.1007/s12311-019-01096-4

2019 S. De Marchi, F. Marchetti, E. Perracchione, **D. Poggiali**, *Polynomial interpolation via mapped bases without resampling*, J. Comput. Appl. Math., 2020, 364, 112347, http://dx.doi.org/10.1016/j.cam.2019.112347

2019 M. Allen, **D. Poggiali**, K. Whitaker, T. R. Marshall, R.A. Kievit, *Raincloud plots: A multi-platform tool for robust data visualization [version 1; peer review: 2 approved]*, Wellcome Open Res., 2019, 4, 63, http://dx.doi.org/10.12688/wellcomeopenres.15191.1

2018 M. Puthenparampil, S. Altinier, E. Stropparo, S. Zywicki, **D. Poggiali**, C. Cazzola, E. Toffanin, S. Ruggero, F. Grassivaro, M. Zaninotto, M. Plebani, P. Gallo, *Intrathecal K free light chain synthesis in multiple sclerosis at clinical onset associates with local IgG production and improves the diagnostic value of cerebrospinal fluid examination*, Mult. Scler. Relat. Disord., 2018, 25, pp. 241–245, http://dx.doi.org/10.1016/j.msard.2018.08.002

2018 A. Favaretto, A. Lazzarotto, M. Margoni, **D. Poggiali**, P. Gallo, *Effects of disease modifying therapies on brain and grey matter atrophy in relapsing remitting multiple sclerosis*, Mult. Scler. Demyelinating Disord., http://dx.doi.org/10.1186/s40893-017-0033-3.

2017 D. Cecchin, H. Barthel, **D. Poggiali**, A. Cagnin, S. Tiepolt, P. Zucchetta, P. Turco, P. Gallo, A.C. Frigo, O. Sabri, F. Bui, *A new integrated dual time-point amyloid PET/MRI data analysis method*, Eur. J. Nucl. Med. Mol. Imaging, 2017, 44(12), pp. 2060–2072, http://dx.doi.org/10.1007/s00259-017-3750-0.

2017 A. Favaretto, A. Lazzarotto, A. Riccardi, S. Pravato, M. Margoni, F. Causin, M.G. Anglani, D. Seppi, **D. Poggiali**, P. Gallo, *Enlarged Virchow Robin spaces associate with cognitive decline in multiple sclerosis*, PLoS ONE, 2017, 12(10), e0185626 , http://dx.doi.org/10.1371/journal.pone.0185626.

2017 M. Puthenparampil, L. Federle, **D. Poggiali**, S. Miante, A. Signori, E. Pilotto, F. Rinaldi, P. Perini, M.P. Sormani, E. Midena, P. Gallo, *Trans-synaptic degeneration in the optic pathway. A study in clinically isolated syndrome and early relapsing-remitting multiple sclerosis with or without optic neuritis*, PLoS ONE, 2017, 12(8), e0183957, http://dx.doi.org/10.1371/journal.pone.0183957.

2017 M. Puthenparampil, L. Federle, S. Miante, A. Zito, E. Toffanin, S. Ruggero, M. Ermani, S. Pravato, **D. Poggiali**, P. Perini, F. Rinaldi, P. Gallo, *BAFF Index and CXCL13 levels in the cerebrospinal fluid associate respectively with intrathecal IgG synthesis and cortical atrophy in multiple sclerosis at clinical onset*, J. Neuroinflammation, 2017, 14(1), 11, http://dx.doi.org/10.1186/s12974-016-0785-2.

2015 M. Puthenparampil, **D. Poggiali**, F. Causin, G. Rolma, F. Rinaldi, P. Perini, P. Gallo, *Cortical relapses in multiple sclerosis*, Mult. Scler. J., 2016, 22(9), pp. 1184–1191, http://dx.doi.org/10.1177/1352458514564483.

2015 A. Favaretto, A. Lazzarotto, **D. Poggiali**, G. Rolma, F. Causin, F. Rinaldi, P. Perini, P. Gallo, *MRI-detectable cortical lesions in the cerebellum and their clinical relevance in multiple sclerosis*, Mult. Scler., 2016, 22(4), pp. 494–501, http://dx.doi.org/10.1177/1352458515594043.

