CURRICULUM VITAE

HAI ZHU

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EDUCATION

Ph.D. in Ocean Technology and Engineering**, Zhejiang University. China, 2020-present**.
Master of Engineering in Naval Architecture and Ocean Engineering**, Zhejiang University. China, 2017-2020.**
Bachelor of Engineering in Mechanical design and manufacturing and automation**, China University of Petroleum, China, 2013-2017**. ||*Exchange student in Mechanical engineering, National Yunlin University of Science and Technology, Taiwan (China), 2015.7-2016.1*||

SCHOLARSHIPS&AWARDS

Best paper of Journal of Zhejiang University-SCIENCE A	2023
The National Scholarship for Doctoral Students of China	2021
Zhejiang University Academic Scholarship	Every year
The third Prize in the 9th China Graduate Energy Equipment Innovation Design Competition (First order)	2022
First Prize of the 7th "Ocean Tide Cup" at Ocean College, Zhejiang University	2022
"Award of Honor for Graduate" of Zhejiang University	2018-2019, 2019-2020,2020-2021
"Graduate of Merit/Tripe A graduate" of Zhejiang University	2020-2021
Third Prize in the 7th Shandong Provincial College Student Mathematics Competition (Non-Mathematics Majors)	2016
Second Prize in the 2016 Linear Algebra Competition at China University of Petroleum (East China)	2016
Outstanding Student Cadre of the Student Union of the School of Mechanical and Electrical Engineering at China University of Petroleum (East China)	2015

RESEARCH EXPERIENCE

- 2017.9-2021.5, National Key R&D Program Project: No.2017YFC0307503, Drilling Core Sample Pressure Holding Transfer Technology and Device, Scientific Research Backbone.
- 2017.9-2020.9, National Key R&D Program Project: No.2017YFC0307703, Topographic and Stratigraphic Deformation Monitoring Technology and Equipment for Trial Mining Areas, Scientific Research Backbone.
- 2017.9-2017.9, Zhejiang Provincial Cultural Relics Bureau Project: No.2016010, ROV Based Underwater Cultural Relics Integrated Detection System, Scientific Research Backbone
- 2018.01-2020.12, National Youth Science Foundation Project: No.1170020020, Research on the Effects of Concentration and Temperature on the Rheological Behavior of Kaolin and Bentonite Suspensions, Student Leader.
- 2022.2-2023.8, The Pipe China Eastern Crude Oil Storage and Transportation Co., Ltd. horizontal Project: No. GWHT20220003812, 3D Laser Precision Surveying of Submarine Pipeline Defects Based on Dry Cabins, Student Leader.

SCIENTIFIC EXAMINATION EXPERIENCE

- On March 15, 2021, to May 7, 2021, participated in the acceptance voyages of the Guangzhou Marine Geological Survey (GMGS) "HAIYANGDIZHI2HAO" scientific research vessels HYDZ2-202101 and HYDZ2-202102, and participated in “the research and application of natural gas hydrate seabed drilling and onboard detection technology.”
- On May 29, 2022, to June 20, participated in the sea trial of the secondary repair of the Cezhen subsea pipeline organized by the Pipe China Eastern Crude Oil Storage and Transportation Co., Ltd., and led the successful acceptance of “the 3D laser precise mapping project for subsea pipeline defects based on dry cabin”.

CURRENT RESEARCH INTEREST AND RELATED PUBLICATIONS

Natural gas hydrates

- **Zhu, Hai**, Jia-wang Chen, Zi-qiang Ren, Pei-hao Zhang, Qiao-ling Gao, Xiao-ling Le, Chun-ying Xu, et al. 2022. “A New Technique for High-Fidelity Cutting Technology for Hydrate Samples.” *Journal of Zhejiang University-SCIENCE A* 23 (1): 40–54. https://doi.org/10.1631/jzus.A2100188.
- **Zhu, Hai**, Jiawang Chen, Yuan Lin, Peihao Zhang, Ziqang Ren, Xiaoling Le, Jing Xiao, and Ziang Feng. 2019. “Electronically Controlled Deep Sea Sampling Tube Pressure Maintaining Cutting Device Capable of Long-Term Use.” In *OCEANS 2019 MTS/IEEE SEATTLE*, 1–4. https://doi.org/10.23919/OCEANS40490.2019.8962564.
- **Zhu, Hai**, Jiawang Chen, Yuan Lin, Peihao Zhang, Huangchao Zhu, and Ziqang ren. 2018. “A High Pressure Holding and Cutting Device for Sampling Tube of Natural Gas Hydrate.” In *OCEANS 2018 MTS/IEEE Charleston*, 1–4. https://doi.org/10.1109/OCEANS.2018.8604734.

