

# ALVISE SOMMARIVA

ORCID  $\diamond$  0000-0002-8902-8063

## PERSONAL DATA

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- Name and Surname: Alvisè Sommariva
- Position: Associate Professor (with Full Professor habilitation in Numerical Analysis)
- Italian COD GSG: 01/MATH05– Numerical Analysis
- Italian COD SSD: MATH-05/A– Numerical Analysis
- University: Università degli Studi di Padova, Department: Mathematics, Tullio Levi-Civita, office 426 (Torre Archimede, 4th floor), Via Trieste, 63 - 35121 Padova (Italy)
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## DEGREES

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- B.Sc in "Mathematics", 1993, University of Padua, with the thesis "A numerical method for a class of fixed point equations".
- Ph.D. in Computational Mathematics, University of Padua, with the thesis Constructive and numerical analysis for a class of Hammerstein equations arising in transport theory.

## POSITIONS

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- Research Grant, MAST III PACE, Roma III ((November 20,1998-March 20,1999)..
- Research Fellowship Numerical analysis of integral and differential models of applied sciences University of Padua (April 1, 1999-August 31, 2002).
- Post-Doc Fellowship "Fast methods for integral equations", Department of Pure and Applied Mathematics, University of Padua (September 1, 2002-August 31, 2004).
- Research Associate, School of Mathematics, University of New South Wales (Australia) (September 1, 2004-December 1, 2005).
- Lecturer (Assistant Professor) in Numerical Analysis: University of Padua (March 2006-October 2014).
- Associate Professor in Numerical Analysis: University of Padua (November 2014-).
- Full Professor Habilitation in Numerical Analysis (GSG: 01/MATH05, SSD:MATH-05/A, period: 05/04/2018 - 05/04/2030).

## REFeree ACTIVITY

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- Applied Mathematics and Computation,
- Applied Numerical Mathematics,
- BIT,
- Calcolo,

- Computing,
- Dolomites Research Notes on Approximation
- Electronic Transactions in Numerical Analysis,
- IMA Journal Numerical Analysis,
- Journal of Approximation Software,
- Journal of Computational and Applied Mathematics,
- Journal of Integral Equations and Applications,
- Numerical Algorithms,
- Numerische Mathematik,
- Optimization Letters,
- SIAM Numerical Analysis.

## CONTRIBUTIONS IN CONFERENCES

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- Numerical approximation of decreasing integral operators, Montecatini Terme, April 15-17, 1998;
- Relaxed nonlinear solvers for discrete Hammerstein equations arising in transport theory, Venice-2. Symposium on Applied and Industrial Mathematics, Venezia, June 11-16, 1998;
- Computing fixed points of decreasing operators by relaxed iterations, with M. Vianello, GAMM-Workshop on Iterative methods for solving equations, Kiel (D), July 3-5, 1998.
- A Nystrom-Fejer-Picard solver for nonlinear integral equations in transport theory, with M. Vianello e E. Facchinello, Napoli, 1999.
- Chebyshev-like compression of discrete integral operators (with M. Vianello e S. De Marchi), International Congress on Computational and Applied Mathematics, Leuven (B), June 17-21, 2000.
- A fast Nystrom-Broyden solver by Chebyshev compression, with S. De Marchi and M. Vianello, Algorithms for Approximation IV, Huddersfield (GB), July 16-21, 2001.
- Adaptive bivariate Chebyshev approximation and efficient evaluation of integral operators, with A. Mardegan, M. Vianello e R. Zanollo, NAcOM 2003, Cambridge (GB), May 23-26, 2003, p.123-128.
- Integration over the sphere, with K. Atkinson, Approximation and Harmonic Analysis, Auckland (NZ), February 8-11, 2005.
- Constructing cubature formulas from scattered data by RBF, with M. Vianello, "Recent progress in Spline and Wavelet approximation", Roma, June 14-16, 2006.
- Computing Fekete and Lebesgue points: simplex, square, disk, S. Margherita di Pula, October 9-14, 2011.
- Fast variants of the Golub and Welsch algorithm for symmetric weight functions, 3rd Dolomites Workshop on Constructive Approximation and Applications Alba di Canazei (Trento), September 9-14, 2012.
- Polynomial interpolation and quadrature on subregions of the sphere, with M. Gentile and M. Vianello, SIAM Conference on Mathematical and Computational Issues in the Geosciences (SIAM GS13) Padova, June 17-20, 2013, poster presentation.

