

Curriculum Vitae

Personal information

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Education since leaving school

- 1989, MSc in Civil and Hydraulic Engineering, University of Padova. Top grade and highest honours
- 1994, PhD in Hydrodynamics, Universities Consortium of Universities of Padova, Genova, Firenze, Trento; Ph.D dissertation on: "Effect of suspended sediment transport on river hydraulics and turbulence".

Present appointment

- October 2015 up to now, professor of hydraulic Constructions – University of Bozen, Faculty of Engineering and Faculty of Agricultural-Environmental-Food-sciences (SSD CEAR-01/B, former ICAR/02)
- Honorary Professor at University of Aberdeen, School of Engineering. 2013-2015
- March 2011 -September 2015, Associate Professor of Hydraulic Constructions University of Trento Civil Environmental and Mechanical Department (DICAM)

Professional experience

Chronological list of all previous employments

From / to	Job title	Name of academic Institution	Academic level	responsibilities
1995-2011	Researcher on Hydraulic Constructions	University of Trento	Researcher/Assistant professor	
1995	Post doc fellowship	University of Padova	Post Doc	Experimental analysis of turbulent flows with Laser Doppler Anemometry techniques and particle Image Velocimetry
1992-1994	PhD student	Consortium of Universities of Padova, Genova, Firenze, Trento	PhD student	
1989-1992	engineer	Construction Company „Cavagnis & Costacurta“- Padova	Middle management	Responsible of the technical/design office, responsible of several construction yards in Italy and out of Italy, mainly civil and hydraulics works

Experience in academic teaching

Title of courses given last 5 years, name of University/Institute, subject area, academic level (under-/post-graduate / PhD):

Teaching MS and PhD courses

- Hydropower Systems (ICAR02), MSc in Energy Engineering, jointly managed by the Department of Civil, Environmental and Mechanical Engineering of University of Trento (administrative premises) and the Faculty of Science and Technology of the Free University of Bolzano.
- Hydropower plants (ICAR02), MSc in Energy Engineering, jointly managed by the Department of Civil, Environmental and Mechanical Engineering of University of Trento
- Energy efficiency of smart water systems (ICAR02), MSc in Energy Engineering, jointly managed by the Department of Civil, Environmental and Mechanical Engineering of University of Trento.
- Natural risk in mountain areas: experimental hydraulics (ICAR02), Faculty of Agricultural-Environmental-Food-sciences
- Flood risk mitigation in mountain rivers (ICAR02), Faculty of Agricultural-Environmental-Food-sciences
- Advanced Applications of Fluid mechanics, PhD course in Sustainable Energy and Technologies, Faculty of Engineering Univ. of Bozen
- Advanced measurement Techniques and Experimental Research, National PhD in Sustainable Development and Climate change, (PhD SDC)-IUSS Pavia

Other academic responsibilities

internal appointments to faculty and university boards

- 2001 – now. Member of *Comitato di Governo del CUDAM-Centro Universitario per la Difesa Idrogeologica dell'Ambiente Montano*, Center of Excellence for the Research at University of Trento acknowledged by Italian Ministry of University and Research, responsible, in CUDAM, of the laboratories research equipments, coordinator of the laboratories activities.
- Member, till 2013, of the Doctoral School Committee in Environmental Engineering-University of Trento.
- Member, from 2013 till now, Doctoral School Committee of SUSTAINABLE ENERGY AND TECHNOLOGIES (ENERGIE E TECNOLOGIE SOSTENIBILI), Libera Università di Bolzano.
- Responsible of the ThermoFluid Dynamics laboratories of university of Bozen, Located at NOI techpark

external appointments at national and international level

- Referee at CINECA (non profit Consortium, made up of 70 Italian universities) for the evaluation of the research outcomes given to VQR 2004-2010.
- External referee for the research proposals submitted to the National Research Council of the Romanian Government-Ministry of Education Research, Youth and Sport.
- External referee for the research proposals submitted to the Engineering and Physical Sciences Research Council (UK). EPSRC is the main UK government agency for funding research and training in engineering and the physical sciences.
- Honorary Professor at University of Aberdeen, School of Engineering. 2013-2015

responsibilities for organizing conferences/seminars/exhibitions (place, duration, institute)

