

PERSONAL INFORMATION

Name **ALESSANDRO ANTONINI**
Current address
Nationality **Italian**
Mother tongue **Italian**
Date of birth
Mobile tel.

WhatsApp

E-mail

WORK EXPERIENCE

• Dates (from – to) **1 JULY 2024 – Current**

- Name of the employer Delft University of Technology
- Type of business or sector Associate Professor of Coastal Structures
 - Main activities
 - Numerical and physical modelling wave structures interaction (offshore and coastal).
 - Probabilistic design of Coastal and Marine structures.
 - Characterisation of the dynamic response of marine structures.
 - Teaching: Breakwater design; Bed, Bank and Shore Protection; Fluid-structure interaction

• Dates (from – to) **1 DECEMBER 2018 – 30 June 2024**

- Name of the employer Delft University of Technology
- Type of business or sector Assistant Professor of Coastal Structures
 - Main activities
 - Numerical and physical modelling wave structures interaction (offshore and coastal).
 - Probabilistic design of Coastal and Marine structures.
 - Characterisation of the dynamic response of marine structures.
 - Teaching: Breakwater design; Bed, Bank and Shore Protection; Fluid-structure interaction

• Dates (from – to) **1 DECEMBER 2017 - 30 NOVEMBER 2018**

- Name of the employer University of Plymouth
- Type of business or sector Lecturer in Coastal Engineering
 - Main activities
 - Numerical and physical modelling wave structures interaction (offshore and coastal).
 - Characterisation of the dynamic response of marine structures.
 - Teaching: Harbour Engineering, Coastal Engineering, Marine Engineering, Thermo-Fluid dynamics

• Dates (from – to) **11 July 2016 - 30 NOVEMBER 2017**

- Name of the employer University of Plymouth

- Type of business or sector Post-Doctoral Research Assistant
 - Main activities - *CFD modelling of offshore rock lighthouses under the action of impulsive wave loads.*
- *Physical modelling of offshore rock lighthouses under the action of impulsive wave loads.*
- *Field modal tests and data analysis of offshore rock lighthouse.*
 - **Dates (from – to)** **1 JANUARY 2012 - 30 NOVEMBER 2017**
 - Name of the employer Independent Consultant
- Type of business or sector Engineer
 - Main activities - *Design of harbour/marina and coastal structures.*
- *Marine works site engineer.*
- *Design of Structures.*
 - **Dates (from – to)** **1 JANUARY 2014 - 10 JULY 2016**
 - Name of the employer CoNISMA – CNR
- Type of business or sector Research fellow
 - Main activities Numerical modelling of hydrodynamic coastal processes through open source code:
TELEMAC-MASCARET
 - **Dates (from – to)** **1 JANUARY 2014 – 10 JULY 2016**
 - Name of the employer University of Bologna
- Type of business or sector Research fellow
 - Main activities Applied fluid mechanics for the marine environment
- *Numerical and physical modelling wave structures interaction (offshore and coastal).*
- *Numerical modelling of wave energy converters.*
- *European project: TESSA: Weather forecast for safe marine operations and navigation.*
 - **Dates (from – to)** **APRIL 2010 – DECEMBER 2010**
 - Name of the employer Design firm: Nicola Somà s.r.l
- Type of business or sector Structural Engineering
 - Main activities - *Structural design and assistant site engineer*

EDUCATION AND TRAINING

- **Dates (from)** **JANUARY 2011 – MAY 2014**
- Name and type of organization providing education and training *PhD degree in civil engineering. University of Bologna*
- Title of PhD thesis Wave driven devices for the oxygenation of bottom layers
Supervisor: Prof. Alberto Lamberti

Visiting researcher: Davidson Laboratory, Stevens Institute of Technology (US),
1/9/2012 – 28/2/2013

• Dates (from – to) • Name and type of organization providing education and training • Title of Master's thesis • Principal subject	OCTOBER 2007 – MARCH 2010 Master's degree in civil engineering, hydraulics. University of Bologna "Experimental analysis of the attenuation of the incident wave of a device of type wave activated body" - Carried out at the University of Aalborg (DK), 1/9/2009 – 28/2/2010 Hydraulic engineering: Coastal and Offshore engineering.
• Title of qualification awarded • Comprehensive final grade	Master of Science in Civil Engineering - Hydraulic. 110/110
• Dates (from – to) • Name and type of organization providing education and training • Title of Bachelor's thesis • Principal subjects	SEPTEMBER 2004 – OCTOBER 2007 Bachelor's degree in Civil Engineering, hydraulics. University of Bologna "Material Analysis and Failures in Sewer Pipes: NO-DIG Rehabilitation Technologies" Civil engineering: Hydraulics
• Title of qualification awarded • Comprehensive final grade	Bachelor of Science in Civil Engineering - Hydraulics. 106/110
• Dates (from – to) • Name and type of organization providing education and training • Title of qualification awarded • Comprehensive final grade	SEPTEMBER 1999 – JULY 2004 High school leaving qualifications in building surveyor Diploma in surveying 100/100

PERSONAL SKILLS AND COMPETENCE

MOTHER TONGUE

ITALIAN

OTHER LANGUAGES
SELF-ASSESSMENT
EUROPEAN LEVEL

ENGLISH	Comprehension	Spoken	Written
	Listening C1	Interplay C1	Speaking C1
	Reading C1	Speaking C1	Writing C1
	Proficient	Proficient	Proficient