- Quadrature of Quadratures: Compressed Sampling by Tchakaloff Points, with F. Piazzon and M. Vianello. 4th Dolomites Workshop on Constructive Approximation and Applications Alba di Canazei (Trento), September 8-13, 2016, poster presentation.
- Compressed cubature over polygonal domains, with B.J. Bauman e M. Vianello, SIMAI 2018, Roma, July 2-6, 2018.
- Numerical Quadrature and Hyperinterpolation over Spherical Triangles/Polygons by the dCATCH Package, with M. Dessoie e M. Vianello, SIAM GS21, online, June 21-24, 2021.
- Low cardinality Positive Interior cubature on NURBS-shaped domains, with M. Vianello, Torino, Software for Approximation (SA2022), February 3-4, 2022, plenary speaker (online contribution).
- Tchakaloff-like polyhedral quadrature with and without tetrahedralization. with M. Vianello, Matera, FAATNA 20 , 22, July 4-8, 2022.
- On some theorems by Tchakaloff, Davis and Wilhelmsen and their applications, York (GB), January 9-11, 2023.
- On the numerical compression of QMC rules, Constructive approximation of functions 3, Cracovia (PL), February 22-24, 2023.
- On hyperinterpolation and its variants, A two days on Approximation Theory and Applications, a Conference in honor of Paolo Emilio Ricci on his 80th Birthday), Roma, May 23-24, 2024, invited talk.
- On unisolvence of unsymmetric random Kansa collocation, ATMA2024, Lecce, Giugno 11-14, 2024.
- Cpolymesh: a Matlab/Python suite for complex polynomial approximation on Chebyshev-like polynomial meshes, DWCAA2024, Alba di Canazei (TN, I), September 9-13, 2024, plenary speaker.
- Numerical cubature over scattered data, NAMAS-24 (dedicated to Ezio Venturino), Gaeta (I), September 16-20, 2024, plenary speaker, paid by organizers.
- Gli albori della quadratura numerica, Metodi e Modelli Analitici, Numerici e Probabilistici per Problemi di Fisica. In onore di Renato Spigler (invited speaker), Roma (I), January 29, 2025.
- International Workshop on Modern Problems of Analysis, Optimization, Approximation and Their Applications (invited speaker), Roma (I), June, 26-27, 2025.

## INVITED TALKS

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- Constructive approximation of functions 3: 22-24 February, 2023, Krakow, Poland (invited speaker, paid by organizers).
- A two days on Approximation Theory and Applications, a Conference in honor of Paolo Emilio Ricci on his 80th Birthday), Rome (I), May 23-24, 2024, (invited speaker, not paid by organizers).
- Metodi e Modelli Analitici, Numerici e Probabilistici per Problemi di Fisica. In onore di Renato Spigler (invited speaker), Roma (I), January 29, 2025.
- International Workshop on Modern Problems of Analysis, Optimization, Approximation and Their Applications, (invited speaker), Rome (I), June, 26-27, 2025.

## PLENARY TALKS

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- Low cardinality Positive Interior cubature on NURBS-shaped domains, with M. Vianello, Torino, Software for Approximation (SA2022), February 3-4, 2022, plenary speaker (online contribution).

- Probabilistic methods, Signatures, Cubature and Geometry, 9-11 January, 2023, York (UK), plenary speaker, paid by organizers.
- Cpolymesh: a Matlab/Python suite for complex polynomial approximation on Chebyshev-like polynomial meshes, plenary speaker, DWCAA2024, Alba di Canazei (TN, I), September 9-13, 2024;
- Numerical cubature over scattered data, NAMAS-24 (dedicated to Ezio Venturino), Gaeta (I), September 16-20, 2024, plenary speaker, paid by organizers.

