

Curriculum Vitae

Chuan Kuang

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EDUCATION

Shenzhen University	GPA:3.41/4 (Class Rank: 24/91)	Shenzhen, China
Master of Architecture and Civil Engineering		Sept.2018 - Jun.2021
Supervisor: Shuxian Hong Thesis: Sophisticated extraction and quantitative analysis of X-ray computed tomography image features of fractured cement-based materials.		
Southwest Jiaotong University	GPA:3.36/4 (Class Rank: 3/69)	Chengdu, China
Bachelor of Civil Engineering		Sept. 2012 - Jun. 2016

RESEARCH EXPERIENCE

Fracture characteristics of rubber concrete were studied using X-ray computed tomography (XCT) technology with image processing algorithms [1-5].

- A novel image processing method combined with an in-situ XCT test was developed to track the fracture process of rubberized concrete specimens under loading [1].
- A sophisticated image processing method was proposed to analyze crack morphological features quantitatively by accurately detecting continuous and integral microcracks from XCT images[2].
- XCT and digital volume correlation (DVC) were adopted to investigate the internal structure and volumetric strain of fractured rubber cement composites under uniaxial compression [3, 4, 5].

PUBLICATIONS

- [1]. Shuxian Hong, **Chuan Kuang**, Jianchao Zhang, Dongshuai Hou, Jinrui Zhang, Laibao Liu, Biqin Dong, Visual analysis for microscopic cracking propagation of rubberized concrete, *Construction and Building Materials*, 265(2020):20599. [LINK](#)
- [2]. Shuxian Hong, **Chuan Kuang**, Jianchao Zhang, Biqin Dong, Segmentation method for enhancing the continuity and integrality of micro-cracks in concrete fracture XCT image, *Journal of Materials in Civil Engineering*, DOI:10.1061/(ASCE)MT.1943-5533. 00041 14. (To be published) [LINK](#)
- [3]. Jianchao Zhang, **Chuan Kuang**, Chen Lin, Zheming Liu, Ke Wang, Shuxian Hong, Biqin Dong, Dongshuai Hou, Laibao Liu, Feng Xing, Evolutionary trace for ductile fracture performance of rubber-cement composites, *Cement and Concrete Composites*, 121(2021): 104080. [LINK](#)
- [4]. Shuxian Hong, Peng Liu, Jianchao Zhang, **Chuan Kuang**, Biqin Dong, Qiling Luo, Wei Liu, Interior fracture analysis of rubber-cement composites based on X-ray computed tomography and digital volume correlation, *Construction and Building Materials*, 259(2020): 119833. [LINK](#)
- [5]. Jianchao Zhang, Jianwu Weng, **Chuan Kuang**, Shaocheng Peng, Biqin Dong, Shuxian Hong, Feng Xing, The volume strain of fiber reinforced concrete with three points bending during loading, *Journal of Shenzhen University Science and Engineering*, 2021, 38(6): 664-669. (In Chinese) [LINK](#)

SELECTED HONORS AND AWARDS

- National Scholarship for Graduate Students Dec.2020
Awarded by Ministry of Education of the People's Republic of China
- First-class Academic Scholarship Dec.2020
Awarded by Shenzhen University
- Second Prize in Contemporary Undergraduate Mathematical Contest in Modeling Dec.2014
Awarded by China Society for Industrial and Applied Mathematics
- GuanYue Luqiao Scholarship Nov.2014
Awarded by Southwest Jiaotong University
- Third Prize in Asia and Pacific Mathematical Contest in Modeling Aug.2014
Awarded by Organizing Committee of Asia and Pacific Mathematical Contest in Modeling, China
- First Prize in May Day Mathematical Contest in Modeling May.2014
Awarded by Jiangsu Society for Industrial and Applied Mathematics, China
- First Prize in Certificate Authority Cup International Mathematical Contest in Modeling Mar.2014
Awarded by Inner Mongolia Mathematical Society, China
- First Prize in Electrician Mathematical Contest in Modeling Nov.2013
Awarded by Chinese Society for Electrical Engineering

WORK EXPERIENCE

Shenzhen University

Shenzhen, China

Research Assistant

Jul.2021 - Present

- Develop an application for automatically processing X-ray computed tomography images.
- Evaluate the crack-healing performance of a novel microcapsule-based self-healing material using X-ray computed tomography (XCT) and digital volume correlation (DVC).
- Assist in processing complex testing data and statistical analysis to support research projects.

Chinese Academy of Science

Chengdu, China

Lab Assistant

Jul.2016-Aug.2018

- Developed an application for automatically collecting and analyzing soil moisture data from agricultural fields.
- Optimized the sequence of gas emission data collection for different crops.

SKILLS

Experimental Skills: X-ray Computed Tomography, Cone Penetration Test (CPT), X-ray Diffraction, Scanning Electron Microscopy, Thermogravimetric Analysis.

Software Skills: Avizo (3D Visualization & Analysis Software), ImageJ, OriginLab, Endnote.

Programming Skills: Matlab, Python, Quantitative Analysis, Image Processing Algorithms.