TECHNICAL SKILLS
AND
MAIN SOFTWARE
CAPACITIES

Numerical models: STARR-CCM+ (proficient); WAMIT (proficient); Open-Foam (self-sufficient); MIKE 21-SW (self-sufficient); AQWA (self-sufficient); OPEN TELEMACHASCARET (basic knowledge);
Structural numerical models: MODAL (proficient); Jasp (proficient); DIANA (self-sufficient); ME'scope (self-sufficient); PLAXIS (self-sufficient); ABAQUS (basic knowledge). **Cad:** AUTOCAD 2D & 3D (proficient); RHINO (proficient); MATLAB (proficient); LabVIEW (basic knowledge). WAVE TANK & FLUME LABORATORY (proficient)

- QUALIFICATIONS
- Fellow of the UK Higher Education Academy;
 - Chartered engineer;
 - Helicopter Underwater Escape Training course (with CA EBS). Approved by OPITO; - Italian National Scientific qualification for Associate Professor.

PUBLICATIONS:

JOURNAL
PAPERS

- Ter Meulen D.W., Cabboi A., **Antonini A.**, 2025. Hybrid operational modal analysis of an operative two-bladed offshore wind turbine. Mechanical systems and signal processing, 223, 111822.
- Diakomopoulos F., **Antonini A.**, Bakker A.M.R., Stancanelli L.M., Hrachowitz M., Ragno E., 2024.
- Probabilistic characterizations of flood hazards in deltas: Application to Hoek van Holland (Netherlands). Coastal Engineering, 194, 104603.
- Sartini, L., & **Antonini, A.**, 2024. On the spectral wave climate of the French Atlantic Ocean. Ocean Engineering, 304.
- Jonker, R. G., AlYousif, A., Hofland, B., **Antonini, A.**, Zoon, A., & Smith, G., 2024. OpenFOAM design sensitivity analysis on a homogeneous low-crested structure with concrete elements seaward of a vertical seawall to reduce overtopping. Ocean Engineering, 300, 117423.
- Willemsen, P. W. J. M., Klein Breteler, M., **Antonini, A.**, Dermentzoglou, D., Muller, J. R. M., Mason, V., Bouma, T. J., Vouziouris, A., Buring, P., Bijvoet, D., Hofland, B., & Borsje, B. W. (2024). De kracht van kweldergras: Test Deltagoot. Civiele techniek, 78(1/2), 36-39. (In Dutch).
- Brownjohn, J., Raby, A., Bassitt, J., **Antonini, A.**, Zhu, Z., & Dobson, P., 2024. Wolf Rock Lighthouse Long-Term Monitoring. Infrastructures, 9(4).
- Ragno, E., **Antonini, A.**, Pasquali, D., 2023. Investigating extreme sea level components and their interactions in the Adriatic and Tyrrhenian Seas. Weather and Climate Extreme, 41, 1000590.
- Hofland, B., Houtzager, D., Caldera, G., **Antonini, A.**, van Gent, M., Bakker, P., van der Lem, C., 2023. Rocking of single layer armour units measured by embedded sensors. Journal of Coastal and Hydraulic Structures, 3(28).
- Xu, H., Ragno, E., Tan, J., **Antonini, A.**, Bricker, J., Jonkman, B., Liu, Q., Wang, J., 2023. Perspectives on Compound Flooding in Chinese Estuary Regions. International Journal of Disaster Risk Science, 14, 269-279.
- Mortimer, W., Calvert, R., **Antonini, A.**, Greaves, D., Raby, A., van der Bremer, T., 2022. Implications of second-order wave generation for physical modelling of force and run-up on a vertical wall using wave groups. Coastal Engineering, 180, 104259.
- Masina, M., D'Ayala, D., **Antonini, A.**, 2022. Variations in Monthly Maximum Gust Speed at St Mary's, Isles of Scilly (UK). Earth and Space Science, 9 (11).
- Schlumberger, J., Ferrarin, C., Jonkman, S. N., Diaz Loaiza, M. A., **Antonini, A.**, and Fatorić, S., 2022. Developing a framework for the assessment of current and future flood risk in Venice, Italy, Natural Hazards and Earth System Sciences, 22(7), 2381-2400, doi:10.5194/nhess-22-2381-2022.
- Khosroshahi, S.F., Masina, M., **Antonini, A.**, Ransley, E., Brownjohn, J.M.W., Dobson, P., D'Ayala, D., 2022. A Multidisciplinary Computational Framework for Topology Optimisation of Offshore Helidecks. Journal of Marine Science and Engineering. 2022; 10(9):1180.