Soil rheology

- Lin, Yuan, **Hai Zhu**, Wei Wang, Jiawang Chen, Nhan Phan-Thien, and Dingyi Pan. 2019. “Rheological Behavior for Laponite and Bentonite Suspensions in Shear Flow.” *AIP Advances* 9 (12): 125233. https://doi.org/10.1063/1.5129211.
- Lin, Yuan, Wei Wang, **Hai Zhu**, Jiawang Chen, Nhan Phan-Thien, and Dingyi Pan. 2020. “Size Effect of the Parallel-Plate Geometry on the Rheological Behavior of Bentonite Suspensions.” *Journal of Rheology* 64 (1): 111–17. https://doi.org/10.1122/1.5116118.

Submarine pipeline inspection

- Zhou, Peng, Xiaoqing Peng, **Hai Zhu**, Xueyu Ren, Peiweng Lin, Kaichuang Wang, Haonan Li, et al. 2023. “Research on 3-D Precise Mapping System for Deformation Defects of Submarine Pipeline.” Text. Marine Technology Society. February 27, 2023. https://doi.org/10.4031/MTSJ.57.1.6.

Computational fluid dynamics

- Lin, Yuan, Yue Huang, **Hai Zhu**, Haocai Huang, and Ying Chen. 2021. “Simulation Study on the Hydrodynamic Resistance and Stability of a Disk-Shaped Autonomous Underwater Helicopter.” Ocean Engineering 219 (January): 108385. https://doi.org/10.1016/j.oceaneng.2020.108385.

Static/dynamic Cone Penetration Test)

- Ren, Ziqiang, Feng Zhou, **Hai Zhu**, Peihao Zhang, Jiawang Chen, Peng Zhou, Lieyu Tian, Chunhu Liu, and Xiaochao Zhang. 2021. “Analysis and Research on Mobile Drilling Rig for Deep Seabed Shallow Strata.” Marine Technology Society Journal 55 (2): 81–93. https://doi.org/10.4031/MTSJ.55.2.7.
- **Zhu, Hai**, Jia Wang Chen, Xue Yu Ren, Jin Guo, Hao Nan Li, Peng Zhou, and Tao Liang. 2022. “Application of Electromagnetic Emission Technology in In-Situ Subsea Dynamic Penetration Test.” In The Proceedings of the 16th Annual Conference of China Electrotechnical Society, edited by Xidong Liang, Yaohua Li, Jinghan He, and Qingxin Yang, 628–35. Lecture Notes in Electrical Engineering. Singapore: Springer Nature. https://doi.org/10.1007/978-981-19-1870-4_67.

PATENTS

Name	Country	Inventors sorting (excluding tutors)	Status	Year
A Cutting Tool for Pressure-maintaining Cutting Device of Sampling Pipe	Chinese	First order	Authorized	2022
A Mechanical Swing Type Polar Sub-ice Moving Ice Core Sampler	Chinese	First order	Authorized	2022
A New Hot Melt Sampler for the Lower Layer of Polar Floating Ice	Chinese	First order	Authorized	2022
A shallow sea heave static cone penetration test equipment	Chinese	First order	Open	2021
An electromagnetic hammer head for seabed in-situ dynamic sounding equipment	Chinese	First order	Open	2022
A retrievable continuous hammering device based on electromagnetic coil gun	Chinese	First order	Open	2022
A precise mapping tool and method for deformation defects of submarine pipeline	Chinese	First order	Open	2022
Integrated surveying and mapping equipment for manned submarine pipeline and surveying and mapping method for submarine pipeline	Chinese	First order	Open	2023

SKILLS

Name	Types	Proficiency level
C/C++	Programming Languages	General proficiency
Java	Programming Languages	Previously in contact with
Solidworks	Design	Skilled
AutoCAD	Design	Skilled
ABAQUS	Simulation	Skilled
ANSYS	Simulation	General proficiency
Xcode	IDE	Previously in contact with
Vscode	IDE	Previously in contact with
Office	Basic office software	Skilled
Visio	Basic office software	Skilled
Physics	Subject	Skilled
Mathematics	Subject	Skilled
Origin	Drawing software	General proficiency

PRACTICE & INTERNSHIP

- Shengli Oilfield Shengli Chemical Co., Ltd.—— 2015/08-2015/09
- Weichai Holding Group Co., Ltd.（Fortune 500）——2016/07-2016/09

LANGUAGES

- Mother Tongue: Mandarin Chinese.
- IELTS:6.0, Proficient in practical English.

NOTES

- Have no experience with Unity, Unreal, Cider, MR toolkit for Microsoft (MRTK), ARCore and/or ARKit, but willing to learn.
- Experience with data collection methods (e.g. point cloud scanners, reality capture technologies, environmental sensors).