

Name: Qi Su

Current Status: Ph.D

Affiliation: Department of Engineering Mechanics,
School of Mechanics and Aerospace Engineering,
Dalian University of Technology.

Major: Engineering Mechanics

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EDUCATION

Dalian University of Technology (DUT) | Dalian, China Sep. 2020 - Dec. 2025

Ph.D of engineering mechanics, supervisor: Professor Jun Yan. Research interests: stochastic response analysis and intelligent optimization design of marine flexible cables/risers. The title of the PhD's thesis is 'Rapid optimization design of configuration and stochastic dynamic response prediction for the marine dynamic umbilical cable'.

Dalian University of Technology (DUT) | Dalian, China Sep. 2017 - Jun. 2020

Master of computational mechanics (recommended for admission without examination). Supervisor: Professor Jun Yan. The title of the Master's thesis is 'Coupled thermo-mechanical analysis and dynamic extreme response prediction of strong-electricity composite umbilical cable structure'.

Xiangtan University (XTU) | Xiangtan, China Sep. 2013 - Jun. 2017

Bachelor of Engineering Mechanics, comprehensive ranking: 5/58, average score: 82.46/100. The title of the Bachelor's thesis is 'safety assessment of prefabricated steel bridges based on the analytic network process'.

HONOR

Comprehensive Quality Category

- [1] Qian Lingxi Mechanics Award, 2022
- [2] Doctoral Scholarship of DUT (First Class, Top 5%), 2022
- [3] Outstanding postgraduate students, 2022
- [4] Excellent Graduate of Liaoning Province, 2025
- [5] National Encouragement Scholarship, 2015
- [6] Merit student of Xiangtan University (Top 5%), 2016
- [7] Class A Scholarship (Top 5%), 2015, 2016
- [8] Excellent Graduate of Xiangtan University, 2017

Study and Research Category

- [9] Ningbo Postgraduate Academic Festival "Academic Star" Gold Award: 2023
- [10] 9th SUT Technical Conference, Outstanding Student Presentation: 2021
- [11] Second Prize in the National College Student Mathematical Modeling Competition, 2015
- [12] First Prize in the Hunan Province Student Mathematical Modeling Competition, 2015

SKILLS AND OTHER

- [1] Proficiency in MATLAB, Python; familiar with C#
- [2] Proficiency in OrcaFlex, Isight, ANSYS, Abaqus, AQWA
- [3] Proficiency in AutoCAD, SolidWorks, Origin
- [4] Proficiency in Microsoft Office
- [5] Capable of technical paper reading, translation, and writing
- [6] Experienced in scientific project proposal drafting and financial management