- Mortimer, W., Raby, A., **Antonini, A.**, Greaves, D., Van den Bremer, T., 2022. Correct generation of the bound set-down for surface gravity wave groups in laboratory experiments of intermediate to shallow depth. *Coastal Engineering*, 104121,.
- **Antonini, A.**, Brownjohn, J.M.W., Dassanayake, D.T., Raby, A., Bassit, J., Pappas, A., D'Ayala, D., 2021. A Bayesian inverse dynamic approach for impulsive wave loading reconstruction: Theory, Laboratory and Field application. *Coastal Engineering*, 168, 103920.
- Goeijenbier, B., Bricker, J., **Antonini, A.**, Malara, G., Hendriks, M., van der Ham, H., 2021. Structural Optimisation and Behaviour of the Breakwater Integrated Oscillating Water Column Device. *Journal of Coastal and Hydraulic Structures*.
- Pappas, A., D'Ayala, D., Dassanayake, D.T., **Antonini, A.**, Raby, A., 2021. Rocking of offshore lighthouses under extreme wave impacts: Limit analysis, analytic formulations and distinct element method. *Engineering Structures*, 228, 111534.
- Dermetzoglou, D., Castellino, M., De Girolamo, P., Partovi, M., Schreppers, G.J., **Antonini, A.**, 2021. Crownwall failure analysis through finite element method. *Journal of Marine Science and Engineering*, 9(1), 35, pag. 1-17.
- Dassanayake, D.T., **Antonini, A.**, Pappas, A., Raby, A., Brownjohn, J.M.W., D'Ayala, D., 2021. Influence of the spatial pressure distribution of breaking wave loading on the dynamic response of wolf rock lighthouse. *Journal of Marine Science and Engineering*, 9(1), 55, pag. 1-19.
- Miquel, A.M., Lamberti, A., **Antonini, A.**, Archetti, R., 2020. The MoonWEC, a new technology for wave energy conversion in the Mediterranean Sea. *Ocean Engineering*, 217, 107958.
- Zheng, S., **Antonini, A.**, Zhang, Y., Miles, J., Greaves, D., Zhu, G., Iglesias, G., 2020. Hydrodynamic performance of a multi-Oscillating Water Column (OWC) platform. *Applied Ocean Research*, 99, 102168.
- Zheng, S., **Antonini, A.**, Zhang, Y., Greaves, D., Miles, J., Iglesias, G., 2019. Wave power extraction from multiple oscillating water columns along a straight coast. *Journal of Fluid Mechanics*, 878: 445-480.
- Brownjohn, J.M.W., Raby, A., Au, S.K., Zhu, Z., Wang, X., **Antonini, A.**, Pappas, A., D'Ayala, D., 2019. Bayesian operational modal analysis of offshore rock lighthouses: close modes, alignment, symmetry and uncertainty. *Mechanical Systems and Signal Processing*, 133.
- Raby, A., **Antonini, A.**, D., D'Ayala, D., Brownjohn, J.M.W., 2019. Environmental loading of heritage structures. *Philosophical Transactions of the Royal Society A*, 377: 20190276.
- Raby, A., **Antonini, A.**, Pappas, A., Dassanayake, D., Brownjohn, J.M.W., D'Ayala, D., 2019. Wolf Rock lighthouse: past developments and future survivability under wave loading. *Philosophical Transactions of the Royal Society A*, 377: 20190027.
- **Antonini, A.**, Raby, A., Brownjohn, J.M.W., Pappas, A., D'Ayala, D., 2019. Survivability assessment of Fastnet lighthouse. *Coastal Engineering*, 150: 18 - 38.
- Brownjohn, J.M.W., Raby, A., Bassitt, J., **Antonini, A.**, Hudson, E., Dobson, P., 2018. Experimental modal analysis of British rock lighthouses. *Marine Structure*, 62: 1-22.
- Bressan L., Guerrero M., **Antonini A.**, Petruzzelli, V., Archetti, R., Lamberti, A., Tinti, S., 2018. A laboratory experiment on the incipient motion of boulders by tsunami flows. *Earth Surface Processes and Landform*, 43: 2935 - 2947.
- Miquel, A.M., **Antonini, A.**, Archetti, R., Bozzi, S., Lamberti, A., 2017. Non-linear modelling of a heaving point absorber: the surge effect. *International Journal of Marine Energy*, 19, 95-109.

- **Antonini, A.**, Archetti, R., Lamberti, A., 2017. Wave simulation for the design of an innovative quay wall: the case of Vlorë Harbour. *Nat. Hazards Earth Syst. Sci.*, 17, 127-142.
- Bozzi, S., Giassi, M., Moreno Miquel, A., **Antonini, A.**, Bizzozero, F., Gruosso, G., Archetti, R., Passoni, G., 2017. Wave energy farm design in real wave climates: the Italian offshore. *Energy*, 122, pp. 378-389.
- **Antonini, A.**, Lamberti, A., Archetti, R., Miquel, A.M., 2016. CFD investigations of OXYFLUX device, an innovative wave pump technology for artificial downwelling of surface water, *Applied Ocean Research*, 61, 16-31.
- **Antonini, A.**, Lamberti, A., Archetti, R., Miquel, A.M., 2016. Dynamic overset RANS simulation of a wave-driven device for the oxygenation of deep layers. *Ocean Engineering*, 127, 335-348.
- Schweizer, J., **Antonini, A.**, Govoni, L., Gottardi, G., Archetti, R., Supino, E., Berretta, C., Casadei, C., Ozzi, C. Investigating the potential and feasibility of an offshore wind farm in the Northern Adriatic Sea. *Applied Energy* 2016, 177, 449-463.
- Govoni, L., Gottardi, G., **Antonini, A.**, Archetti, R., Schweizer, J., 2016. Caisson Foundations for Competitive Offshore wind Farms in Italy. *Procedia Engineering*, 158, 392-397.
- **Antonini, A.**, Lamberti, A., Archetti, R., 2015. Oxyflux, an innovative wave-driven device for the oxygenation of deep layers in coastal areas: a physical investigation. *Coastal Engineering* 2015, 104; 54-68.
- Archetti, R., Miquel, A., **Antonini, A.**, Passoni, G., Bozzi, S., Gruosso, G., Scarpa, F., Bizzozero, F., Giassi, M., 2015. Designing a point-absorber wave energy converter for the Mediterranean Sea.

