Bin Kong | CS

9201 University City Blvd – Charlotte – NC, USA 28223

☎ +1 9808338143 • ✉ bkong@uncc.edu • 🌐 https://bkong1990.github.io/

Education

University of North Carolina at Charlotte   8/2015 – Present
     Ph.D. in Computer Science

Xi'an Jiaotong University   9/2012 – 7/2015
     M.S. in Mechanical Engineering

Research Interests

Deep Learning, Computer Vision, Medical Image Analysis, Machine Learning

Research Experience

Coronary Artery Segmentation from 3D Cardiac CTA
Guide: Dr. Xin Wang, CuraCloud Corporation   *5/2018 – Present*
- Developed a novel tree-structured ConvLSTM layer for high-dimensional data understanding
- Proposed an FCN and tree-structured ConvLSTM based framework for tree-structured image segmentation
- Employed spatial attention to boost the segmentation performance
- [AAAI'19] under review

Bone Age Assessment
Guide: Dr. Xin Wang, CuraCloud Corporation   *5/2018 – Present*
- Developed a Mask R-CNN network to segment the hands
- Proposed an hierarchical attention mechanism to force the network to focus on the key hand components
- [ISBI'19]

Invasive Cancer Detection in Whole-Slide Images
Guide: Dr. Shanhui Sun, Dr. Xin Wang, CuraCloud Corporation   *6/2016 - Present*
- Developed a novel CNN and 2D LSTM based framework to leverage the spatially structured information
- Designed an efficient invasive cancer detection framework with transfer learning and compressed network
- [MICCAI'18] early acceptance, [IPMI'17], one pending patent

Recognizing ES and ED Frames from Cardiac MRI Sequences
Supervisor: Dr. Shaoting Zhang, VIA Lab, UNC Charlotte   *9/2015 – 4/2016*
- Proposed a CNN and LSTM based framework for End-Diastole (ED) and End-Systole (ES) frame detection
- Designed a novel loss to constrain the predictions
- [MICCAI'16]

Color Correction and Stitching of High Resolution Images
Supervisor: Dr. Suping Fang, Xi'an Jiaotong University   *9/2012 – 7/2015*
- Developed a SIFT feature based high resolution image stitching framework
- Developed a color registration system for high resolution images

Registration, Stitching, and Enhancement of X-ray Images
Guide: Dr. Tian Shen, Hwatech Corporation   *7/2013 – 9/2013*
- Proposed a barycenter based registration system for mamography image registration
- Developed Multi-Scale Image Contrast Amplification (MUSICA) system for X-ray image enhancement
- Employed mutual information for X-ray image stitching
- Two patents (CN 201310731754 and CN 201310732363)

Skills

- **Programming Languages:** C/C++, Python, Matlab
- **Platform:** Linux
- **Deep Learning Frameworks:** PyTorch, TensorFlow, Caffe

Awards

- CuraCloud Outstanding Deep Learning Research Award, *CuraCloud Corporation*   *8/2018*
- Thomas L. Reynolds Graduate Student Research Award, *UNC Charlotte*   *4/2018*
- Research Assistant Scholarship, *UNC Charlotte*   *8/2018 – Present*

Publications

1 **Bin Kong**, Shanhui Sun, Xin Wang, Qi Song, and Shaoting Zhang. Invasive cancer detection utilizing compressed convolutional neural network and transfer learning. In *International Conference on Medical Image Computing and Computer-Assisted Intervention (MICCAI)*, pages 156–164. Springer, 2018.

2 **Bin Kong**, Xin Wang, Zhongyu Li, Qi Song, and Shaoting Zhang. Cancer metastasis detection via spatially structured deep network. In *International Conference on Information Processing in Medical Imaging (IPMI)*, pages 236–248. Springer, 2017.

3 **Bin Kong**, Yiqiang Zhan, Min Shin, Thomas Denny, and Shaoting Zhang. Recognizing end-diastole and end-systole frames via deep temporal regression network. In *International Conference on Medical Image Computing and Computer-Assisted Intervention (MICCAI)*, pages 264–272. Springer, 2016.

4 Eric Wu, **Bin Kong**, Xin Wang, Junjie Bai, Yi Lu, Feng Gao, Shaoting Zhang, Kunlin Cao, Qi Song, Siwei Lyu, and Youbing Yin. Residual attention based network for hand bone age assessment. In *IEEE International Symposium on Biomedical Imaging (ISBI)*, 2019.

5 Xieliu Yang, Suping Fang, **Bin Kong**, and Yichao Li. Design of a color coded target for vision measurements. *Optik-International Journal for Light and Electron Optics*, 125(14):3727–3732, 2014.