

# WEI SHAO | 邵威

I am a second year Graduate Student at South China University of Technology, major in Civil Engineering, and my supervisor is Prof. Heqing Mu.

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## EDUCATION

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**South China University of Technology (SCUT)** 2021.9 - Present

Supervisor: Prof. Heqing Mu

*Master student*, Structural Engineering

GPA: 88.5/100

**South China University of Technology (SCUT)** 2017.9 - 2021.6

Supervisor: Prof. Heqing Mu

*Bachelor degree*, Civil Engineering (Excellent English-Taught)

GPA: 90.58/100 (Rank 1/40)

Thesis: Computer Vision-Aided Probabilistic Modeling of Bridge Vehicle Load (Excellent Thesis Award)

## RESEARCH INTEREST

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I am interested in **structural reliability method**, **computer vision**, **statistical modeling**, and **structural health monitoring**.

## RESEARCH EXPERIENCE

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### Efficient Bridge Lifetime Vehicle Load Effect Assessment by Subset Simulation

Team Member | State Key Laboratory of Subtropical Building Science, SCUT | Recently

- Application of Subset Simulation and Extreme Value Theory
- Estimation of the characteristic value of the extreme value of vehicle load effects

### Computer Vision-Based Stochastic Modeling of Bridge Traffic Flow

Team Member | State Key Laboratory of Subtropical Building Science, SCUT | Winter 2020 - Winter 2021

- Vehicle detection and tracking
- Vehicle dimensions estimation and vehicle type classification
- Vehicle specific model identification
- Uncertainty quantification of traffic flow and gross vehicle weight

### Probabilistic Modeling of Traffic Vehicle Load Based on Weigh-in-Motion Data

Team Member | Student Research Plan | Summer 2019

- Statistical modeling of vehicle loads and traffic flow with Weigh-in-Motion data
- Simulation of traffic flow and calculation of structural load effects

## PUBLICATIONS

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- Heqing Mu, **Wei Shao**, Hanteng Liu, Stephen Wu. Efficient Bridge Lifetime Vehicle Load Effect Assessment by Subset Simulation. ICOSAR 2021-2022, *13th International Conference on Structural Safety & Reliability*. Shanghai, 2022.
- Heqing Mu, Xinxiong Liang, **Wei Shao**. Computer Vision-Based Stochastic Modeling of Bridge Traffic Flow. ICOSAR 2021-2022, *13th International Conference on Structural Safety & Reliability*. Shanghai, 2022.

- Heqing Mu, Cheng Su, **Wei Shao**, Xinxiong Liang, Yijun Zhou. Enhanced Solely Computer Vision-Based Uncertainty Quantification of Bridge Vehicle Load. Chinese patent, No. 202211550684.3, Guangzhou, 2022. Under Review.
- Heqing Mu, **Wei Shao**, Stephen Wu. Efficient subset simulation-based statistical extrapolation for bridge lifetime vehicle load effects assessment. Ready to submit.

## PROFESSIONAL SKILLS

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- English Proficiency: CET6 550
- Scientific Computing: MATLAB, Python
- Text Process:  $\text{\LaTeX}$ , MS Office
- Architectural Drawing: Auto CAD

## SELECTED AWARDS AND HONORS

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- National Scholarship for undergraduate students
- Outstanding Graduates Award for civil engineering students in the Greater Bay Area
- Merit Student
- The first prize of the 3th Mathematics Competitions held by the Excellence 9
- The first prize of the 10th Chinese Mathematics Competitions (Guangdong Division)