Energia Ambiente e Innovazione, 61(special2), 76-85, in Italian.

- **Antonini, A.**, 2015. Physical modelling of floating device for the oxygenation of deep layers sea. *Studi Costieri*, 2015, in Italian.
- Bozzi, S., Miquel, A.M., **Antonini, A.**, Passoni, G., Archetti, R., 2013. Modelling of a point absorber for energy conversion in Italian Seas, *Energies* 2013, 6, 3033-3051.

PUBLICATIONS:
CONFERENCE
PROCEEDING

- Poppema D., De Vries S., **Antonini A.**, 2024. Hybrid dune structures around the world: a new overview and field experiment. Proc. of the 38th International Conference on Coastal Engineering, ICCE 2024, Rome.
- Dermentzoglou D., Muller J., Lakerveld S., Borsje B., Hofland B., Tissier M., **Antonini A.**, 2024. Wave spectrum transformation over a salt marsh under extreme storm conditions. Proc. of the 38th International Conference on Coastal Engineering, ICCE 2024, Rome.
- **Antonini A.**, Dermentzoglou D., Muller J., Tissier M., Breteler M.K., Willemsen P., Mason V., Bouma T., Vouziouris A., Buring P., Hofland B., Borsje B., 2024. Salt marsh and extreme conditions: a large scale experiment. Proc. of the 38th International Conference on Coastal Engineering, ICCE 2024, Rome.
- Dassanayake D., Raby A., Ransley E., **Antonini A.**, Monk K., Greaves D., 2024. Effects of “dynamic amplification” on small-scale experimental measurements of coastal structures and their implications. Proc. of the 38th International Conference on Coastal Engineering, ICCE 2024, Rome.
- Raby A., Dassanayake D., **Antonini A.**, Ransley E., Monk K., Greaves D., 2024. Physical modelling of the Wolf rock lighthouse. Proc. of the 38th International Conference on Coastal Engineering, ICCE 2024, Rome.
- **Antonini A.**, Breteler M.K., Willemsen P., Dermentzoglou D., Muller J., Mason V., Bouma T., Vouziouris A., Buring P., Borsje B., 2024. Large-scale test of extreme hydrodynamic conditions over coastal salt marshes. CoastLab 2024: Physical Modelling in Coastal Engineering and Science, Delft, the Netherlands.
- Dermentzoglou D., Muller J., Lakerveld S., Borsje B., Hofland B., Tissier M., **Antonini A.**, 2024. Wave Reflection Analyses On Laser Scan Data From A Model Salt Marsh. CoastLab 2024: Physical Modelling in Coastal Engineering and Science, Delft, the Netherlands.
- Van Balen I., Cels J., Adams K., Baiguera M., Rossetto T., **Antonini A.**, Wüthrich D., Istrati D., Buldakov E., Chandler I., McGovern D., 2024. Tsunami Runup Attenuation By Onshore Obstacles. CoastLab 2024: Physical Modelling in Coastal Engineering and Science, Delft, the Netherlands.
- Roberts S., Raby A., Boulton S., Allsop W., **Antonini A.**, Van Balen I., Mc Govern D., Adams K., Chandler I., Cels J., Manzella I., 2024. Physical modelling of boulder transport under the influence of tsunami waves. CoastLab 2024: Physical Modelling in Coastal Engineering and Science, Delft, the Netherlands.
- Rossetto T., Chandler I., Adams K., **Antonini A.**, Van Balen I., Baiguera M., Buldakov E., McGovern D., del Zoppo M., Allsop W., Roberts S., Raby A., Istrati D., Nur Jannah Z., Lopez Querol P., Melo J., Wuthrich D., Barranco I., Eames I., Piggott M., Salah P., Boulton S.J., 2024. The MAKEWAVES tsunami tests and their relevance to tsunami engineering and risk management. World Conference on Earthquake Engineering, Milan, Italy.
- Houtzager D., Hofland B., Caldera G., Van der Lem C., Van Gent M., Bakker P., **Antonini A.**, 2023. Embedded Rocking Measurement of Single Layer Armour Units. Development and First Results. Coasts, Marine Structures and Breakwaters, Portsmouth, UK.
- Adams K., Rossetto T., Chandler I., **Antonini A.**, Allsop W., Baiguera M., Istrati D., Roberts R., 2023. The MAKEWAVES tsunami collaboration. Coasts, Marine Structures and Breakwaters, Portsmouth, UK.
- Van de Ven D., Hofland B., Van Kester D., Smith G., **Antonini A.**, 2023. Initial tests on reversed open filters on sand-covered rock mounds. Coasts, Marine Structures and Breakwaters, Portsmouth, UK.
- Muller J., Dermentzoglou D., Lakerveld S., Borsje B., Van Der Werf J., Hulscher S., Hofland B., **Antonini A.**, 2024. Quantifying wave-induced hydrodynamics near a saltmarsh cliff: an experimental PIV study. CoastLab 2024: Physical Modelling in Coastal Engineering and Science, Delft, the Netherlands.
- **Antonini, A.**, Lamberti, A., 2023. Wave-induced liquefaction: recent failure of coastal buried pipes and the use of the known models within the probabilistic design

Curriculum Vitae
Alessandro Antonini, PhD
framework. ISOPE 2023, 33rd International Ocean and Polar Engineering
Conference. Ottawa, Canada.

