

Xueji Shi

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EDUCATION

M.Eng.

Southeast University

Sep. 2022-Jul. 2025

Major: Bridge and Tunnel Engineering

GPA: 3.59/4.0

Research Topic: Seismic response analysis and vibration control of long-span short-tower cable-stayed bridges.

B.Eng.

Central South University

Sep. 2018-Jul. 2022

Major: Bridge Engineering

GPA: 3.858/4.0

Research Topic: Coupled response analysis of submerged floating tunnel-cable under wave and current effects.

RESEARCH EXPERIENCE

Dec.2022- Present **School of Transportation, Southeast University**

Project: Nonlinear vibration mechanism and fatigue performance of anchor cables in submerged floating tunnel under wave-current interaction (**core memeber**)

Principal Investigator: Zhongxiang Liu, Associate Professor (Primary supervisor)

Responsible for:

- Procure instruments and communicate the arrangement of testing sites.
- Wrote experiment plan and operate experiment and analyze experiment data.
- Developed and solved the dynamic equations, analyzed the coupled response under wave conditions, and conducted an analysis of cable breakage based Matlab.
- Established the FSI model with OpenFOAM and CalculiX software to simulate the hydraelastic response of submerged floating tunnel.
- Write the project final report and PowerPoint presentation.

Support material: Three relevant papers and two invention patents along with one software copyright.

Sep.2022- Oct.2022 **School of Civil Engineering, Southeast University**

Project: Adaptive floating photovoltaic under wave action (**main memeber**)

Principal Investigator: Tong Guo, Professor (Co-supervisor)

Responsible for:

- On site installation of floating photovoltaics and towing engines.
- Implement adaptive anchor cable tension code in OpenFOAM.
- Summarize the project results and write the project summary.

Support material: One invention patent.

Jan.2022- May.2022 **National Engineering Research Center of High-Speed Railway Construction Technology, Central Southeast University**

Project: High-speed railway seismic response model test (**main member**)

Principal Investigator: Ping Xiang, Professor

Responsible for:

- Wrote experiment plan and test report with a senior graduate student.
- Assisted in attaching stress and strain sensors and recorded test data.
- Independently wrote CNN-LSTM code using PyTorch for analysis.

Support material: One paper about CNN-LSTM hybrid neural network.

PUBLICATIONS

- **Xueji Shi**, Zhongxiang Liu, Tong Guo, Wanjin Li, Zhiwei Niu, Feng Ling. Research on vortex-induced vibration of cylinder based on Lagrangian dynamic modal decomposition, *Journal of Marine Science and Engineering* (**JCR Q1**) (**Accepted**).
 - **Xueji Shi**, Zhongxiang Liu, Tong Guo, C.S. Cai, Chao Jiang. Investigation on contact stress calculation method of spherical hinge structures for swivel construction, *Structures* (**JCR Q1**) (**Accepted**).
 - Zhongxiang Liu, **Xueji Shi**, Tong Guo, Jun Yang, José Correia . Damage diagnosis and fretting wear performance analysis of short suspenders in cable-supported bridges, *Structures* (**JCR Q1**) (**Accepted**).
 - Zhongxiang Liu, **Xueji Shi**, Tong Guo, Hongyu Ren, Minte Zhang. Investigation on hydrodynamic response and characteristics of a submerged floating tunnel based on hydrodynamic tests, *Ocean Engineering* (**JCR Q1**) (**Accepted**).
 - Xuebing Zhang, Xiaonan Xie, Shenghua Tang, Han Zhao, **Xueji Shi**, Li Wang, Han Wu, Ping Xiang. High-speed railway seismic response prediction using CNN-LSTM hybrid neural network, *Journal of Civil Structural Health Monitoring* (**JCR Q2**) (**Accepted**).
 - Zhongxiang Liu, **Xueji Shi**, Tong Guo. Numerical estimation of static and dynamic response of submerged floating tunnel under wave and cable breakage conditions, *International Journal of Structural Stability and Dynamics* (**JCR Q1**) (Under Review).
 - Zhongxiang Liu, **Xueji Shi**, Tong Guo, José Correia. Assessment of regular and tsunami wave hydrodynamic tests of moored and end-fixed submerged floating tunnel, *Journal of Fluids and Structures* (**JCR Q1**) (Second Review).
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PATENTS

- Zhongxiang Liu, **Xueji Shi**, Tong Guo, Zhiwei Niu, Ming Yang, Hongyu Ren. Submerged Floating Tunnel Wave Flow Test Device.
- Zhongxiang Liu, **Xueji Shi**, Tong Guo, Jun Yang, Jie Liu, Weijie Xu. A test model and method for simulating the evolution of seismic soil in long-span bridges.
- Tong Guo, Hongyu Ren, Zhongxiang Liu, **Xueji Shi**, Weijie Xu, Xiangyang Xu. A Flexible Model

and Design Method for a Submerged Floating Tunnel, and Similarity Testing Method.

- Aimin Liu, Jianbing Chen, Feng Ling, Yang Yang, Tong Guo, **Xueji Shi**, Zhongxiang Liu. An Adaptive Mooring System for Floating Photovoltaic Arrays with High Water Level Variations.
- Zhongxiang Liu, Tong Guo, Beibei Zhang, Chengjun Gu, Wen Xiong, **Xueji Shi**. A Method for Analyzing the Fatigue Life Reliability of Bridge Cables Considering Corrosion-Wear Coupling.

SOFTWARE COPYRIGHT

- Zhongxiang Liu, Xueji Shi, Tong Guo, Shilei Niu, Wei Ding. Anchor Cable Hydrodynamic Calculation and Analysis Software.

HONOURS AND AWARDS

Nov 2024	National Scholarship , Southeast University	1%
Aug 2024	National Scholarship , Southeast University	1%
Apr 2021	National College Student Mechanics Competition	Third Prize
Apr 2021	Hunan Province Mechanics Competition	First Prize
Mar 2021	Physics Competition of Central South University	First Prize
May 2021	Mechanics Competition of Central South University	First Prize
Dec 2020	Hunan Province Mechanics Competition	(Rank 1/360)
Oct 2020	Outstanding Volunteer of the School of Civil Engineering Central South University	
Sep 2020	Central South University Mechanics Competition	First Prize
Jul 2019	Central South University Mathematics Competition	Third prize

SKILLS

Research Skills	Data collection; data analysis; consult literature;
Language Skills	Chinese; English (reading and listening)
Computer Skills	OpenFoam; Calculix; Hypermesh; Solidworks; Matlab; Ansys; Origin

INTERESTS

- Gym fitness for 2 years
- Table tennis around 8 years
- Try to learn swimming in the future