

Alessio Radice, Ph.D.

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Personal data

Born in Seregno (MB), on January 14th, 1976
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Education

2005: Ph.D., Hydraulic Engineering, Politecnico di Milano
2000: M.Sc., Civil Engineering, Politecnico di Milano
1994: Liceo Scientifico 'M. Curie', Meda (MB)

Academic position

2014 - present Associate Professor (holding the "Abilitazione Scientifica Nazionale", National Qualification for full professorship, 2021) of Hydraulics at the Politecnico di Milano, Department of Civil and Environmental Engineering
2013 - 2014: Assistant Professor of Hydraulics at the Politecnico di Milano, Department of Civil and Environmental Engineering (after Department reorganization)
2004 - 2012: Assistant Professor of Hydraulics at the Politecnico di Milano, Department of Hydraulic, Environmental, Infrastructural and Surveying Engineering

Academic duties

2021 - present: Member of the Management Committee of the Hydraulics Laboratory (LIF), Politecnico di Milano
2020 - present: Deputy Coordinator of study programs at the Politecnico di Milano (B. Sc. in Ingegneria Civile per la Mitigazione del Rischio, M.Sc. in Civil Engineering for Risk Mitigation)
2019: Coordinator of study program at the Politecnico di Milano (M.Sc. in Civil Engineering for Risk Mitigation)
2018 - present: member of the Board of Professors of the Ph.D. program in Environmental and Infrastructure Engineering of the Politecnico di Milano
2017 - present: member of the Teaching Committee of the Department of Civil and Environmental Engineering of the Politecnico di Milano
2014 - present: scientific responsible for the Mountain Hydraulics Lab ("Laboratorio di Idraulica Montana", LIM) at the Lecco campus of the Politecnico di Milano
2013 - 2019: delegate for quality certification ("referente Assicurazione Qualità") of study programs for the School of Civil, Environmental and Territorial Engineering of the Politecnico di Milano (M.Sc. in Civil Engineering for Risk Mitigation)
2013 - 2015: member of the Scientific Committee of the Department of Civil and Environmental Engineering of the Politecnico di Milano
2004 - present: tenure of courses at the Politecnico di Milano (most recently: *Fluid Mechanics* for Mechanical Engineers, *River Hydraulics* and *Hydrogeological Risk* for Civil Engineers)

External responsibilities

2021 - present: Member of the Teacher Committee ("Commissione Docenti"), Ordine degli Ingegneri della Provincia di Monza e della Brianza

- 2020 - present: Associate Editor, Hydrology (MDPI, ISSN: 2306-5338); formerly member of the Editorial Board (2018 - 2020)
- 2017 - 2019: Chair of the Committee on Experimental Methods and Instrumentation, International Association for Hydro-Environment Engineering and Research (IAHR); formerly vice chair (2015 - 2017), then past chair (2019 - 2021)

Awards and recognitions

- 2018: Invited Keynote speaker, ISHMMT 2018, 2nd Int. Symposium on Hydraulic Modeling and Measuring Technology, Nanjing, China
- 2012: Outstanding Reviewer for the Journal of Hydraulic Engineering (ASCE)
- 2000: "G. Nosedà" award for the best graduate student in Hydraulic Engineering at the Politecnico di Milano

Research topics

- Bed-load sediment transport at grain scale, turbulence-sediment interaction
- Local bridge scour processes and countermeasures
- River bed-forms
- Altimetric evolution of river beds and implications for flood risk
- Sediment yield from mountain basins
- Two-dimensional inundation modelling for flood damage and risk assessment
- Flood risk analysis and mitigation in developing countries

Research projects and grants

- 2018 - 2020: Fondazione Cariplo: Sustainable Management of sediment transport in response to climate change conditions (SMART-SED), Leader of workgroup
- 2017 - 2019: Fondazione Cariplo: Flood-IMPAT+ An integrated meso & micro scale procedure to assess territorial flood risk, Participant
- 2013 - 2016: FP7-PEOPLE-2012-ITN: HYdrodynamic Transport in Ecologically Critical Heterogeneous interfaces (HYTECH), Participant
- 2009: Grant for research start-up by Regione Lombardia: Risk by Sediment Sources in Mountain Environments (RISSME), Principal Investigator
- 2008: "Dote ricercatori" within "Linee di sviluppo per valorizzare il capitale umano" by Regione Lombardia: Fenomeni di trasporto solido in ambiti montani, Principal Investigator
- 2008 - 2010: Prin 2007: Models and measurements of flow-sediment interactions at spatial and temporal scales of physical interest (MOMICS), Participant
- 2006 - 2007: Prin 2005: Bed erosion at river bridges, Participant
- 2004 - 2006: Firb 2001: Coherent structures in local scour processes, Participant
- 2003 - 2004: Prin 2002: Hydrodynamic interactions among flow, riverbed and structures at fluvial bridges, Participant
- 2013 - 2014: Grants for best young researchers of the Department of Civil and Environmental Engineering of the Politecnico di Milano
- 2009 - 2011: Grants for best young researchers of the Department of Hydraulic, Environmental, Infrastructural and Surveying Engineering of the Politecnico di Milano