- Ter Meulen, D., **Antonini, A.**, Cabboi, A., Cicirello, A., 2023. Hybrid operational modal analysis of an operative two-bladed offshore wind turbine. XII international conference on Structural Dynamic, Delft, 2023.
- Antonini, A.**, Ragno, E., Pasquali, D., 2023. Surge-tide interaction along the Italian coastline. EGU 2023 Vienna.
- Chandler I, Adams K, Rossetto T, McGovern D, Raby A, Allsop W, Van Bladen, I., **Antonini, A.**, 2022. The MAKEWAVES tsunami research cooperation. ICE Breakwater: Coast, Marine Structure and Breakwaters, Portsmouth, UK.
 - Van de Ven, D., Hofland, B., Van Kester, D., Smith, G., **Antonini, A.**, 2023. Initial tests on reversed open filters on sand-covered rock mounds. ICE Breakwater: Coast, Marine Structure and Breakwaters, Portsmouth, UK.
 - Houtzager, D., Hofland, B., Caldera, G., Van der Lem, C., Van Gent, M., Bakker, P., **Antonini, A.**, 2023. Embedded rocking measurement of single layer armour units: Development and first results. ICE Breakwater: Coast, Marine Structure and Breakwaters, Portsmouth, UK.
 - Irias Mata, M., Boersen, S., Van Gent, M., **Antonini, A.**, Jensen, B., Van der Lem, C., 2022. A validation of wave loads on crest walls on top of composite breakwaters using Openfoam. Proc. of the 37th International Conference on Coastal Engineering, ICCE 2022, Sydney.
 - Castellino, M., **Antonini, A.**, Celli, D., Dermentzoglou, D., Pasquali, D., Di Risio, M., De Girolamo, P., 2022. Numerical experiments on the overhanging parapets under non-breaking wave conditions. Proc. of the 37th International Conference on Coastal Engineering, Baltimore, ICCE 2022, Sydney.
 - **Antonini, A.**, Dermentzoglou, D., de Almeida, E., Hofland, B., Celli, D., Pasquali, D., Di Risio, M., Castellino, M., De Girolamo, P., 2022. Physical experiments on overhanging parapets under nonbreaking wave conditions. Proc. of the 37th International Conference on Coastal Engineering, ICCE 2022, Sydney.
 - Mortimer, W., Raby, A., **Antonini, A.**, Van den Bremer, T., Calvert, R., 2022. Implications of second-order wave generation in run-up experiments using focused wave groups. Proc. of the 37th International Conference on Coastal Engineering, ICCE 2022, Sydney.
 - Zaalberg, P., Ockeloen, W., Hofland, B., **Antonini, A.**, Smith, G., 2020. The relation between sand and overtopping for cobble revetments: a numerical approach with OpenFoam. Proceedings of virtual Conference on Coastal Engineering.
 - Dassanayake, D., Raby, A., Ransley, E., **Antonini, A.**, Monk, K., Greaves, D., 2020. Modelling the Wolf Rock lighthouse. Proceedings of virtual Conference on Coastal Engineering.
 - Dassanayake, D., **Antonini, A.**, Raby, A., 2019. Physical Modelling of the Effect of Shoal Geometry on Wave Loading and Runup on a Cylinder. Proc. of the Coastal Structure conference, Hannover 2019.
 - Dassanayake, D., **Antonini, A.**, Raby, A., 2019. Efficacy of analysis techniques in assessing broken wave loading on a cylinder upon a shoal. Proc. of the 38th Ocean Offshore and Arctic Engineering, Glasgow, OMAE 2019.
 - Brownjohn, J.M.W., Raby, A., **Antonini, A.**, Bassit, J., 2019. Condition assessment and monitoring of rock lighthouses around the British isles. 2nd International Conference on Health Monitoring of Civil & Maritime Structures, Glasgow, HEAMES2019.
 - Brownjohn, J.M.W., Au, S.K., Wang, X., Zhu, Z., Raby, A., **Antonini, A.**, 2018. Bayesian operational modal analysis of offshore rock lighthouses for SHM. 9th European Workshop on Structural Health Monitoring, Manchester, EWSHM2018.
 - Pappas, A., D'Ayala, D., **Antonini, A.**, Raby, A., 2018. Rock mounted iconic lighthouses under extreme wave impacts: Limit Analysis and Discrete Element Method. Proc. of the 9th International Conference on Computational Methods, Rome, ICCM 2018.
 - Pappas, A., D'Ayala, D., **Antonini, A.**, Raby, A., 2018. Rock mounted iconic lighthouses under extreme wave impacts: Limit Analysis and Discrete Element