PUBLICATION LIST

■ Research paper

- [1] Q Su, Q Zhang, Q Xu, et al. Deep learning-driven optimization design for the configuration of lazy-wave umbilical cables. *Applied Ocean Research*, 2024, 150: 104097.
- [2] Q Su, J Yan, Z Yang, et al. Short-term extreme response estimation methodology for marine umbilical cables with two configuration types. *Ocean Engineering*, 2024, 310: 118710.
- [3] Q Su, HL Lu, X Yin, et al. Hybrid point-interval prediction method for stochastic dynamic response of subsea umbilical cable based on BO-BiLSTM and adaptive bandwidth KDE. *Ocean Engineering*, 2025, 320: 120317.
- [4] J Yan, Q Su, RD Li, et al. Optimization design method of the umbilical cable global configuration based on representative fatigue conditions. *IEEE Journal of Oceanic Engineering*, 2022, 48(1): 188-198.
- [5] J Yan, Q Su, YF Bu, et al. Electro-thermal-mechanical coupled analysis on two high-current composite umbilical cable cross sections. *Journal of Offshore Mechanics and Arctic Engineering*, 2021, 143(6): 061802.
- [6] J Yan, Q Su, YF Bu, et al. Study on the nonlinear tension-torsion coupled stiffness of the high-current composite umbilical considering the thermal effect. *China Ocean Engineering*, 2022, 36(4): 588-600.
- [7] QZ Lu, XL Chen, Q Su(Corresponding author). Application of machine learning methods incorporating Archard model for wear prediction of submarine cables[J]. *Ocean Engineering*, 2025, 337: 121901.
- [8] ZX Yang, Q Su, J Yan, et al. Study on the nonlinear mechanical behaviour of an umbilical under combined loads of tension and torsion. *Ocean engineering*, 2021, 238: 109742.
- [9] J Yan, YY Zhang, Q Su, et al. Time series prediction based on LSTM neural network for top tension response of umbilical cables. *Marine Structures*, 2023, 91: 103448.
- [10] QZ Lu, YM Fan, Q Su, et al. Study on contact force between umbilical and overboarding chute in deepwater S-lay process. *Ocean Engineering*, 2024, 302: 117693.
- [11] Y Yin, H Liang, Q Su, et al. Influence of seabed gravel characteristics on the wear of subsea cable outer sheaths. *Ships and Offshore Structures*, 2025: 1-15.
- [12] ZX Yang, X Yin, ZR Fan, J Yan, YC Lu, Q Su, et al. Optimization design of the multi-layer cross-sectional layout of an umbilical based on the GA-GLM. *China Ocean Engineering*, 2024, 38(2): 247-254.
- [13] J Yan, Q Su, Q Xu, et al. Overview on research progress of typical intelligent equipment in marine engineering. *Science & Technology Review*, 2024, 42(13): 16-26. (in Chinese)
- [14] Y Liu, Q Su(Corresponding author), YY Zhang, et al. Dynamic response of cryogenic hoses for multi-condition LNG transfer in marine environments. *Journal of Ship Mechanics*, 2024, 28(06): 843-855. (in Chinese)
- [15] J Yan, HT Hu, Q Su, et al. Prospect and progression of key mechanical problems in marine cables. *Chinese Journal of Theoretical and Applied Mechanics*, 2022, 54(4): 846-861. (in Chinese)
- [16] J Yan, XC Liu, Q Su, et al. Numerical evaluation of dynamic responses of floating flexible pipes for

- offshore semi-submersible platform pipeline layout. *Shipbuilding of China*, (Accept). (in Chinese)
- [17] Q Su, Y Jun. Long-term response extremes prediction of dynamic power cable for floating wind turbine based on environmental contour and enhanced peak-over-threshold method. (In Preparation, will be submitted to *Energy* in 3 months)
 - [18] Q Su, Y Jun. Fatigue reliability analysis and optimization design of subsea steel tube umbilical cable. (In Preparation, will be submitted to *Marine Structures* in 3 months)
- Invention Patent
- [1] Q Su, J Yan, HT Hu, et al. A hybrid method of deterministic and probabilistic prediction of random dynamic response of marine dynamic cables. CN 119830591 A, 2025-04-15.
 - [2] HT Hu, Q Su, BS Zhou. Test method and device for the effect of prestressing of unbonded cable armor layer on bending performance. CN 108287115 B, 2023-06-23.
 - [3] Q Su, J Yan. Dynamic cable fatigue life prediction digital twin software platform V1.0. China Software Copyright, 2024SR1221739, 2024-08-21.

PROJECT EXPERIENCE

As technical backbone completed 7 projects. Below is a list of major projects:

- [1] Research and development of comprehensive testing technology and platform for the high-voltage composite umbilical cable and accessory. National key R&D Program of China. 2017-2021.
- [2] Research on Key Technology of FLNG Composite Flexible Piping System for High-Tech Ships. Major S&T innovation projects of Shandong Province. 2019-2022.
- [3] Intelligent design of dynamic cables for offshore wind power driven by carbon neutrality, a project of Liaoning Province's "Xingliao Talent Program", 2021-2023.
- [4] Research and development of key technologies for dynamic cables for floating offshore wind power, Dalian supports high-level talent innovation and entrepreneurship projects, 2022-2024.