2015 A. Favaretto, **D. Poggiali**, A. Lazzarotto, G. Rolma, F. Causin, P. Gallo, *The Parallel Analysis of Phase Sensitive Inversion Recovery (PSIR) and Double Inversion Recovery (DIR) Images Significantly Improves the Detection of Cortical Lesions in Multiple Sclerosis (MS) since Clinical Onset*, PLoS ONE, 2015, 10(5), e0127805, http://dx.doi.org/10.1371/journal.pone.0127805.

2015 D. Cecchin, **D. Poggiali**, L. Riccardi, P. Turco, F. Bui, S. De Marchi, *Analytical and experimental FWHM of a gamma camera: theoretical and practical issues*, PeerJ, 2015, 2015(2), e722, http://dx.doi.org/10.7717/peerj.722.

Conference papers (peer-reviewed)

2020 S. De Marchi, W. Erb, E. Francomano, F. Marchetti, E. Perracchione, **D. Poggiali**, *Fake Nodes approximation for Magnetic Particle Imaging*, 20th IEEE Mediterranean Electrotechnical Conference, MELECON 2020 - Proceedings, 2020, pp. 434–438, 9140583 https://dx.doi.org/10.1109/MELECON48756.2020.9140583.

2018 **D. Poggiali**, D. Cecchin, S. De Marchi *A Kinetic Neural Network Approach for Absolute Quantification and Change Detection in Positron Emission Tomography*, MASCOT2018 Proceedings, IMACS Series in Computational and Applied Mathematics vol 22 (2018), 91-100.

Non peer-reviewed publications (divulgative, trivia, textbook, preprint)

2023 M. Dessole, M. Gatto, **D. Poggiali**, F. Tedeschi, *Exact sinogram: an analytical approach to the Radon transform of phantoms*, ArXiv, doi:10.48550/arXiv.2302.06283.

2022 L. Bos, F. Dell'Accio, G. Elefante, W. Erb, F. Marchetti, E. Perracchione, **D. Poggiali**, G. Santin, Alvise Sommariva *Special Issue dedicated to Stefano De Marchi on the occasion of his 60th birthday*, editorial/dedication of a special issue containing personal recollections, appeared on Dolomites Research Notes on Approximation.

2019 D. Poggiali, *Guardare la sorpresa senza aprire l'uovo: la TAC raccontata da un matematico*, divulgative blogpost on mathisintheair.

2016	Collaborator for Number 95 of Lettera Matematica Pristem, special issue on David Foster Wallace and mathematics.
2014	S. De Marchi, **D. Poggiali**, *Exercises of Numerical Calculus With Solutions in Matlab/Octave*. Textbook, 123pp. First Edition: Dec 2013, 2nd Ed. Feb 2017, 3rd Ed. Feb 2018 (Ed. LaDotta) 4th Ed. Oct 2022 (Amazon Publishing).ISBN-13: 978-8898648122. Estimated number of sold copies: 900.

Reviewer and editor

Reviewer — Peer review for the following journals (alphabetical order):

- Dolomites Research Notes on Approximation;
- Electronic Transactions on Numerical Analysis;
- Frontiers in Neuroscience;
- Journal of Applied Analysis;
- Journal of Applied Mathematics and Computing;
- Mathematical Biosciences and Engineering;
- Mathematics and Computers in Simulation;
- Scientific Reports;
- Transactions on Image Processing.

Editor — Section Topical Advisory Panel Member for 'Mathematical Biology' for Mathematics.

Memberships

GNCS	Member of the Gruppo Nazionale di Calcolo Scientifico, IndAM.
RITA	Member of the Rete Italiano di Approssimazione.
PSF	Voting Member of the Python Software Foundation, given the contributions to python open source software.

Conference talks

09/2022	Euroscipy22 Basel CH, *Real-time estimation of an heat pump I/O state with IoT data.*
07/2022	FAATNA20>22 Matera, *Multivariate Fake Nodes Approach.*
09/2021	DWCAA21 Online, *Dealing with resampling-induced errors when estimating the activity in clinical multi-imaging.*
06/2021	AIMN Lunchbox, *Quantification: Why and how-to. Refertazione DAT-DOPA*, virtual venue
06/2020	MELECON2020 Palermo, *Fake Nodes approximation for Magnetic Particle Imaging*, virtual conference.
01/2020	MATA2020 Perugia, *Cheating with the domain: the Fake Nodes approach as an interpolation paradigm.*
11/2019	pyconIE19 Dublin, *Robust and charming dataviz with RainCloud Plots.*

