

Alessandro LEONARDI

Civil Engineer, PhD Candidate

Born in Thiene (IT), 19 September 1987 | Italian Citizen

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PROFESSIONAL INTERESTS

Coupled Problems	Fluid-Structure Interaction
Geophysical flows	Sediment Transport
Lattice-Boltzmann Method	Discrete Element Method

EDUCATION

OCT 2015	PHD, ETH Zürich , Switzerland Thesis: <i>Numerical simulation of debris flow and interaction between flow and obstacle via DEM</i> Advisor: Prof. Hans J. HERRMANN
JUL 2012	Master in CIVIL ENGINEERING, University of Padua , Italy 110/110 <i>Full Marks</i> Major: Structural Engineering Thesis: <i>Fluid-structure interaction and fluid-dynamic analysis for vertical axis wind turbines</i> Advisor: Prof. Renato VITALIANI AVERAGE GRADE: 27/30 Detailed List of Exams (IT) (EN)
SEP 2009	Bachelor in CIVIL ENGINEERING University of Padua , Italy 110/110 <i>Full Marks</i> Thesis: <i>Thermal and structural analysis for cylindrical tanks containing high-temperature molten salt</i> Advisor: Prof. Valentina SALOMONI AVERAGE GRADE: 28/30 Detailed List of Exams (IT) (EN)

WORK EXPERIENCE

SEP 1015 CURRENT	IDROSTUDI SRL, TRIESTE (IT) <i>Civil Engineer, Researcher</i> Development of a software package, based on a research code from the <i>University of Trieste</i> , for the simulation of sediment transport and erosion problems. The final goal is obtaining a tool applicable to real cases in river and coastal engineering. The work is carried on in collaboration with the group of Prof. Vincenzo ARMENTO of the <i>University of Trieste</i> .
JUL 2014 AUG 2015	ITASCA CONSULTANTS GMBH, Gelsenkirchen (DE) <i>Research assistant</i> Further work on the code developed at ETH, with focus on applications, in particular on flexible barriers for debris flow. This required the coupling with a <i>Finite Element Method</i> code for thin shells.
AUG 1012 JUL 2014	ETH ZÜRICH, Zurich (CH) <i>Research assistant</i> Development (from scratch) of a C++ code for the simulation of particle-fluid mixtures. The code implements the most recent advances in the <i>Discrete Element Method</i> and the <i>Lattice-Boltzmann Method</i> . Study on the feasibility of full-scale simulations of natural hazards such as mudflows and debris-flow. Experimental campaign carried on with the collaboration of the <i>University of Natural Resources and Life Sciences, Vienna</i> .

PUBLICATIONS

- **A. Leonardi***, M. Cabrera*, F. K. Wittel, R. Kaitna, M. Mendoza, W. Wu, and H. J. Herrmann, “Granular front formation in free-surface flow of concentrated suspensions,” under review (*co-first authors) ([arXiv](#)).
- **A. Leonardi**, F. K. Wittel, M. Mendoza, R. Vetter, and H. J. Herrmann, “Particle-fluid-structure interaction for debris flow impact on flexible barriers,” in print for *Computer-Aided Civil and Infrastructure Engineering*, 2014 ([link](#), [arXiv](#)).
- **A. Leonardi**, F. K. Wittel, M. Mendoza, and H. J. Herrmann, “Coupled DEM-LBM method for the free-surface simulation of heterogeneous suspensions,” *Computational Particle Mechanics*, vol. 1, pp. 3–13, 2014 ([link](#), [arXiv](#)).
- **A. Leonardi**, F. K. Wittel, M. Mendoza, and H. J. Herrmann, “Lattice-Boltzmann Method for Geophysical Plastic Flows,” in *Recent Advances in Modeling Landslides and Debris Flows* (W. Wu, ed.), pp. 131–140, Springer International Publishing Switzerland, 2014 ([link](#), [arXiv](#)).
- **A. Leonardi**, F. K. Wittel, M. Mendoza, and H. J. Herrmann, “Multiphase Debris Flow Simulations with the Discrete Element Method Coupled with a Lattice-Boltzmann Fluid,” in *III International Conference on Particle-based Methods – Fundamentals and Applications*, Stuttgart (Germany), pp. 276–287, 2013 ([link](#)).
- R. Vitaliani, T. Morbiato, and **A. Leonardi**, “Simulations for the Characterization of Wind Profiles Generated by Road Traffic,” in *Meeting of the Italian Group of Computational Mechanics GIMC 2012*, Rossano (Italy), 2012.

SCHOLARSHIPS AND CERTIFICATES

SEPT. 2015-2017	Marie Curie ER Fellowship
SEPT. 2012-2015	Marie Curie ESR Fellowship
MAY 2012	TOEFL - Internet-Based Test (Score: 109/120)
OCT. 2011	Appointment as Tutor Jr., University of Padua Teaching basic Mathematics and Physics to first year undergraduates.

LANGUAGES

ITALIAN	Native speaker
ENGLISH	Full proficiency
GERMAN	Fluent
SPANISH	Fluent

COMPUTER SKILLS

Good Knowledge:	C++, MATLAB, STRAND7, \LaTeX , MS Excel, MS Word, MS PowerPoint.
Basic Knowledge:	Fortran, ANSYS Fluent, AutoCAD, Ms Access, LINUX OpenSUSE.

REFERENCES

ETH ZÜRICH, Prof. Dr. Hans J. Herrmann (website)	hans@ifb.baug.ethz.ch
ETH ZÜRICH, Dr. Falk k. Wittel (website)	fwittel@ethz.ch