Xiaoyuan Guo

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Research Interests

Computer Vision, Biomedical Image Processing

Education

Emory University   Georgia, USA
  Ph.D.   Computer Science   Sep. 2017 – Now
  Advisor: Prof. Imon Banerjee
  Co-Advisor: Prof. Ashish Sharma
- 2020 Grace Hopper Conference Scholarship

University of Chinese Academy of Sciences   Beijing, China
  M.S.   Computer Engineering   Sep. 2014 – Jun. 2017
  Advisor: Prof. Jun Xiao
- 2016 Outstanding Volunteer of China's 16th National Youth Robot Competition
- 2016 National Scholarship of University of Chinese Academy of Sciences (Top %1)
- 2016 Graduate Scholarship in University of Chinese Academy of Sciences (Top 5%)
- 2016 Merit Student of University of Chinese Academy of Sciences (Top 3%)
- 2015 Excellent Student Cadre in University of Chinese Academy of Sciences (Top 1%)
- 2015 Graduate Scholarship in University of Chinese Academy of Sciences (Top 5%)
- 2015 Merit Student of University of Chinese Academy of Sciences (Top 3%)

Tianjin University of Technology   Tianjin, China
  B.E.   Information Security   Sep. 2010 – Jun. 2014
  Thesis-Supervisor: Prof. Sheng Lin
- 2014 Excellent Graduate of Tianjin University of Technology (Top 1%)
- 2011-2013 Academic Scholarship in Tianjin University of Technology (Top 3% students)
- 2011-2013 National Encouragement Scholarship (Top 3% students)

Publications

- **Xiaoyuan Guo**, Judy Wawira Gichoya, Hari Trivedi, William C O'Neill, Rhakur Priya, Weijia Sun, Manisha Singh, Kathiravelu Pradeeban, Kim Thomas, Chris Yang, Imon Bannerjee. "Deeper Thinner UNet (DT-UNet) for Fine Vessel Segmentation of Breast Arterial Calcification (BAC)". CMIMI 2020. (Oral)
- Jiali Duan, **Xiaoyuan Guo,** C.-C. Jay Kuo "PortraitGAN for Flexible Portrait Manipulation". APSIPA 2020.
- Jiali Duan, **Xiaoyuan Guo,** Son Tran, C.-C. Jay Kuo "Fashion Compatibility Recommendation via Unsupervised Metric Graph Learning". SCMLS 2020
- **Xiaoyuan Guo,** Fusheng Wang, George Teodoro, Alton B. Farris, and Jun Kong. "Liver Steatosis Segmentation with Deep Learning Methods". ISBI 2019 (Poster)
- **Xiaoyuan Guo,** Hanyi Yu, Blair Rossetti, George Teodoro, Daniel Brat, Jun Kong. "Clumped Nuclei Segmentation with Adjacent Point Match and Local Shape-Based Intensity Analysis in Fluorescence Microscopy Images". EMBC 2018 (Oral)
- Jiali Duan, Shuai Zhou, Jun Wan, **Xiaoyuan Guo,** Stan Z.Li. A Unified Framework for Multi-modal Isolated Gesture Recognition. ACM-TOMM, 2017
- **Xiaoyuan Guo,** Jun Xiao, Ying Wang. "A Survey on Algorithms of Hole Filling in 3D Surface Reconstruction" . The Visual Computer, 2016.
- Jiali Duan, Shuai Zhou, Jun Wan, **Xiaoyuan Guo,** Stan Z.Li. Multi-Modality Fusion based on Consensus-Voting and 3D Convolution for Isolated Gesture Recognition. Arxiv, 2016
- Jiali Duan, Shengcai Liao, **Xiaoyuan Guo,** Stan Z. Li. Face Detection by Aggregating Visible Components. ACCVW (Oral), 2016

Experience

Breast Arterial Calcification Segmentation and Quantification in Mammograms   Atlanta, USA
                                                                                    May. 2020 – Aug.2020

Task: Develop a quick and accurate semantic segmentation models for separating breast vessel calcifications in mammograms. The segmentation results are then used to quantify calcium mass.   Tools: Pytorch, Python, Pydicom, Panda

Mentor: Prof. Hari Trivedi, Prof. Judy Wawira Gichoya, Prof. William C O'Neill, Prof. Imon Banerjee

Content-based Image Retrieval for Medical Images   Atlanta, USA
                                                                                    Mar. 2020 – May.2020

Task: Develop a deep ranking model to retrieve similar images in image database given a query image. The retrieving model is then used for helping generate target pathology images in database.

Tools: Pytorch, Python, Tensorflow, Panda

Mentor: Prof. Ashish Sharma, Prof. Eugene Agichtein

Lung Nodule Detection in CT Scans   Atlanta, USA
                                                                                    Oct. 2018 – Feb.2020

Task: Use deep learning methods to detect lung nodules in 3D lung cancer screening data. The detection can be applied to tracking nodule development and then evaluating lung cancer risks.

Tools: Tensorflow, Keras, Pytorch, Python, Pydicom, Pylidc, Panda

Mentor: Prof. Ashish Sharma

Fibrosis Detection and Segmentation in Histological Images   Atlanta, USA
                                                                                    Jul. 2018 – Sep.2018

Task: Detect and segment fibrosis from the histological image to help quantify the tissue type, which is challenging due to high variability and complexity of structural features of such images.

Tools: Tensorflow, Python, Matlab

Mentor: Prof. Jun Kong

Liver Steatosis Detection and Segmentation with Large-scale Microscopy Imagery   Atlanta, USA
                                                                                    Apr. 2018 – Jun.2018

Task: Detect and segment liver steatosis from the whole-slide images, especially segment the clustered steatosis to facilitate the steatosis number counting and acquirement of the average size information, which can be used to predict the situation of the disease.

Tools: Tensorflow, Keras, Python, Matlab

Mentor: Prof. Jun Kong

Clumped Nuclei Segmentation in Fluorescence Microscopy Images   Atlanta, USA
                                                                                    Oct. 2017 – Feb.2018

Task: Segment the clustered nuclei occurred in the fluorescence microscopy images, develop an efficient segmentation algorithm to solve the under-segmentation problem.

Tools: Matlab, Python

Mentor: Prof. Jun Kong