- Member of Scientific and Organizing Committee of "*European Graduate school of Hydraulics (IAHR-EGH) – Regulation of small rivers and torrents*" 7-12 July 1997 at University of Trento.
- Member of Scientific and Organizing Committee "*European Graduate school of Hydraulics (IAHR-EGH) – Regulation of small rivers and torrents*", 13 -18 July 1998 at University of Trento.
- Member of Scientific and Organizing Committee of "*Riparian Forest-Vegetated channels hydraulic morphological and ecological aspect*" International Workshop Trento 20-22 February 2003, under the sponsorship of IAHR, International Association of Hydraulic Research.
- Member of Scientific and Organizing Committee of the training course for engineers: "*Vegetazione in alveo e ingegneria naturalistica: aspetti applicativi e progettuali*", Trento 18-20 February 2004, organised by CUDAM-Centro Universitario per la Difesa *Idrogeologica* dell'Ambiente Montano.
- Scientific coordinator and organizing coordinator of the Training course: "*Hydrology and Water Supply System*". Held in UPB (Université Polytechnique de Byumba) District of Gicumbi-Rwanda, December

2009.

- Scientific coordinator and organizing coordinator Training course: "*Water Supply System monitoring, optimization and management with Open Source GIS techniques*". Held in AMU (Arba Minch University- Etiopia) Arba Minch, Etiopia, May 2013.
- Member of the Scientific board of: VI Seminario Nazionale "*Efficienza e risparmio energetico dei sistemi idrici*", Trento 8-9 July 2015.

Memberships

Membership of academic or professional bodies (including membership of Editorial Boards of scientific publications; membership of scientific committees for international conferences)

- Member from 2012 of *EGU European Geophysical Union*.
- Member from 2003 of *International Association for Hydro-Environment engineering and research IAHR/AIRH*.
- Member from 2002 of *GII Gruppo Italiano di Idraulica*, Società scientifica del settore "idraulica, idrologia, costruzioni idrauliche e marittime".
- Member from 2014 of *Centro Studi Sistemi Acquedottistici*.
- Member from dal 1990 all'Ordine degli Ingegneri delle Province di Padova (till 2001, N. iscrizione 2440) e Trento (from 2001 to now, N. iscrizione 2901).

Other

- Referee SCIENTIFIC JOURNALS

Reviewer for several scientific journals, including:

Journal of Fluid Mechanics;

Water Resources

Research; Advances in

Water Resources;

ASCE Journal of Hydraulic

Engineering; Journal of

Geophysical Research; Journal of

Hydrology;

Journal of Hydraulic Research AIRH / IAHR;

Hydrological Sciences Journal / Journal des Sciences hydrologiques AISH

/ IAHS;

Central European Journal of Mathematics CEJM;

Neural Computing and Applications;

Acta

Geophysica;

Water;

Auditor at CINECA for the evaluation of research products delivered for VQR 2004-2010.

External referee for the research proposals submitted to the National Research Council of the Romanian Government-Ministry of Education Research, Youth and Sport.

External referee for the research proposals submitted to the Engineering and Physical Sciences Research Council (UK). EPSRC is the main UK government agency for funding research and training in engineering and the physical sciences.

Responsible for more than 50 research contracts, international, national, regional, private companies, for an amount of more than 6 million euros.

Tutor or cotutor of more than 20 PhD students in the field of Environmental Engineering, Energy engineering.

