Zhengyu Hu

PhD student, Civil & Environmental Engineering, National University of Singapore

Civil & Environmental Engineering
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Education

Zhejiang University, Hangzhou, China
Master of Engineering, Port, Coastal & Offshore Engineering — *2018.9 - 2021.6*
GPA: 3.86/4 (1/40)
National University of Singapore, Singapore
PhD, Civil Engineering — *2021.8-present*

Research Interests

Wave Attenuation by Vegetation, Wave and Tidal Energy Converter
Risk Analysis of Coral Reefs, Turbulence

Publications

Zhengyu Hu, Fang He. Laboratory Study of Turbulent Kinetic Energy within Mangrove Forest under Waves.

Zhengyu Hu, Fang He. Experimental Study on Wave Attenuation by Vegetation by means of Particle Imaging Velocimetry.

Zhengyu Hu, Fang He. Laboratory Study of Wave Attenuation by Mangrove Forest.

Zhengyu Hu, Fang He. Numerical and Experimental Study on the Interaction between A Novel Coral Nursery and Current. (To be submitted)

Fang He, **Zhengyu Hu**. 11 Chinese Patents.

Awards & Achievements

Awarded the **Academic scholarship**, China
Awarded the **Zhoushan Chamber of Commerce scholarship**, China
Awarded the **Excellent graduate student**, Zhejiang University, China
Awarded the **Triple-A graduate student**, Zhejiang University, China

Research Projects

Research and Application of Marine Hazard Reduction Evaluation and Establishment Optimization Technology of Typical Coastal Wetlands
Supervisors : Prof. Pengzhi Lin and Prof. Fang He — *Aug '1,2018 - June '30,2019*

- Field Investigation, Data Collection and Characteristics Analysis of Typical Coastal Wetlands
- Study on the Interaction between Typical Coastal Vegetation and Storm Surge
- Study on Evaluation Method of Hazard Reduction Function of Vegetation in the Coastal Wetland
- Study on Optimization Technology of Vegetation Construction in the Coastal Wetland

Study on Damage Mechanism and Risk Early Warning Method of Marine Dynamic Hazard on Coral Reef
Supervisor : Prof. Fang He — *Oct '18, 2019 - Present*

- Field Research and Development of Coral Nursery for the Restoration of the Coral Reef Ecosystem
- Numerical and Experimental Study on the Interaction between a Novel Coral Nursery and Current
- Risk Assessment, Zoning and Early Warning of Storm Hazard on Coral Reefs in China

Study on Hydrodynamic and Wave Dissipation Characteristics of Permeable Breakwater with Oscillating Water Column Wave Energy Converter
Supervisor : Prof. Fang He — *Sep '15, 2018 - Dec '15, 2019*

- Experimental Study on Hydrodynamic Characteristics and Oscillating Flow Field Characteristics of Oscillating Water Column Breakwater
- Physical Experiments and Numerical Simulations of Cylindrical Oscillating Water Column Wave Energy Converters

Evaluation and application of wave attenuation by vegetation based on neural network and laboratory study
Supervisor : Zhengyu Hu *Dec '1,2019 - Present*

- Predicting Wave Attenuation by Vegetation Based on the Neural Network Algorithm
- Experimental Study on Wave Attenuation by Vegetation by Means of Particle Imaging Velocimetry
- Predicting Turbulent Kinetic Energy within Vegetation and Wave Attenuation by Vegetation Based on the Neural Network Algorithm

Work Experiences

Undergraduate Course - Port and Coastal Hydraulic Structures - Zhejiang University
Teaching Assistant *Mar '14,2019 - June '14,2020*

- Provided tutoring to 60+ undergraduate students in experimental lessons
- Experimental lessons include *Interaction between Waves and Vertical Breakwater*, *Interaction between Waves and Sloping Breakwater*, *Interaction between Waves and Piles*

Undergraduate Thesis - Zhejiang University
Adviser *Dec '13, 2018 - June '15, 2020*

- Designed experiments and outlines for three undergraduate students
- Undergraduate thesis topics include *Study on Wave Attenuation Characteristics of Coastal Vegetation* (2019), *Interaction between Vegetation and Unsteady Flows* (2020), *Experimental Study on Oscillating Flow Field of Oscillating Water Column Wave Energy Converter* (2020)

Leadership Experiences

Students' Association Union - Zhejiang University
Vice President *Sep '15, 2018 - June '15, 2019*

- Organized 10+ cultural and sports activities with average attendees of 200+ students
- Managed all of Students' Association and promoted them

Research Skills

Laboratory: PIV, LDV, ADV, EMF, Wave gauge, Pressure sensor, Load cell, OQUS 6-DOF capture
Field observation: RBR for wave&tide , SeaGuard RCM for velocity
Numerical simulation: Mike21, Flow-3D, Star-ccm+
Research Tools: Python, Matlab, Origin LaTeX, Solidworks, AutoCAD, Tecplot, ArcGIS, PS

Extra Interests

Deep Learning & Coastal Engineering
Basketball
Chinese Kung fu