Xingchen ZOU

(+852) 59611807 | xczou@connect.hku.hk

EDUCATION BACKGROUND

Sep.2022- Present **The University of Hong Kong**
Master of Science Major: Structural Engineering

Sep.2018- Jun.2022 **Wuhan University**
Bachelor of Engineering *(University Distinction)* Major: Civil Engineering GPA: 3.6/4.0

PUBLICATION

Sep.2022 Lu, H., Wei, A., & Zou, X. (2022). Experimental Study on Mechanical Properties of Layered Slab-Crack Composite Structure Rock Mass. *Chinese Journal of Rock Mechanics and Engineering*, *2022*(S2), 3282–3293. https://doi.org/10.13722/j.cnki.jrme.2022.0690

RESEARCH EXPERIENCE

May.2022- Present **Intern Research Assistant, Hong Kong Center for Construction Robotics (HKCRC)**

- Participated in the development of an automatic waterproofing construction robot, responsible for the design of the robot's power module and visual algorithm module, ensuring the robustness of the robot system in complex construction site environments.
- Responsible for patent applications of the robot project and coordinating with the construction party to promote the implementation and practical application of the project. The robot construction has been promoted in Shandong, Chongqing, Hubei, and other places.

Sep.2022- Mar.2023 **Research Assistant, Data Acquisition& Analysis Laboratory, The University of Hong Kong**

- Analyzed the climate and structural data from 1990 to 2020 and develop numerical models for simulation of temperature distribution of concrete bridge superstructure with calibration.
- Studied the influence of structural geometric characteristics on the temperature load of bridges and prepared draft revisions to *Structures Design Manual for Highways and Railways 2013* published by the Highways Department of HKSAR.
- Predicted the thermal responses of bridges system considering the uncertainty of climate conditions in Hong Kong due to carbon dioxide emission.

Sep.2021- May.2022 **Research Assistant, Institute of Rock and Soil Mechanics, Chinese Academy of Sciences**

- Carried out extensive triaxial shear and tensile tests on rock species about Sichuan-Tibet Railway Construction Project to identify deformation mechanism of cracks in rocks.
- Used a high-speed camera to capture the deformation process of rocks and modeling the deformation process with traditional mechanical models based on the sample data.
- Classified the deformation characteristics of rocks under different external conditions and studied the influence of internal cracks in rocks on deformation under specific external conditions.

ACADEMIC PROJECTS

Apr.2023- Present **Classifier for Worker's Working Posture Based on Smartphone Sensors for Health Monitoring**

- Classified worker's posture, such as standing, walking, and bending, based on collected accelerometer, gravity, and orientation data using machine learning and deep learning methods.
- Based on XGBoost to study the weight of various sensor values on the results of simple machine learning classification. Fine-tuned the RNN, LSTM, Transformer models and conducted time series prediction on the dataset to achieve better results than machine learning classification. *This project was guided by Dr. Yantao Yu from the Hong Kong University of Science and Technology.*

Oct.2022- Mar.2023 **An Initial Model for Prediction of Rock Joint Roughness and Based Convolutional Neural Network**

- Established a 2D image dataset of rock structural surfaces (including 426 images with a resolution of 784*784 pixels) through data processing and augmentation.
- Trained and fine tune on the dataset based on pre-trained Resnet18 and Vgg16 models, adjusted different training strategies, and achieved an accuracy of over 70% in quantification of the Roughness value. *The project was guided by Dr. Qi Zhao from The Hong Kong Polytechnic University*.

Oct.2020- Apr.2021 **National Structural Design and Information Technology Competition; China Civil Engineering Society**

- Worked as the leader of the representative team of Wuhan University and directed the whole research process. This project won **the national second prize**.

AWARDS AND HONOURS

Outstanding Graduate **(top 10%)**; Wuhan University *May. 2022*
Excellent Student Scholarship (**top 10%**); Wuhan University *Sep. 2021*
Outstanding Student (**top 30%**); Wuhan University *May. 2021*
Excellent Student Scholarship; Wuhan University *Sep. 2020*
Excellent Student Cadre (**top 1%**); Wuhan University *May. 2020*

PROFESSIONAL SKILLS

Languages English (medium, IELTS 6.5) Mandarin (native)
Computer Skills Abaqus, Revit, MATLAB, Photoshop, Pytorch, MySQL