10/2018 MASCOT2018 Roma, *A Kinetic Neural Network Approach for Absolute Quantification and Change Detection in Positron Emission Tomography.*

05/2018 SPAN2018 Padova, *Interpolating the Image-Derived Input Function in PET/MRI: a statistical maximization approach.*

04/2018 pyconIT Firenze *Insegnare la matematica con python: percorsi suggeriti per le scuole superiori.*

11/2016 pyconIE2016, *Dublin, Ireland.* D.Poggiali, *Data Analysis in MRI and PET/MRI Neuroimaging*
https://python.ie/previous-pycons/pycon-2016/schedule/

10/2014 CAE14, *Pacengo del Garda VR.* **D. Poggiali**, A. Favaretto, M. Puthenparampil, F. Causin, P. Gallo, *Segmentation of lesions in Multiple Sclerosis: a multithresholding approach.*
http://proceedings2014.caeconference.com/speakers/poggiali.html

09/2014 *The challenge of automatic MS lesion segmentation in MR images*, SPAN, Torre Archimede, Padova.

10/2013 CAE13, *Pacengo del Garda VR* (Scilab Session). D.Poggiali, *Resolution of a Gamma camera: Analytical vs Experimental methods*
http://proceedings2013.caeconference.com/abstract/poggiali.html

Conference Posters

09/2022 Euroscipy22 Basel CH, *Informative and pleasant dataviz with Raincloud plot.*

10/2018 ECTRIMS (European Committee for TReatment and Research In Multiple Sclerosis) 2018 posters:

- M Puthenparampil, E Stropparo, S Zywicki, F Bovis, L Federle, C Cazzola, S Miante, **D Poggiali**, F Rinaldi, P Perini, MP Sormani, P Gallo, *A wide cytokine analysis in cerebrospinal fluid at diagnosis identified MIP-1 alpha as possible prognostic factor for multiple sclerosis*
- A Lazzarotto, A Favaretto, S Franciotta, S Zywicki, A Riccardi, M Ermani, **D Poggiali**, M Anglani, F Causin, P Gallo, *Cerebellar grey matter damage associates with cognitive impairment, but not with fatigue and emotional changes in early relapse onset multiple sclerosis*
- S Miante, M Puthenparampil, A De Zanet, S Altinier, E Stropparo, S Zywicki, **D Poggiali**, C Cazzola, E Toffanin, S Ruggero, F Grassivaro, M Zaninotto, M Plebani, P Gallo, *Intrathecal K free light chain synthesis in multiple sclerosis at clinical onset associates with local IgG production and improves the diagnostic value of cerebrospinal fluid examination*

05/2018 ISMRM, Italian Chapter, Padova PD; poster:
D. Poggiali, V. Poretto, S. Franciotta, A. Riccardi, M. Margoni, M. Ermani, F. Causin, S. De Marchi, P. Gallo, *Cerebellar cortical lesions and cognitive dysfunction in early relapsing remitting multiple sclerosis.*

09/2017 ECTRIMS 2017 posters:

- **D. Poggiali**, D. Cecchin, A. Favaretto, A. Lazzarotto, M. Margoni, A. Riccardi, A.C. Frigo, P. Zucchetta, F. Causin, F. Bui, P. Gallo, *3T-PET/MRI discloses different metabolic states of cortical lesions in Multiple Sclerosis*

09/2016 ECTRIMS 2016 posters:

- **D. Poggiali**, D. Cecchin, A. Favaretto, A. Lazzarotto, A. Riccardi, S. Pravato, M. Margoni, F. Bui, P. Gallo, *3T-PET/MRI analysis of cortical metabolism in MS patients discloses various patterns of association with white and grey matter pathology*
- A. Favaretto, S. Pravato, A. Lazzarotto, A. Riccardi, M. Margoni, **D. Poggiali**, M. Anglani, D. Seppi, P. Gallo, *The virchow robin spaces in multiple sclerosis brain: a phase sensitive inversion recovery study*
- A. Favaretto, S. Pravato, A. Riccardi, A. Lazzarotto, M. Margoni, **D. Poggiali**, M. Anglani, D. Seppi, P. Gallo, *Analysis of atrophy, focal lesions and Virchow Robin spaces of the basal ganglia by phase sensitive inversion recovery discloses associations with physical and cognitive disability in multiple sclerosis*
- L. Federle, M. Puthenparampil, **D. Poggiali**, S. Pravato, A. Signori, S. Miante, F. Rinaldi, M.P. Sormani, P. Gallo, *No evidence of trans-synaptic degeneration in the visual pathway of MS at clinical onset*
- D. Seppi, D. Polo, F. Rinaldi, **D. Poggiali**, A. Favaretto, P. Perini, M. Ermani, P. Gallo, *Effect of natalizumab on global and regional cortical thickness in RRMS. A four year longitudinal study highlights efficacy and stresses the importance of a well-timed intervention*
- D. Seppi, A. Favaretto, S. Pravato, **D. Poggiali**, S. Rossi, F. Facchiano, C. Veroni, F. Rinaldi, P. Perini, S. Ruggero, E. Toffanin, P. Gallo, F. Aloisi, R. Magliozzi, *Gene expression and cytokine protein analysis of the cerebrospinal fluid in early multiple sclerosis: association with grey matter damage assessed by MR imaging*