## CONFERENCES/WORKSHOPS ORGANIZATION

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- DWCAA 2006 (organizing committee)
- DRWA 2007 (organizing committee)
- DWCAA 2009 (organizing and program committee)
- DRWA 2010 (organizing committee)
- DRWA 2011 (organizing committee)
- DWCAA 2012 (organizing and program committee)
- DRWA 2013 (organizing committee)
- DRWA 2014 (organizing committee)
- DRWA 2015 (organizing committee)
- DWCAA 2016 (organizing and scientific committee)
- DRWA 2017 (organizing committee)
- DRWA 2018 (scientific committee)
- DRWA 2019 (organizing and scientific committee)
- DWCAA 2020 (organizing and scientific committee)
- DWCAA 2021 (organizing and scientific committee)
- RITA PhD seminars 2022 (organizing committee)
- ATMA2023 (organizing and scientific committee)
- SA23 (scientific committee)
- International Conference on Approximation Theory and Applications (scientific committee)
- International Online Workshop On Current Trends In Analysis And Approximation Theory (scientific committee).
- DRWA2023 (organizing and scientific committee)
- RITA Young Researchers Meeting 2024 (organizing and scientific committee)
- ATMA2024 (scientific committee)
- DWCAA2024 (organizing and scientific committee, organizer of the session Multivariate polynomial approximation and pluripotential theory, with F. Piazzon)
- Software for Approximation SA2025, scientific committee.
- International Workshop on Modern Problems of Analysis, Optimization, Approximation and Their Applications, scientific committee.

## SCIENTIFIC PARTICIPATION TO NATIONAL AND INTERNATIONALS RESEARCH PROJECTS AND RESEARCH GRANTS

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- Efficient approximation methods for nonlocal discrete transforms, CPDA028291, 12 mesi (come partecipante);
- Interpolazione ed Estrapolazione: nuovi algoritmi ed applicazioni (Interpolation and Extrapolation: new algorithms and applications), CPDA089040, 24 months (as participant, 2009-2011);
- Numerical treatment of ill-posed linear problems with applications, CPDA104492, 12 months (as participant, 2011-2013);
- Multivariate approximation by polynomial and radial bases, 12 months (as participant, 2012);
- Multivariate approximation with application to image reconstruction, CPDA124755, 24 months, (as participant, 2013-2014);
- Approximation and Discretization Methods for PDEs on Manifolds for Environmental Modeling, BIRD163015 (as participant, 2017-2018);
- Conditioning issues in multivariate approximation and image reconstruction, CPDA143275, 24 months (21.8K, as responsible, 2015-2017);
- Methods, algorithms and applications of multivariate approximation, 12 months (19.5 k, as participant, 2018-2019) ;
- Horizon 2020 ERA-PLANET European project: GEOEssential Essential Variables workflows for resource efficiency and environmental management, as participant;
- Discretization of measures, approximation of integral operators and applications, as participant, 2019;
- Numerical Modelling by Tchakaloff-like Cubature, BIRD 192932, peer-review score 92.4/100, 14K euro, 6 members, as participant, 2020-2021;
- GNCS, Approssimazione multivariata ed equazioni funzionali per la modellistica numerica;, 12 months, 6.4K euro, as participant, 2020-2021;
- GNCS, Methods and software for multivariate integral models, 12 months, 2.1K euro, as responsible, 2021-2022;
- Grant for hiring a research associate, project title Metodi di approssimazione su domini di tipo NURBS/Approximation methods on NURBS-shaped domains, 12 months, 20 K euro, as responsible, 2022;
- GNCS, Organizzazione Convegni Scuole e Workshop, CUP E55F220002700010.8 K euro, as responsible, 2022-2023;
- GNCS, Approssimazione ed integrazione multivariata with applicazioni ad equazioni integrali, 12 months, 6.6 K euro, as participant, 2022-2023;
- GNCS, Metodi kernel e polinomiali per l'approssimazione e l'integrazione: teoria e software applicativo, 12 months, 5.4 K euro, as participant, 2023-2024;
- Grant for hiring a research associate, project title Tchakaloff-Davis-Wilhelmsen measure compression and applications to numerical modelling, 12 months, 20 K euro, as responsible (substituting M. Vianello), 2024;
- GNCS, Polinomi, Splines e Funzioni Kernel: dall'Approssimazione Numerica al Software Open-Source, 12 months, 6.3 K euro, as participant, 2024-2025.

