Curriculum Vitae

Chuan Kuang

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EDUCATION

Shenzhen University GPA:84.0/100 **(**Class Rank: 23/91) 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:83.8/100 **(**Class Rank: 3/69) Chengdu, China

Bachelor of **Civil Engineering** Sept. 2012 - Jun. 2016

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.1943-5533.0004114. (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
- GuanYue Luqiao Scholarship Nov.2015
  Awarded by Southwest Jiaotong University
- Second Prize in Contemporary Undergraduate Mathematical Contest in Modeling Dec.2014
  Awarded by China Society for Industrial and Applied Mathematics
- 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.2020 - Present

- Developed an application for automatically processing X-ray computed tomography images
- Assisting in processing complex testing data, 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.

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 quantitatively analyze crack morphological features by accurately detecting continuous and integral microcracks from XCT images and effectively removing all the pores and additions with similar gray values in the cracks' final detected 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].

SKILLS

Experimental Skills: X-ray Computed Tomography, 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.