Xiaoyuan Guo

https://xiaoyuanguo.github.io/academics/

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EDUCATION

Emory University
Atlanta, GA
PhD of Computer Science
Aug. 2017 – Present

University of Chinese Academy of Sciences
Beijing, China
Master of Industry Engineering
Sept. 2014 – Jun. 2017

Tianjin University of Technology
Tianjin, Beijing
Bachelor of Department of Computer Science and Communication Technology
Sept. 2010 – Jun. 2014

RESEARCH INTERESTS

Computer Vision
Object Detection, Image Segmentation, 3D Reconstruction

Medical Image Analysis
Biomedical Image Analysis, Whole-Slide Microscopy Image Analysis, Machine Learning

EXPERIENCE

Department of Biomedical Informatics, Emory University
Atlanta, GA
Lung Cancer Detection and Prediction with Clinic History Data Using Deep Learning Methods
Oct.2018 - Present

- **Tools**: Tensorflow, Keras, Pytorch, Python, Pyradiomics, Pydicom
- **Main Task**: Use Deep Learning methods to detect lung nodules from 3D lung cancer screening data, combine those detection with the corresponding clinic history data sequentially to input another RNN-based neural network, predict the lung cancer probability and the necessity to future therapy for patients.
- **Results**: The project is ongoing! Looking forward to see the results soon!

Biomedical Imaging Informatics Laboratory, Emory University
Atlanta, GA
Fibrosis Detection and Segmentation in histological images with FCN8
Jul.2018 - Sep.2018

- **Tools**: Tensorflow, Python, Matlab
- **Main Task**: Detect and segment fibrosis from the histological image to help quantify the tissue type, which is changeling due to high variability and complexity of structural features of such images.
- **Results**: Accurate segmentation results were achieved. Results can be seen **here**.

Biomedical Imaging Informatics Laboratory, Emory University
Atlanta, GA
Liver Steatosis Detection and Segmentation with Large-scale Microscopy Imagery
Apr.2018 - Jun.2018

- **Tools**: Tensorflow, Keras, Python, Matlab
- **Main Task**: Detect and segment liver steatosis from the whole-slide tissue image, 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.
- **Results**: Great segmentation results were achieved. Results can be seen **here**.

Biomedical Imaging Informatics Laboratory, Emory University
Atlanta, GA
Clumped Nuclei Segmentation in Fluorescence Microscopy Images
Oct.2017 - Feb.2018

- **Tools**: Matlab, Python
- **Main Task**: Segment the clustered nuclei occurred in the fluorescence microscopy images, develop an efficient segmentation algorithm to solve the under-segmentation problem.
- **Results**: Better segmentation than other algorithms, the paper(Clumped Nuclei Segmentation with Adjacent Point Match and Local Shape-Based Intensity Analysis in Fluorescence Microscopy Images) is accepted by EMBC2018, oral.

Department of Math and Computer Science, Emory University
Atlanta, GA
Teaching Assistant
Jan. 2018 - May. 2018

- **Teaching Assistant - Introduction of Computer Science(I)**: The course was for undergraduate students to learn basic coding skills and data structure, with more than 200 students enrolled. Involved in grading assignment, exams and answering questions both online and meeting during the office time.

- **Engineering Computing Center, School of Engineering Science, UCAS**   Beijing, China
  Hole Filling Algorithm in Point Clouds   *May. 2016 - March.2017*
    - ○ **Tools**: Visual Studio 2017, QT, Pcl, C++
    - ○ **Main Task**: Work for an efficient algorithm for filling holes in point clouds, especially for the scanned terrain point clouds.
    - ○ **Results**: Good filling results. A paper (A survey on algorithms of hole filling in 3D surface reconstruction) was published.

PUBLICATIONS

- **1**: **Xiaoyuan Guo**, Fusheng Wang, George Teodoro, Alton B. Farris, and Jun Kong. Liver steatosis segmentation with deep learning methods[C]//ISBI,2019. (Poster)

- **2**: **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[C]//EMBC,2018. (Oral)

- **3**: **Xiaoyuan Guo**, Jun Xiao, Ying Wang. A survey on algorithms of hole filling in 3D surface reconstruction[J]// The Visual Computer,2016.

- **4**: Jiali Duan, Shengcai Liao, **Xiaoyuan Guo**, Stan Z. Li. Face Detection by Aggregating Visible Components. ACCV Workshop 2016.(Oral)

- **5**: Jiali Duan, Jun Wan, Shuai Zhou,**Xiaoyuan Guo**, Stan Z. Li. A unified framework for multi-modal isolated gesture recognition. ACM Transactions on Multimedia Computing, Communications, and Applications (TOMM). 2018, 14(1s): 21.