Research contracts

- 2021 - 2022: Istituto OIKOS – Adattamento al cambiamento climatico e perseguimento dell'uguaglianza sociale nella provincia di Cabo Delgado in Mozambico (Adapting to climate change and pursuing social equality in the Cabo Delgado province, Mozambique)
- 2021 - 2022: Autorità di Bacino Distrettuale del Fiume Po – Metodi per l'aggiornamento delle mappe della pericolosità idraulica relativamente al Piano Operativo Annuale 2021 (Methods for updating the hydraulic hazard maps for operational plan of 2021)

- 2021: Stabilimento Versalis SpA di Mantova (MN) – Analisi dell'area Valletta a supporto di CTP incaricati (Analysis of the Valletta area supporting technical consultants)
- 2021: Alpina SpA – Modellazione numerica e fisica del bypass idraulico della frana del Ruinon sul torrente Frodolfo in Valfurva, provincia di Sondrio (Physical and numerical modelling of the bypass around the Ruinon landslide on the Frodolfo river in Valfurva, province of Sondrio)
- 2020: Edison SpA – Modellazione idrodinamica bidimensionale del flusso a un'opera di presa idroelettrica (Two-dimensional hydraulic modelling of the flux at a hydro-electric intake)
- 2020: Autorità di Bacino Distrettuale del Fiume Po – Metodi per l'aggiornamento delle mappe della pericolosità idraulica relativamente al Piano Operativo Annuale 2019 (Methods for updating the hydraulic hazard maps for operational plan of 2019)
- 2020: Stabilimento Versalis SpA di Mantova (MN) – Modellazione della funzionalità idraulica del canale "Sisma" con scenari di intervento per la rimozione della contaminazione di sedimento (Assessment of the hydraulic functionality of the "Sisma" under intervention scenarios for removal of sediment contamination)
- 2019: Stabilimento Versalis SpA di Mantova (MN) – Proposte di intervento per la mitigazione degli impatti dell'erosione di suolo nell'area "Valletta" (Proposals for measures to mitigate negative impacts of soil erosion in an area nearby a chemical plant)
- 2019: Stabilimento Versalis SpA di Mantova (MN) – Modellazione degli scambi idrici tra l'area "Valletta" e il fiume Mincio (Modelling water exchanges between an area nearby a chemical plant and the Mincio river)
- 2018: Stabilimento Versalis SpA di Mantova (MN) – Sviluppo di un modello di apporto liquido e solido alla chiusura dell'area "Valletta", e analisi degli scambi di massa con l'esterno (Modelling soil and water yield for an area nearby a chemical plant)

Research collaborations

National

Università degli Studi dell'Aquila, L'Aquila, Italy
 Università degli Studi di Napoli "Federico II", Naples, Italy
 Università degli Studi di Napoli "Parthenope", Naples, Italy
 Università degli Studi di Padova, Padova, Italy
 Università degli Studi di Parma, Parma, Italy
 Scuola Universitaria Superiore di Pavia, Pavia, Italy
 Università degli Studi di Trento, Trento, Italy
 Università degli Studi di Trieste, Trieste, Italy
 Istituto OIKOS, Milano, Italy

International

Amirkabir University of Technology, Teheran, Iran
 Indian Institute of Technology at Kharagpur, Kharagpur, India
 Indian Statistical Institute, Kolkata, India
 King Fahd University of Petroleum and Minerals, Dhahran, Saudi Arabia
 Polish Academy of Sciences, Warsaw, Poland
 Riga Technical University, Riga, Latvia
 University of Agricultural and Natural Resource Science of Sari, Sari, Iran
 University of Guilan, Rasht, Iran
 University of Aberdeen, Aberdeen, UK
 University of Canterbury, Christchurch, New Zealand
 University of Sheffield, Sheffield, UK
 Vanderbilt University, Nashville, US

Student supervision

2 Ph.D. theses (1 as supervisor and 1 as co-supervisor)
 33 M.Sc. theses (23 as supervisor and 10 as co-supervisor)

14 B.Sc. theses (6 as supervisor and 8 as co-supervisor)

Reviewer service

Journal papers (more than 70)