Publications

- Metrics (SCOPUS): **108** documents; **2607** citations; H-index **30** (source Scopus, Feb 2026)

- List of selected publications

- Particle-fluid interactions in a plane near-wall turbulent flow (2004) Journal of Fluid Mechanics, 505, pp. 93 – 121 DOI: 10.1017/S0022112004008304
- May the Shields theory be extended to cohesive and adhesive benthic sediments? (2007) Journal of Geophysical Research: Oceans, 112 (5), art. no. C05039 DOI: 10.1029/2006JC003669
- Experimental study of the flow field over bottom intake racks (2008) Journal of Hydraulic Engineering, 134 (1), pp. 15 – 22 DOI: 10.1061/(ASCE)0733-9429(2008)134:1(15).
- Flow analysis in a channel with flexible vegetation using double-averaging method (2008) Acta Geophysica, 56 (3), pp. 801 – 823 DOI: 10.2478/s11600-008-0032-z F
- low resistance in open channel flows with sparsely distributed bushes (2002) Journal of Hydrology, 269 (1-2), pp. 55 – 64 DOI: 10.1016/S0022-1694(02)00194-4
- Applications of XGBoost in water resources engineering: A systematic literature review (Dec 2018–May 2023) (2024) Environmental Modelling and Software, 174, art. no. 105971 DOI: 10.1016/j.envsoft.2024.105971
- Optimal irrigation scheduling for sustainable agriculture: Minimising energy costs in rotational management (2025) Agricultural Water Management, 322, art. no. 109986 DOI: 10.1016/j.agwat.2025.109986
- The design of 100 % renewable smart urb an energy systems: The case of Bozen-Bolzano (2020) Energy, 207, art. no. 118198 DOI: 10.1016/j.energy.2020.118198 The structure of gravel-bed flow with intermediate submergence: A laboratory study
- (2015) Water Resources Research, 51 (11), pp. 9232 – 9255 DOI:10.1002/2015WR017272
- An overview of controlled sediment flushing operations: Perception, issues and management strategies across the European Alps (2025) Journal of Hydrology: Regional Studies, 60, art. no. 102570 DOI: 10.1016/j.ejrh.2025.102570
- On the structure of turbulent gravel bed flow: Implications for sediment transport (2016) Advances in Water Resources, 92, pp. 90 – 104 DOI: 10.1016/j.advwatres.2016.04.001
- Hydropeaking mitigation project on a multi-purpose hydro-scheme on Valsura River in South Tyrol/Italy (2017) Science of the Total Environment, 574, pp. 642 – 653 DOI: 10.1016/j.scitotenv.2016.09.088
- An Ensemble Neural Network Model to Forecast Drinking Water Consumption (2022) Journal of Water Resources Planning and Management, 148 (5), art. no. 04022014 DOI: 10.1061/(ASCE)WR.1943-5452.0001540
- A probabilistic/deterministic approach for the prediction of the sediment transport rate (2015) Advances in Water Resources, 81, pp. 10 – 18 DOI: 10.1016/j.advwatres.2014.09.008
- Sustainable Energy Management Through Optimized Hybrid Hydro–Solar Systems (2025) Energies, 18 (24), art. no. 6412
- DOI: 10.3390/en18246412

Spin-offs, patents and entrepreneu rship

Creator, promoter and founding partner of the Spin-Off "Hydromates" (founded February 9, 2012). Hydromates develops tools Open Source, with innovative contents, for the analysis and management of the integrated water cycle. The company provides decision-making tools and methodologies to optimize operating costs and increase the sustainability of water infrastructure. The spin-off of the University has been selected among the ten best innovative green economy initiatives carried out by young people in Italy, according to a survey carried out in Italian universities. In June 2012, in Rome, the official presentation to the Environment Minister Corrado Clini and a large audience at the first edition of the Greening camp

Creator, promoter and founding partner of the Spin-Off "AI_AQUA". AIAQUA's mission is to provide small and medium-sized operators in our region with a simple, comprehensive and innovative solution for the rational management and intelligent planning of water supply systems, through the use of Artificial Intelligence techniques.

Language competence

English, writing and speaking level equivalent to C1Level