## PH.D. RELATED ACTIVITIES

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- Ph. D. Course teacher, Equazioni integrali: aspetti teorici e computazionali (with M. Lanza De Cristoforis), Ph. D. Students in Pure and Applied Mathematics, University of Padua (2004).
- PhD jury, Quasi-Monte Carlo in moderate dimensions. Chebyshev lattices, numerical integration and particle filter, candidate Dr. Koen Poppe (supervisor: R. Cools), October 2012, KU Leuven, Belgium;
- Member of Ph.D. selection committee in Computational Mathematics (University of Padua), July 2015.
- PhD jury, Comm. 141, candidate Dr. Pozza Stefano, University of Padua, October 7, 2015.
- PhD referee, Sai Vidya Institute of Technology, Bengaluru (India), November 15, 2018.
- PhD jury, candidate Dr. Giada Serafini, University of Basilicata, May 28, 2019.
- Member of a Ph.D. Committee, final exam of the Ph.D. course in Mathematical Sciences (Computational Mathematics): March 28, 2023, Padua;
- Member of a Committee, Commissione di selezione per l'ammissione ai Corsi di dottorato di ricerca riservata a candidati cinesi with borsa finanziata dal China Scholarship Council e a Borsisti di Stati Esteri (BSE), 2024/2025, XL ciclo, December 15, 2023; meeting: January 19, 2024.
- Ph.D Admission committee, Commissione giudicatrice per la selezione ad evidenza pubblica per l'ammissione al Corso di Dottorato di ricerca in SCIENZE MATEMATICHE (Curricula: MATEMATICA - MATEMATICA COMPUTAZIONALE), Anno Accademico 2024/2025 - XL Ciclo, May-June 2024;
- Ph. D. Course teacher, Numerical cubature and its applications (Doctoral Program in Mathematical Sciences), 2024-2025.
- Member of a committee, Commissione di selezione per l'ammissione ai Corsi di dottorato di ricerca riservata a candidati cinesi with borsa finanziata dal China Scholarship Council e a Borsisti di Stati Esteri (BSE), 2025/2026, XLI ciclo, , Dec., 2024; Meetings: January 14, 2025, January 17, 2025.
- Member of Ph.D. board (Dept. of Mathematics, Univ. of Padua), 2019, 2020, 2022-.

## COMMITTEES FOR HIRING LECTURERS

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- Member of an examining board, hiring Lecturer of B-type, selection 2019RUB14, University of Padua, December-April 2020;
- Member of an examining board, hiring Lecturer of A-type, selection 2021RUAPON - REACT EU, allegato 32, University of Padua, November 2021;
- Member of an examining board, hiring Lecturer of A-type, selection 424/RTDA\_DM1062, University of Turin, November 2021;
- Member of an examining board. hiring Lecturer of B-type, Commissione giudicatrice della procedura selettiva 2023RUB06, Sep. 20, 2023, University of Padua; meetings: October 30, 2023; November 6, 2023; December 18, 2023; January 15, 2023.