Sedimentology ++ Journal of Hydraulic Research ++ ASCE Journal of Hydraulic Engineering ++ Journal of Hydrology ++ Advances in Water Resources ++ Water Resources Research ++ International Journal of Safety and Security Engineering ++ Journal of Geophysical Research - Earth Surface ++ Granular Matter ++ Advances in Civil Engineering ++ Catena ++ Geotechnique Letters ++ International Journal of the Physical Sciences ++ Proceedings of ICE - Water Management ++ Stochastic Environmental Research and Risk Assessment ++ Journal of Mountain Science ++ Acta Geophysica ++ Journal of Flood Risk Management ++ KSCE Journal of Civil Engineering ++ Computers and Models with Applications ++ Earth Surface Processes and Landforms ++ Hydrological Sciences Journal ++ Measurement Science and Technology ++ Environmental Fluid Mechanics ++ International Journal of Sediment Research ++ Water ++ Hydrology ++ Entropy ++ ISH Journal of Hydraulic Engineering ++ Journal of Hydro-Environment Research ++ Review of Scientific Instruments ++ Journal of Fluid Mechanics ++ JFM Rapids ++ Journal of Visualized Experiments ++ Applied Sciences ++ Journal of River Basin Management

Research projects

European Research Council, call FP7-Ideas
CONICYT, Chile, call for regular proposals 2016
FONDECYT, Chile, call for regular proposals 2020

Conference service

2020: River Flow 2020, Delft, The Netherlands (online edition). Member of the International Scientific Committee
2019: XXXVIII Congress of IAHR, Panama City, Panama. Member of the International Scientific Committee
2019: Conference Chairman, HydroSenSoft 2019, 2nd Int. Symposium and Exhibition on Hydro-Environment Sensors and Software, Madrid, Spain
2018: IWEMSE 2018, International Workshop on Environmental Management, Science and Engineering, Xiamen, China. Member of the Technical Program Committee
2018: 5th IAHR-EU Congress, Trento, Italy. Master in a class on Experimental methods and experimental techniques used in fluid mechanics and river hydraulics; convener and chairman of session on New trends in data collection and analysis for environmental and industrial applications
2018: ISHMMT 2018, 2nd Int. Symposium on Hydraulic Modeling and Measuring Technology, Nanjing, China. Vice-chairman of the International Scientific Committee; chairman of keynote session; chairman of session on New technology of river engineering simulation
2017: HydroSenSoft 2017, Int. Symposium and Exhibition on Hydro-Environment Sensors and Software, Madrid, Spain. Member of the International Scientific Committee; chairman of keynote session; chairman of session on Pressure and imaging techniques
2015: EGU General Assembly, Vienna, Austria. Chairman of poster session on Granular mechanics in the geomorphological context
2014: River Flow 2014, Lausanne, Switzerland. Chairman of session on Dyke and dam erosion
2009: XXXIII Congress of IAHR, Vancouver, Canada. Chairman of session on Laboratory experiments, instrumentation, and hydraulic modeling

Membership of evaluation panels

2014: invited member of Ph.D. Committee, EPFL, Lausanne, Switzerland
2008: member of the panel for recruitment of an Assistant Professor of Hydraulics at Seconda Università di Napoli

Teaching

Teaching activity at the Politecnico di Milano since 2004.

Courses taught in Italian

Meccanica dei Fluidi (Fluid Mechanics) for Mechanical Engineers
 Idraulica II (Advances in Hydraulics) for Civil and Environmental Engineers
 Idraulica Fluviale per la Protezione del Territorio (Fluvial Hydraulics for Land Protection) for Civil Engineers

Courses taught in English

River Hydraulics for Civil Engineers
 Flood Risk for Civil Engineers
 Hydrogeological Risks in Mountain Area for Civil Engineers
 Numerical Methods for Partial Differential Equations for Civil Engineers
 Experimental Thermal Fluid Dynamics for the Doctorate School

List of courses taught (B.Sc. and M.Sc.)