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- Method. Proc. of the 9th International Conference on Computational Methods, Rome, ICCM 2018.
- **Antonini, A.**, Raby, A., Brownjohn, J.M.W., Pappas, A., D'Ayala, D., 2018. Survivability assessment of Fastnet lighthouse. Proc. of the 36th International Conference on Coastal Engineering, Baltimore, ICCE 2018.
- Pappas, A., D'Ayala, D., **Antonini, A.**, Brownjohn, J., and Raby, A., 2017. Numerical modelling of Fastnet lighthouse based on experimental dynamic identification. 71st International Conference on Advances in Construction Materials and System. Chennai, ICACMS 2017.
- Brownjohn, J., Raby, A., Bassitt, J., Hudson, E., **Antonini, A.**, 2017. Modal testing of offshore rock lighthouses around the British Isles. 10th International Conference on Structural Dynamics. Rome, EURODYN 2017.
- Archetti, R., Miquel, A.M., Bozzi, S., **Antonini, A.**, Passoni, G., 2017. Performance and design optimisation of a heaving point absorber for the exploitation of wave energy in the Italian Seas. Vienna, EGU 2017.
- Guerrero, M., **Antonini, A.**, R  ther, N., Stokseth, S., 2016. Suspended load monitoring for sustainable hydropower development. River Sedimentation: Proceedings of the 13th International Symposium on River Sedimentation. Stuttgart, Germany, 2016.
- Paci, A., Gaeta, M.G., **Antonini, A.**, Archetti, R., 2016. 3D-Numerical Analysis of Wave-Floating Structure Interaction with OpenFoam. ISOPE 2016, 26th International Ocean and Polar Engineering Conference. Rhodes, Greece, ISOPE 2016.
- **Antonini, A.**, Tedesco, G., Lamberti, A., Archetti, R., Ciabattini, S., Piacentini, L., 2016. Innovative Combiwall Quay-Wall with Internal Rubble Mound Chamber: Numerical Tools Supporting Design Activities. The case of Vlora's Harbor. 26th International Ocean and Polar Engineering Conference. Rhodes, Greece, ISOPE 2016.
- **Antonini, A.**, Guerrero, M., R  ther, N., Stokseth, S., 2016. Continuous measurements of suspended sediment loads using dual frequency acoustic Doppler profile signals. Vienna, EGU 2016.
- Bressan, L., **Antonini, A.**, Gaeta, M.G., Guerrero, M., Miani, M., Petruzzeli, V., Samaras, A., 2015. Boulder transport by tsunamis: a laboratory experiment on incipient motion. Vienna, EGU 2015.
- Lamberti, A., **Antonini, A.**, Ceccarelli, G., 2014. What could happen if the parbuckling of Costa Concordia had failed: analytical and CFD-based investigation of possible generated wave. Proc. of the 34th International Conference on Coastal Engineering, Seoul, ICCE 2014.
- Miquel, A.M., **Antonini, A.**, Archetti, R., Bozzi, S., Passoni, G., 2014. Assessment of the surge effects in a heaving point absorber in the Mediterranean Sea. Proc. of the 33rd Ocean Offshore and Arctic Engineering, San Francisco, OMAE 2014.
- **Antonini, A.**, Miquel, A.M., Archetti, R., Bozzi, S., Passoni, G., Gruosso, G., 2013. Hydrodynamic modelling of a linear generator point absorber specifically designed for energy production off the Italian coast. Poster presented to 10th European Wave and Tidal Energy Conference, Aalborg, EWTEC 2013.
- Bozzi, S., Miquel, A.M., Scarpa, S., **Antonini, A.**, Archetti, R., Passoni, G., Gruosso G., 2013. Wave Energy Production in Italian offshore: Preliminary Design of a Point Absorber with Tubular Linear generator. Proc. of 4th International Conference on Clean Electrical Power ICCEP 2013.

- **Antonini, A.**, Gaeta, M.G., Lamberti, A., 2012. Wave-induced devices for the oxygenation of deep layer: a physical investigation. Proc. of the 33rd International Conference on Coastal Engineering, Santander, ICCE 2012.
- Gaeta, M.G., **Antonini, A.**, Lamberti, A., 2012. Design of a novel wave absorber in a variable slope stream channel. Poster presented to 4th International conference on the application of physical modelling to port and coastal protection, Ghent, CoastLab 2012.

PATENT

- **Antonini, A.**, Lamberti, A., Petruzzelli, V. Vertical plunger-type wave makers, non-linear shaped, n° ITTO20140946.

FUNDED RESEARCH PROJECTS

- **TU Delft responsible:** Rijkswaterstaat (Dutch Ministry for Infrastructure and Water Management) agreement for the field test on Hybrid Dunes flood defense, 330k€.
- **WP Leader and TU Delft responsible:** LIFECAPEable: Nature-based Solutions for flood protection of low-lying CAPEs to strengthen physical safety, biodiversity and social and economic benefits. EU-LIFE 4M€, TUDelft Hydraulic Engineering 560k€ (1 PhD), + 50k€ Lab test, 150€ field test in Sweden.
- **Co-Applicants and responsible for the field monitoring activities:** LiveQuay: Live insight in Bridges and Quay Walls. NWA, 2M€, TUDelft Hydraulic Engineering 300k€ (1 PhD).
- **WP Leader:** Future FRM Tech: Future flood risk management technologies for rivers and coasts. Perspectief, TUDelft Hydraulic Engineering 300k€ (1 PhD) + ~100k€ for the construction of field hybrid dune.
- **WP Leader and TU Delft responsible:** DeltaWealth: Developing adaptation pathways towards a climate-resilient and prosperous Southwest Delta. NWA, 2M€, TUDelft Hydraulic Engineering 300k€ (1 PhD).

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WP Leader and TU Delft responsible: LIVING DIKES - Realising Resilient and Climate-Proof Coastal Protection. NWA, 2M€, TUDelft Hydraulic Engineering 300k€ (1 PhD + small scale laboratory facility + 3 months full time technician) + ~2.2M€ laboratory test DELTA flume (6 months).