## RESEARCH FELLOWSHIPS COMMITTEES

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Research fellowship committees

- Research fellowship committee, ISMAR, Venezia, February 2013;

- Research fellowship committee, responsible of the grant: M. Redivo Zaglia, "Metodi di proiezione di Krylov per problemi inversi lineari", Department of Mathematics, University of Padua, January 7, 2014;
- Research fellowship committee, responsible of the grant: M. Redivo Zaglia, "Krylov Methods for Bilinear forms and applications", University of Padua, 2016;
- Research fellowship committee, responsible of the grant: M. Vianello, "Numerical modelling by Caratheodory-Tchakaloff Quadrature Compression", Progetto Assegni SID 2018/DOR Vianello, Department of Mathematics, University of Padua, November 29, 2018;
- Research fellowship committee, responsible of the grant: F. Marcuzzi, "Metodi di gradiente prossimali per l'identificazione di sistemi", Department of Mathematics, University of Padua, May 20, 2019 (Prot. n.607, May 3, 2019);
- Research fellowship committee, responsible of the grant: F. Marcuzzi, "Digital twins di sistemi termodinamici e meccanici controllati", Department of Mathematics, University of Padua, October 9, 2020 (Prot. n.215, September 21, 2020);
- Research fellowship committee, responsible of the grant: F. Marcuzzi, "Numerical linear algebra for multivariate polynomial modelling", Department of Mathematics, University of Padua, January 28, 2022 (Decreto Rep. 9/2022, Prot. n.244, Anno 2021, Tit. III, Cl. 13, Fasc. 115, January 27, 2022);
- Research fellowship committee, responsible of the grant: A. Sommariva, Metodi di approssimazione su domini di tipo NURBS / Approximation methods on NURBS-shaped domains, University of Padua, November 2022;
- Research fellowship committee, responsible of the grant: A. Sommariva, Tchakaloff-Davis-Wilhelmsen measure compression and applications to numerical modelling, Padua, August 30, 2024.

## OTHER DUTIES

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- Evaluation Committee (job vacancies in Mathematics for Engineering) University of Padua, July 4, 2019;
- National coordinator of Rete ITaliana di Approssimazione / Research ITalian network on Approximation (RITA) since March 1, 2022.
- Member of a Committee, Commissione istruttorie per la valutazione delle domande di partecipazione al bando "Avviso di vacanza insegnamenti 2023/24 - D140000-1039975-2023", November 24, 2023;
- Member of a Committee, Designazione dei componenti della Commissione istruttoria per la valutazione delle domande di partecipazione al bando Avviso di vacanza insegnamenti 2023/24 - D140000-1040755-2023 February 2, 2024; meeting: February 8, 2024.

## MEMBERSHIPS

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- Member of Commissione Istruttoria per l'Attribuzione degli Impegni Didattici, Department of Mathematics, University of Padua, 2009-2010- 2011.
- Responsible of Numlab, Department of Mathematics, University of Padua, 2014-2019.
- Member of Commissione Comunicazione, Department of Mathematics, University of Padua, 2019-.
- Member of Commissione Scientifica di Area, Department of Mathematics, University of Padua, 2019-.

- Member of Rete Italiana di Approssimazione / Research Italian network on Approximation (RITA) 2016-. National coordinator of RITA since March 1, 2022.
- Member of GNCS.
- Member of CAA: Padua-Verona research group on Constructive Approximation and Applications.
- Member of Teoria Dell'Approssimazione e Applicazioni (TAA) (Gruppo UMI).
- Member of Green Computing Group.
- Affiliated to Cisas.

## EDITORIAL DUTIES

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- Editor of Dolomites Research Notes on Approximation, March 2017-.
- Co-Managing Editor of Journal of Approximation Software 2023-
- Editor of the volume 5-th Dolomites Workshop on Constructive Approximation and Applications. Special Issue dedicated to Robert Schaback on the occasion of his 75th birthday, Dolomites Research Notes on Approximation, Volume 15, issue 3, October 2022, DOI: 10.14658/pupj-drna-2022-3-1, ISSN Number: 2035-6803.
- Editor of the volume Special Issue dedicated to Stefano De Marchi on the occasion of his 60th birthday, Dolomites Research Notes on Approximation, Volume 15, issue 4, December 2022, ISSN Number: 2035-6803.
- Editor of the volume Special Issue - Dedicated to Len Bos on the occasion of his 70th birthday, Dolomites Research Notes on Approximation, Volume 17, issue 3, September 2024.
- Editor of a Special Issue Dedicated to Len Bos on the occasion of his 70th birthday, with Roberto Cavoretto, Alessandra De Rossi, Francesco Dell'Accio, and Marco Vianello, Journal of Approximation Software, Volume 1, Issue 2, September 2024;