<i>Academic Year</i>	<i>Course</i>	<i>Language</i>	<i>Level</i>	<i>Study program</i>
2004-05	Idraulica Fluviale per la Protezione del Territorio	Italian	M.Sc.	Ingegneria Civile
2005-06	Idraulica Fluviale per la Protezione del Territorio	Italian	M.Sc.	Ingegneria Civile
2005-06	Idraulica II	Italian	M.Sc.	Ingegneria Civile
2006-07	Meccanica dei Fluidi I	Italian	B.Sc.	Ingegneria Meccanica
2007-08	Meccanica dei Fluidi I	Italian	B.Sc.	Ingegneria Meccanica
2008-09	River Hydraulics	English	M.Sc.	Civil Engineering
2009-10	River Hydraulics	English	M.Sc.	Civil Engineering
2010-11	Shallow Water Equations Laboratory <i>within</i> Numerical Methods for PDE	English	M.Sc.	Civil Engineering for Risk Mitigation
2010-11	River Hydraulics for Flood Risk Evaluation <i>within</i> Flood Risk	English	M.Sc.	Civil Engineering for Risk Mitigation
2011-12	Shallow Water Equations Laboratory <i>within</i> Numerical Methods for PDE	English	M.Sc.	Civil Engineering for Risk Mitigation
2011-12	River Hydraulics for Flood Risk Evaluation <i>within</i> Flood Risk	English	M.Sc.	Civil Engineering for Risk Mitigation
2012-13	Meccanica dei Fluidi	Italian	B.Sc.	Ingegneria della Produzione Industriale
2012-13	River Hydraulics for Flood Risk Evaluation <i>within</i> Flood Risk	English	M.Sc.	Civil Engineering for Risk Mitigation
2013-14	Meccanica dei Fluidi	Italian	B.Sc.	Ingegneria della Produzione Industriale
2013-14	River Hydraulics for Flood Risk Evaluation <i>within</i> Flood Risk	English	M.Sc.	Civil Engineering for Risk Mitigation
2014-15	Meccanica dei Fluidi II <i>within</i> Meccanica dei Fluidi	Italian	B.Sc.	Ingegneria della Produzione Industriale
2014-15	Hydrogeological Risks in Mountain Area <i>within</i> integrated course with same name	English	M.Sc.	Civil Engineering for Risk Mitigation

2014-15	River Hydraulics for Flood Risk Evaluation <i>within</i> Flood Risk	English	M.Sc.	Civil Engineering for Risk Mitigation
2015-16	Meccanica dei Fluidi	Italian	B.Sc.	Ingegneria Meccanica
2015-16	River Hydraulics for Flood Risk Evaluation <i>within</i> Flood Risk	English	M.Sc.	Civil Engineering for Risk Mitigation
2016-17	Meccanica dei Fluidi	Italian	B.Sc.	Ingegneria Meccanica
2016-17	Hydrogeological Risks in Mountain Area <i>within</i> integrated course with same name	English	M.Sc.	Civil Engineering for Risk Mitigation
2016-17	River Hydraulics for Flood Risk Evaluation <i>within</i> Flood Risk	English	M.Sc.	Civil Engineering for Risk Mitigation
2017-18	Meccanica dei Fluidi	Italian	B.Sc.	Ingegneria Meccanica
2017-18	Hydrogeological Risks in Mountain Area <i>within</i> integrated course with same name	English	M.Sc.	Civil Engineering for Risk Mitigation
2018-19	Meccanica dei Fluidi	Italian	B.Sc.	Ingegneria Meccanica
2018-19	Hydrogeological Risks in Mountain Area <i>within</i> integrated course with same name	English	M.Sc.	Civil Engineering for Risk Mitigation
2019-20	Meccanica dei Fluidi	Italian	B.Sc.	Ingegneria Meccanica
2019-20	Hydrogeological Risks in Mountain Area <i>within</i> integrated course with same name	English	M.Sc.	Civil Engineering for Risk Mitigation
2020-21	Meccanica dei Fluidi	Italian	B.Sc.	Ingegneria Meccanica
2020-21	Hydrogeological Risks in Mountain Area <i>within</i> integrated course with same name	English	M.Sc.	Civil Engineering for Risk Mitigation
2020-21	River Hydraulics for Flood Risk Evaluation	English	M.Sc.	Civil Engineering for Risk Mitigation

Engineering competencies

Member of the Association of Engineers, Province of Monza e Brianza, Italy, since 2007.

Hydrologic and hydraulic studies:

- contributed to the "studio di fattibilità della sistemazione idraulica dei fiumi Adda, Brembo e Serio"
- contributed to the "valutazione della vulnerabilità idraulica del ponte sul fiume Po a Borgoforte"
- contributed to the "protezione di una pila di ponte sul fiume Po a Sermide"
- contributed to the "valutazione della pericolosità alluvionale del fiume Lambro a Milano e progettazione di interventi"

Seminars for professionals

2019: Lecture: "Fondamenti teorici" within the course "Invarianza idraulica e idrologica", organized by the Ordini degli Ingegneri delle Province di Como e Varese

2018: Lecture: "Fondamenti teorici" within the course "Invarianza idraulica e idrologica", organized by the Ordine degli Ingegneri della Provincia di Varese

2017: Lecture: "Nozioni di Idraulica" within the course "Fondamenti di Idraulica e Costruzioni Idrauliche per la difesa del suolo", organized by the Consulta Regionale degli Ordini degli Ingegneri della Lombardia