Principal Investigator: Preliminary investigation on the application of the Dutch coastal flood risk management approach for the Venice lagoon. TU Delft Safety & Security Institute, 15k€.

- **Co-Investigator:** Boosting Ocean Energy @ TUDelft. Delft Energy Initiative 2.0, 100k€.
- **WP Leader:** PORTOS project - Port Toward Energy Self-Sufficiency. INTERREG - Atlantic Area, European Commission, €3.5M - University of Plymouth €290'000.
- **WP Leader:** ICE project - Intelligent Community Energy. INTERREG - France (Channel) England, European Commission, €8M - University of Plymouth £623'957.
- **Co-Investigator:** STORMALMP project - STructural behaviour Of Rock Mounted Lighthouses At the Mercy of imPulsive waves. UK-EPSRC funded project, £1.02M - University of Plymouth £453'077.
- **Principal investigator:** Vortex-induced Vibration of slender/threadlike structures in unsteady flow. University of Plymouth, £58.262 PhD scholarship.
- **Principal investigator:** EXCESS (EXtreme responses in Coastal Engineering using NewWave on Steep Structures). University of Plymouth, £58.262 PhD scholarship.
- **Principal investigator:** Non-stationary Bayesian extreme analysis. University of Plymouth research grant, £2'500

ASSESSMENT OF FUNDING APPLICATIONS

- **European Commission H2020 and Horizon EUROPE:** expert referee for Coastal Engineering, Structural dynamic and Marine Renewable Energy.
- **Spanish Minister of Science, Innovation and Universities:** expert referee for Coastal Engineering topics.
- **Danish Centre for Energy Administration:** expert referee for Offshore Marine Renewable Energy.

JOURNAL ACTIVITIES

- **Editor:** Journal of Coastal and Hydraulic structures, since 2020.
- **Guest Editor:** Philosophical Transactions of the Royal Society A. Special issues: Environmental loading on heritage structures, 2019.
- **Editorial Board member:** Journal of Marine Science and Engineering, since 2019.
- **Reviewer for:** Journal of Fluid Mechanics, Mechanical Systems and Signal Processing, Advances in Water Resource, Philosophical Transactions of the Royal Society A, Applied Ocean Research, Journal of Marine Science and Engineering, Coastal Engineering, Energies, Flow Measurement and Instrumentation, Heliyon, Journal of Wind Engineering & Industrial Aerodynamics, Mathematical Problems in Engineering, Ocean Engineering, Ocean Modeling, Ocean Technology, Sensor, Water and Elsevier Publishing Institute.

CONFERENCE ACTIVITIES

- **Chairman**, Experimental wave modelling, ICCE 2024. 38th International Conference on Coastal Engineering. Rome, Italy.
- **Organizing and Technical Committee**: CoastLab 2024, Delft.
- **Chairman**, Coastal III: Structures. ISOPE 2023, 33rd International Ocean and Polar Engineering Conference. Ottawa, Canada.
- **Keynote speaker**, Bayesian inverse dynamic approach for impulsive wave loading reconstruction: Theory, laboratory and field application. SUTGEF meeting 2021.
- **Keynote speaker**, Environmental loadings on construction heritage in marine environments: approach to the survivability assessment, Bari, SCACR2019.
- **Chairman**, Session: SHM for civil engineering. 9th European Workshop on Structural Health Monitoring, Manchester, EWSHM2018.
- **Chairman**, Session 130: Ocean technology X: FPSO, FLNG, FSRU, TLP. ISOPE 2016 International Ocean and Polar Engineering Conference, Rhodes June 26-July 2, 2016.
- **Member of Scientific Committee** of the Italian Coastal Conference, since 2017.
- **Member of the Technical Program Committee** International Ocean and Polar Engineering Conference, ISOPE, since 2015.

PRIZES

- Best Presentation of Italian Coastal Studies, 2013.
- The Peter A. Cundall Honorable Mention Award, 2020.
- Hamaguchi Award for Tsunami Resilience, 2024.

TEACHING EXPERIENCE

- Since 2022/23, Module leader Dams, Dikes and Breakwater, Master program in Offshore and Hydraulic Structures, Delft University of Technology. Subjects taught: design of coastal structures.
- Since 2022/23, Unit leader Shore Protection and Breakwaters, Master program in Hydraulic Engineering, Delft University of Technology. Subjects taught: design of coastal structures.
- Since 2022/23, adjunct lecturer for Fluid structures interaction, Master program in Offshore and Hydraulic Structures, Delft University of Technology. Subjects taught: Impulsive wave loadings on offshore monopile.
- Since 2022/23, adjunct lecturer for Marine renewable, Master program in Offshore and Hydraulic Structures, Delft University of Technology. Subjects taught: Extreme values analysis.
- Since 2018/19, adjunct lecturer for Bed, Bank and Shore Protection, Master program in Hydraulic Engineering, Delft University of Technology. Subjects taught: *Design of bed, bank and shore protection works*.
- Since 2018/19, Module leader for Breakwater and Closure dams, Master program in Hydraulic Engineering, Delft University of Technology. Subjects taught: *Design of breakwater and closure dams*.
- 2018/19, Module leader for Coastal Engineering, Master programme in Coastal Engineering University of Plymouth. Subjects taught: *Coastal environment | Wave, Tidal and Wind theory | Hydrodynamics of the swash zone | Coastal Morphodynamic | Design of Coastal structures and nourishment*.
- 2018/19, Module leader for Harbour Engineering, Master programme in Coastal Engineering University of Plymouth. Subjects taught: *Harbour Layout concept and design, Quay walls design | Ship propulsion | Marine regulation*.
- 2017/18, Module leader for Marine Engineering, undergraduate programme in Mechanical Engineering, University of Plymouth. Subjects taught: *Ship propulsion | Marine power plant | Marine auxiliary system | Marine power plant*.
- 2018, adjunct lecturer for Thermo-Fluid dynamics, undergraduate programme in Mechanical Engineering, University of Plymouth. Subjects taught: *Theoretical fluid mechanics*.