## PRIZES AND HONORS

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- Quadrature-based polynomial optimization with A. Martinez, F. Piazzon and M. Vianello, Optim. Lett. 14 (2020), pp.1027-1036, co-winner of the OPTL Best Paper Awards for 2020.
- Mural for 100th anniversary of the Polish Mathematical Society at the Jagiellonian University, In the mural are painted the Approximate Fekete and Discrete Leja Points for polynomial interpolation of degree 6 on a 270 degree circular sector, computed by the methods developed in the paper Computing multivariate Fekete and Leja points by numerical linear algebra, with L. Bos, S. De Marchi and M. Vianello, SIAM J. Numer. Anal. 48 (2010), pp.1984-1999.

## TEACHING EXPERIENCE

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- Mathematical Analysis II (with L. Finesso), Degree in Electronical Engineering, University of Padua (1999)
- Numerical Analysis and Computer Programming (with M. Vianello), Degree in Chemistry and Industrial Chemistry, University of Padua (1999).
- Computer Programming I (with S. Dulli), Degree in Statistics and Computer Science, University of Padua (1999).
- Introduction to Matlab (with R. Zanovello), Degree in Statistics, University of Padua (2000-2001).
- Numerical Analysis (with R. Vermiglio), Degree in Mathematics, University of Udine (2002).

- Equazioni integrali: aspetti teorici e computazionali (with M. Lanza De Cristoforis), Ph. D. Students in Pure and Applied Mathematics, University of Padua (2004).
- Introduction to Numerical Analysis (with M. Vianello), Teaching Mathematics, University of Padua (2006).
- Numerical Analysis (with F. Marcuzzi and M. Vianello), Degree in Computer Science, University of Padua (Apr.2007-June 2007, 16h).
- Numerical Analysis II (with M. Vianello), Degree in Computer Science, University of Padua (2006, 14h).
- Numerical Analysis(with M. Vianello), Degree in Mathematics, University of Padua (Nov. 2006-Dec.2006, 12h).
- Numerical Analysis and Computer Programming (Mod. B), Degree in Science of Materials, University of Padua, (Dec. 2006-Feb.2007, as principal investigator, 24h+2h);
- Numerical Analysis(M. Vianello), Degree in Computer Science, University of Padua (Apr 2007-June 2007, 16h).
- Numerical Analysis II(M. Vianello), Degree in Mathematics, University of Padua (Feb 2007-March 2007, 14h).
- Numerical Analysis II (with M. Vianello and R. Zanovello, 12h), Degree in Mathematics, University of Padua (Febr.2008-Mar.2008, 14h).
- Numerical Analysis(M. Vianello), Degree in Computer Science, University of Padua (Apr 2008-June 2008, 16h).
- Numerical Analysis(with M. Venturin and M. Vianello), Degree in Mathematics, Astronomy, Earth Sciences, University of Padua (Nov. 2008-Dec.2008, 12h+4h).
- Numerical Analysis II (with M. Vianello), Degree in Mathematics and Degree in Computer Science, University of Padua (Jan. 2009, 12h).
- Numerical Analysis(with M. Vianello), Degree in Mathematics, University of Padua (Apr.2010-June 2010, 14h+2h).
- Numerical Analysis II (with M. Vianello), Degree in Mathematics and Degree in Computer Science, University of Padua (Apr. 2012-June 2012, 10h).
- Numerical Analysis I Degree in Astronomy, University of Padua (Oct.2011-Jan.2012, as responsible, 64h+2h).
- Numerical Analysis I (with M. Vianello), Degree in Mathematics, University of Padua (Nov.2012-Jan.2013, 16h).
- Numerical Analysis II (with M. Vianello), Degree in Mathematics, University of Padua (Mar.2013-Jun.2013, 40h).
- Numerical Analysis and Computer Programming Degree in Astronomy, University of Padua (Oct.2013-Jan.2014, 24h).
- Numerical Analysis II, Degree in Mathematics, University of Padua (Mar.2014-Jun.2014, as responsible, 64 h).
- Calculus (with A. Benvegnu'), Degree in Statistics, University of Padua (Oct.2014-Jan.2014, as responsible, 54 h).
- Numerical Analysis I (with M. Redivo Zaglia), Degree in Computer Science, University of Padua (Mar.2015-Jun.2015, 8h).