04/2016 AAN (American Accademy of Neurology) 2016 posters:

- M. Margoni, A. Favaretto, D. Cecchin, **D. Poggiali**, A. Lazzarotto, S. Pravato, A. Riccardi, F. Bui, P. Gallo, *Analysis of Cortical Metabolism in Multiple Sclerosis: A 3T 18F-FDG PET/MRI Study*
- M. Puthenparampil, L. Federle, E. Pilotto, **D. Poggiali**, A. Signori, E. Midena, M.P. Sormani, P. Gallo, *Visual Pathway Damage in Multiple Sclerosis at Clinical Onset*

10/2015 ECTRIMS (European Committee for TReatment and Research In Multiple Sclerosis) 2015 posters:

- D. Cecchin, **D. Poggiali**, A. Favaretto, A. Lazzarotto, M. Margoni, A. Riccardi, F. Bui, P. Gallo, *Demonstration of hypometabolic cortical areas in clinically isolated syndromes: a 3T F-18-FDG PET/MRI study.*

- M. Puthenparampil, L. Federle, S. Miante, L. Cacciaguerra, **D. Poggiali**, E. Toffanin, S. Ruggero, F. Rinaldi, P. Perini, P. Gallo, *CXCL13, but not BAFF and APRIL, intrathecal synthesis associates with a decreased cortical thickness in multiple sclerosis at clinical onset.*
- L. Federle, M. Puthenparampil, L. Cacciaguerra, S. Zywicki, **D. Poggiali**, F. Rinaldi, P. Perini, P. Gallo, *A comprehensive analysis of the optic pathway, from retina to cortex, discloses no correlation between white matter inflammation and neurodegeneration in very early multiple sclerosis.*
- A. Favaretto, A. Lazzarotto, **D. Poggiali**, G. Rolma, F. Causin, F. Rinaldi, P. Perini, P. Gallo, *Phase-sensitive inversion recovery improves the detection of cerebellar cortical lesions and discloses their correlation with disability in multiple sclerosis.*

09/2014 ACTRIMS/ECTRIMS 2014. Posters:

- D. Seppi, S. Miante, V. Poretto, **D. Poggiali**, F. Rinaldi, P. Perini, P. Gallo, *White matter and long-tract lesions play a marginal role in determining cortical atrophy.*
- A. Favaretto, **D. Poggiali**, P. Perini, F. Rinaldi, G. Rolma, F. Causin, P. Gallo, *Combined DIR and PSIR images improve detection and classification of cortical lesions in multiple sclerosis and clinically isolated syndromes.*
- M. Puthenparampil, **D. Poggiali**, P. Perini, F. Rinaldi, G. Rolma, F. Causin, P. Gallo, *Extended cortical lesion determining acute relapses in multiple sclerosis.*

10/2013 CAE13, *Pacengo del Garda VR.* D.Poggiali, *Resolution of a Gamma camera: Analytical vs Experimental methods*
http://proceedings2013.caeconference.com/abstract/poggiali.html

09/2013 DRWA13, *Alba di Canazei TN.* Poster session.

Conference Organization

2023 PyCon Italy 2023 - pyriddle section.

2021 Dolomites Workshop on Constructive Approximation and Applications DWCAA21, Online.

2021 Brainhack Diversity. Inter-individual variability in cognitive and clinical neuroscience: signal or noise? Online venue.

2021 Pyjamas 2021, Online 24h venue.

2020 Dolomites Workshop on Constructive Approximation and Applications DWCAA20, Alba di Canazei TN, Cancelled for pandemic.