EXTERNAL
RESEARCH&TEACHING
EXPERIENCES

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- **University of Buenos Aires TUDelft & FIUBA EGIP course:** Coastal structures course. Invited guest lecturer, 2021.
- **European Commission:** Representative External expert for Coastal Engineering and Coastal Structures topics. 5 days course for the Egyptian partners within the framework of TAIX – Sharing EU Expertise Since 1996.
- **University of L'Aquila:** Invited external expert for 1 day PhD course. Laboratory and field wave loading measurements: approach and survivability assessment of offshore rock lighthouses.
- **Nanjing Hydraulic Research Institute (China)** Invited guest lecturer, December 2019.

PHD COMMITTEE
MEMBER

- **University of L'Aquila:** External member of the PhD committee in Coastal Engineering topic, 2020.
- **University of Salerno:** External member of the PhD committee in Coastal Engineering topic, 2020.
- **University of Twente:** External member of the PhD committee in Coastal Engineering topic, 2021.
- **Completed PhDs:**
 - William Mortimer, 2021. University of Plymouth.
 - Ermano De Almeida, 2023 Delft University of Technology.

CONSULTING
ACTIVITIES

HYDRAULICS AND MARINE
WORKS

- 2023 Final design of the bed protection for the coastal buried pipelines, Emilia-Romagna, Italy. Main activities: *Design boundary conditions | wave-induced liquefaction modelling | armour structure design.*
- 2022 Advisory role for Van Oord about the bed protection design and dynamic behaviour of underwater connection cables, offshore wind farm Hollandse Kust. Main activities: *Hydrodynamic study aimed to quantify the near-bed design velocity.*
- 2022 Damage assessment for the coastal buried pipelines, Emilia-Romagna, Italy. Main activities: *Analysis of the failure and design of the mitigation strategy for the wave-induced liquefaction problem.*
- 2016 Final design of new Vlorë harbour, Albania. Main activities: *CFD study of non-reflective quaywall | Metocean data analysis | General layout design Structural design.*

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2016 Final design of new Vlorë harbour breakwater, Albania. Main activities: *Metoccean data analysis* | *Loads identification* | *Structural design, (reinforced concrete crown wall, sheet-pile foundations and armour revetment)*.

2016 Design of innovative submerged structure, WMESH, for coastal protection purpose, Riccione, Italy. Main activities: *Stability analysis by means of CFD modelling of wave-structure interaction* | *Structural design*.

- 2015 Feasibility study of offshore wind farm in Northern Adriatic Sea. Main activities: *Design loads identification* | *Steel structure design* | *Structural elements dimensioning, (steel monopile foundations and transitional piece)*.
- 2015 Consultant site engineer for the marine structures of Glossy Bay Marina, Canouan, Saint Vincent and the Grenadines. Main activities: *Field supervision for the armour breakwater structure realisation*.
- 2014 Final design of Glossy Bay Marina new harbour flushing channel and new armour breakwater, Canouan, St Vincent and the Grenadines. Main activities: *Structural design of armour breakwater* | *Numerical modelling of harbour internal circulation* | *Metoccean data analysis*.
- 2014 Final design of beach nourishment and submerged ADCP measuring station, Canouan, St Vincent and the Grenadines. Main activities: *Structural design of measuring station, (steel frame)* | *Design of nourishment activities plan*.
- 2014 Preliminary design of new absorbing quay-wall for Piombino port. Main activities: *CFD study of non-reflective quay-wall* | *Numerical modelling of precast reinforced concrete absorbing cell structure*.
- 2014 Final design of new commercial quay-wall for Haifa harbour, Israel. Main activities: *Design loads identification* | *Structural design, (preliminary steel structure and sheet-pile foundations)* | *Design of field work activities plan*.
- 2013 Final design of new Itaoca Ferry Terminal, Brazil. Main activities: *Design loads identification* | *CFD modelling of wave-breakwater interaction* | *Structural design, (reinforced concrete crown wall and sheet-pile foundations)* | *Metoccean data analysis*.
- 2013 Final design of new area of Zuwara commercial harbour, Libya. Main activities: *Design loads identification* | *CFD modelling of wave-breakwater interaction* | *General layout design*.
- 2013 Feasibility study of new floating touristic harbour, Lake Maggiore, Italy. Main activities: *CFD modelling of wave-floating breakwater interaction* | *Numerical modelling of pre-stressed reinforced concrete structure* | *General layout design* | *Business plan*.

Delft, 15th November 2024

Alessandro Antonini



Curriculum Vitae
Alessandro Antonini, PhD

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- CV - Alessandro Antonini