- Numerical Analysis II, Degree in Mathematics, University of Padua (Mar.2015-Jun.2015, as responsible, 64 h).
- Calculus (with A. Cesaroni), Degree in Statistics, University of Padua (Oct.2015-Jan.2016, 53h).
- Numerical Analysis II, Degree in Mathematics, University of Padua (Mar.2016-Jun.2016, as responsible, 64 h).
- Numerical Analysis I (with M. Redivo Zaglia, S. Pozza), Degree in Computer Science, University of Padua (Mar.2016-Jun.2016. 8h).
- Calculus (with A. Cesaroni), Degree in Statistics, University of Padua (Oct.2016-Jan.2017, 40h).
- Numerical Analysis II, Degree in Mathematics, University of Padua (Mar.2017-Jun.2017, as responsible, 64 h).
- Numerical Analysis I (with M. Redivo Zaglia), Degree in Computer Science, University of Padua (Mar.2017-Jun.2017, 16h).
- Calculus (with A. Cesaroni), Degree in Statistics, University of Padua (Oct.2017-Jan.2018, 40h).
- Numerical Analysis II, Degree in Mathematics, University of Padua (Mar.2018-Jun.2018, as responsible, 64 h).
- Numerical Analysis I (with M. Redivo Zaglia), Degree in Computer Science, University of Padua (Mar.2018-Jun.2018, 16h).
- Numerical Analysis II, Degree in Mathematics, University of Padua (Mar.2019-Jun.2019, as responsible, 64 h).
- Numerical Analysis I (with D. Poggiali), Degree in Energy Engineering, University of Padua (Mar.2019-Jun.2019, as responsible, 64h).
- Numerical Analysis II, Degree in Mathematics, University of Padua (Mar.2020-Jun.2020, as responsible, 64 h).
- Numerical Analysis I (with G. Sarego), Degree in Energy Engineering, University of Padua (Mar.2020-Jun.2020, as responsible, 56h).
- Numerical Analysis II, Degree in Mathematics, University of Padua (Mar.2021-Jun.2021, as responsible, 64 h).
- Numerical Analysis I (with F. Piazzon), Degree in Energy Engineering, University of Padua (Mar.2021-Jun.2021, as responsible, 56h).
- Numerical Analysis II, Degree in Mathematics, University of Padua (Mar.2022-Jun.2022, as responsible, 64 h).
- Numerical Analysis I (with F. Marchetti), Degree in Energy Engineering, University of Padua (Mar.2022-Jun.2022, as responsible, 56h).
- Numerical Analysis II, Degree in Mathematics, University of Padua (Mar.2023-Jun.2023, as responsible, 64 h).
- Numerical Analysis I (with E. Bachini), Degree in Energy Engineering, University of Padua (Mar.2023-Jun.2023, as responsible, 56h).
- Numerical Analysis II, Degree in Mathematics, University of Padua (Mar.2024-Jun.2024, as responsible, 64 h).
- Numerical Analysis I (with G. Elefante), Degree in Energy Engineering, University of Padua (Mar.2024-Jun.2024, as responsible, 56h).

- Numerical cubature and its applications, Doctoral Program in Mathematical Sciences, (Nov. 2024, as responsible, 16 h).
- Numerical Analysis II, Degree in Mathematics, University of Padua (Mar.2025-Jun.2025, as responsible, 64 h).
- Numerical Analysis I, Degree in Energy Engineering, University of Padua (Mar.2025-Jun.2025, as responsible, 72h).