2020 SPAN2020, Padova, Cancelled for pandemic.

2019 BrainHack GLOBAL: Brain Asymmetries edition, 2019 Padova IT.

2018 BrainHack: Evolution, *Padova.*

2018 Dolomites Research Week on Approximation DRWA18, *Alba di Canazei TN.*

2017	Dolomites Research Week on Approximation DRWA17, *Alba di Canazei TN*.

Seminars

06/2021	*Gibbs Effect in Medical Imaging (and how to possibly reduce it)*, NumLab seminars, Dept. of mathematics, Padova.
14 -15/05/2018	*Introduction to Medical Image Registration*, Nuclear Medicine, Padova.
5 -6/04/2016	*Introduction to Medical Image Registration*, Nuclear Medicine, Padova.
4/11/2014	*MS lesion segmentation in MR image: a multithresholding approach*, Informatics, University Ca' Foscari, Venice.
21/11/2013	*Dual-modality imaging*, Torre Archimede Padova.
8/11/2013	*Kinetics of the tracer in PET*, Torre Archimede Padova.
17/10/2013	*Positron emission tomography: an introduction*, Torre Archimede Padova.
27/09/2013	*Sequences and recontruction in MRI*, Torre Archimede Padova.
19/09/2013	*Physical basis of Magnetic Resonance Imaging*, Torre Archimede Padova.
28/06/2013	*An alternative Radon transform for the correction of partial volume effect*, Torre Archimede Padova.
04/06/2013	*Resolution of a Gamma Camera: experimental data and analytical formula*, Torre Archimede Padova.
28/06/2013	*The mathematics behind SPECT/TC reconstruction*, Torre Archimede Padova.
21/06/2013	*Reconstruction in X-ray computed tomography*, Torre Archimede Padova.
14/06/2013	*Introduction to Analytic Tomography*, Torre Archimede Padova.
06/03/2013	*Resolution and reconstruction issues in CT and SPECT*, Torre Archimede Padova.
17/12/2012	*Reconstruction of medical images from CT and SPECT: a mathematician's point of view*, DEI/A, Padova.

Invited Seminars

05-08/07/2023	*Morphological Operators for binary images with applications*, DiMIE, University of Basilicata, Potenza PZ. Full expenses refunded by project Agritech-PNRR (420€)
14/04/2016	*The numb3rs 0f a Br4in*, Istituto per le Applicazioni del Calcolo (IAC), CNR, Rome. Travel expenses refunded by Consiglio Nazionale delle Ricerche (85€).

Travel Grants

29/08-02/09/2022	Euroscipy 2022. Conference ticket offered by the Euroscipy organization (350€).
17-18/03/2016	Nineteenth Advanced Course "Magnetic Resonance Techniques in Multiple Sclerosis" in HR San Raffale, Milan. Full travel, conference ticket and hotel expenses paid by Biomedia srl. (est. 400€)

19-20/03/2015 Eighteen Advanced Course "Magnetic Resonance Techniques in Multiple Sclerosis" in HR San Raffale, Milan. Full travel, conference ticket and hotel expenses paid by Biomedia srl. (est. 350€)

19-21/03/2014 Sixteen Advanced Course "Magnetic Resonance Techniques in Multiple Sclerosis" in HR San Raffale, Milan. Full travel, conference ticket and hotel expenses paid by Biomedia srl. (est. 480€)

Thesis Cosupervisor

02/2021 Short Degree thesis in Mathematics. Title:*Sviluppo e analisi di formule di quadratura basate su nodi mappati*, Dr. Cappellazzo Giacomo. Relator: Prof W. Erb, Dott F. Marchetti.

11/2018 Short Degree thesis in Techniques in medical Radiology (TSRM), University of Florence. Title: *Nuovi approcci metodologici per l'analisi semi-quantitativa "in vivo" della densità recettoriale del SNC*, Jacopo Dazzini. Relator: Prof. Stelvio Sestini.

11/2018 Short Degree thesis in TSRM, University of Florence. Title: *Valutazione del carico di amiloide cerebrale in vivo con metodi quantitativi di nuova generazione*, Lorenzo Sassi. Relator: Prof. Stelvio Sestini.

09/2017 Short Degree thesis in TSRM. Title: *Semi-quantificazione del 123I-DaTSCAN: metodiche a confronto*, Morbiato Chiara. Relator: Prof D. Cecchin.

04/2016 Postgraduate Medical Degree thesis in Nuclear Medicine. Title: *Metabolismo assoluto del* ^{18}*F-fdg nell'emisfero controlaterale alla lesione neoplastica mediante PET/RM: studio pre e post chirurgico*, Dr. Mezzato Chiara. Relator: Prof D. Cecchin.

09/2015 Master Degree thesis in Mathematics. Title: *Medical Image Registration for motion detection and correction*, Dr. Passarini Ada. Relator: Prof S. De Marchi.

03/2013 Short Degree thesis in Mathematics. Title: *Confronto tra i metodi ART e SIRT per la ricostruzione di immagini tomografiche*, Nalin Giulia. Relator: Prof S. De Marchi.

Main open source software produced (on GitHub)

ptitprince Python package for RainCloud plot visualization. https://github.com/pog87/PtitPrince. 193 stars, 37 forks.

FakeNodes Python software for 1D Fake Nodes interpolation https://github.com/pog87/FakeNodes. 26 stars, 7 forks.

FakeNodes2D Python software for 2D Fake Nodes interpolation https://github.com/pog87/FakeNodes2D. 1 star, 2 forks.

FakeQuadrature Python software for 1D Faken Nodes quadrature https://github.com/pog87/FakeQuadrature. 1 fork.

GibbsEffectMultimodal Proving the Gibbs effect presence in multimodal (3D) medical imaging, using ANTs, FSL, and freesurfer resampling algorithms https://github.com/pog87/GibbsEffectMultimodal.

FakeResampling3D Python software for 3D medical image resampling that drastically reduces the Gibbs effect by using a Fake Nodes scheme https://github.com/pog87/FakeResampling3D. 1 fork.

Teaching experience

2022 Teacher of a brief course *LARA IoT experience in Azure* for the program of SII40 (Services Innovation for Industry 4.0), University of Bologna.

2022 Lab Professor of Introduction to Numerical Calculus for Astronomy; Main Teacher: Prof M. Vianello. 2CFU.

2021 Professor of Introduction to Numerical Calculus for Astronomy; 6CFU. Modality: dual and remote. Didactic responsibility.

2020 Lab Professor of Numerical Calculus for Mechanical Engineering (tracks 1 and 2); Main Teacher: Prof S. De Marchi. 6CFU. Modality: remote, mixed synchronous and asynchronous.

2019 Lab Professor of Numerical Calculus for Energy Engineering; Main Teacher: Prof A. Sommariva. 1CFU.

2019 Teaching Assistant (TA) in Numerical Calculus for Industrial Engineering, Channel A. Teachers: Prof F. Piazzon and Prof E. Perrracchione.

2019 High School Math/Physics teacher in Liceo I. Nievo PD (Jan-Jul).

2018 C. Campi, **D. Poggiali** Math PhD course, *An introduction to numerical approaches to reconstruction in medical imaging.* Course for the 2018/19 **Doctoral program** in Computational Mathematics area, University of Padova.

2018 Professor of Foundations of Programming in Python for the Data Science Summer School, university of Trento. 6 CFU.

2017/18 Teaching Assistant (TA) in Numerical Calculus for Mechanical Engineering, Channel A. Teacher: Prof S. De Marchi.

2017 High School teacher in IPSIA Bernardi PD (Feb), LA Selvatico PD (Mar-Jun), IIS Newton-Pertini Camposampiero PD (Sept-Nov).

2016/17 Teaching Assistant (TA) in the course of Numerical Calculus for Mechanical Engineering, Channel A. Teacher: Prof S. De Marchi.

2014/15 Teaching Assistant (TA) in the courses:

- Numerical Calculus for Mechanical Engineering, Channel A. Teacher: Prof S. De Marchi.
- Numerical Calculus for Mechanical Engineering, Channel B. Teachers: Profs L. Bergamaschi, A. Martinez.
- Numerical Calculus for Industrial Engineering. Teachers: Profs L. Bergamaschi, A. Martinez.

2013/14 TA in the course of Numerical Calculus for Computer Science. Teachers: Prof M. Vianello, F. Marcuzzi.

2012/13 TA in the course of Numerical Calculus for Computer Science. Teacher: Prof S. De Marchi.

Autorizzo il trattamento dei dati personali contenuti nel mio curriculum vitae in base art. 13 del D. Lgs. 196/2003 (agreement according to Italian law for personal data management).

Padova, January 18, 2024