## TEACHING INDICATORS

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- 2014-2015
- 2015-2016
- 2016-2017
- 2017-2018
- 2018-2019
- 2019-2020: Calcolo Numerico, Analisi Numerica.
- 2020-2021: Calcolo Numerico, Analisi Numerica.
- 2021-2022: Calcolo Numerico, Analisi Numerica.
- 2022-2023: Calcolo Numerico, Analisi Numerica.
- 2023-2024: Calcolo Numerico, Analisi Numerica.

## SUPERVISORY EXPERIENCE

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### Supervision of degree students

1. E. Facchinello, Analysis and implementation of a numerical solver for nonlinear integral equations of transport theory, with M. Vianello, co-supervisor, degree in Mathematics (4 years course), 1997-1998;
2. A. Martignago, Fast methods for integral equations of the second kind via Chebyshev compression, with M. Vianello, co-supervisor, degree in Mathematics (4 years course), 1999-2000;
3. A. Mardegan, Bivariate Chebyshev series and approximation of integral operators, with M. Vianello, co-supervisor, degree in Mathematics (4 years course), 2000-2001;
4. A. Punzi, Una formula di cubatura RBF per dati scattered su settori circolari, with M. Vianello, co-supervisor, bachelor degree in Mathematics (3 years course), 2006;
5. G. Da Fies, A RBF cubature rule for scattered data on domains with spline boundary, with M. Vianello, co-supervisor, bachelor degree in Mathematics (3 years course), 2006-2007.
6. S. Bressan, Rappresentazione dei reali nel calcolatore e calcolo with numeri approssimati: un percorso didattico per le scuole secondarie, with M. Vianello, co-supervisor, bachelor degree in Mathematics (3 years course), 2007-2008;
7. G. Santin, Cubatura algebrica su domini generali col sistema software Chebfun, supervisor, bachelor degree in Mathematics (3 years course), A.A. 2008-2009;
8. F. Basaglia, A new cubature method over polygons, supervisor, bachelor degree in Mathematics (3 years course), 2008-2009;

9. M. Marchioro, Approssimazione polinomiale e cubatura su mesh debolmente ammissibili del parallelepipedo, del cilindro e del prisma a base triangolare, with S. De Marchi, co-supervisor, master degree in Mathematics (2 years course), 2009-2010;
10. G. Orzetti, Approssimazione polinomiale su mesh debolmente ammissibili della palla e del tetraedro, with M. Vianello, co-supervisor, bachelor degree in Mathematics (3 years course), 2009-2010;
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#### **Supervision of research associates**

- Giacomo Elefante, project "Metodi di approssimazione su domini di tipo NURBS / Approximation methods on NURBS-shaped domains(Feb. 2023-Jan. 2024).
- Laura Rinaldi, project "Tckhalkoff-Davis-Wilhelmsen measure compression and applications to numerical modelling (Jan. 2025).

#### **PUBLICATIONS**

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1. Unisolvence of randomized MultiQuadric Kansa collocation for convection-diffusion with mixed boundary conditions. with M. Mohammadi and M. Vianello, to be submitted.
2. Unisolvence of unsymmetric random Kansa collocation by Gaussians and other analytic RBF vanishing at infinity. with M. Vianello. submitted.
3. Cheap and stable quadrature on polyhedral elements, with M. Vianello. submitted.
4. Polynomial meshes on algebraic sets, with L. Bialas-Ciez, A. Kowalska, submitted.
5. Unisolvence of Kansa collocation for elliptic equations by polyharmonic splines with random fictitious centers, with M. Mohammadi and M. Vianello, submitted.
6. Nonsingularity of unsymmetric Kansa matrices: random collocation by MultiQuadrics and Inverse MultiQuadrics, with R. Cavoretto, F. Dell'Accio, A. De Rossi and M. Vianello, submitted.
7. Adaptive RBF cubature by scattered data on spherical polygons, with. R. Cavoretto, A. De Rossi, G. Elefante, submitted.
8. Hybrid hyperinterpolation over general regions, with C. An, J.-S. Ran, *Calcolo*, Volume 62, article number 3, (2025).
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