

Lingbo Jin | Curriculum Vitae

Rice University Abercrombie A126 – Houston TX – 77005

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Education

Rice University

Graduate Student in Electrical and Computer Engineering,

Houston, TX

2018–present

Carnegie Mellon University

Bachelor of Science in Electrical and Computer Engineering,

Additional Major in Biomedical Engineering

GPA:3.79/4.0

Pittsburgh, PA

2014–2018

Research

Structured Illumination for Low Scattering Imaging in Low-cost Microscopy

Houston, TX

Graduate Student at Rice Computational Imaging Lab

January 2019-May 2019

Micro-endoscopy is a GI cancer screening that can provide cellular resolution images in real-time. It works in conjunction with endoscopy and can reduce the need for biopsy. However, subsurface tissue scattering creates undesirable background on the image, reducing the contrast. While there are many systems such as point- scanning confocal and 2-photon microscopy that can reject scattering background, these system are typically very slow and expensive due to the optomechanical parts. We are proposing a structured illumination microscopy that is able to reject scattering while acquiring images in real time. We test background rejection ability of our system both theoretically and experimentally and show that it provides low scattering images while costing a fraction of the price of a traditional confocal system.

Vessel Tracking in Ultra-high Frequency Ultrasound Imaging

Pittsburgh, PA

Research Assistant at Galeotti Group

January 2017-May 2018

Studied literature and self-taught on Kalman Filter, vessel segmentation methods, and ultrasound speckle models. Implemented an Extended Kalman Filter (EKF) to improve vessel segmentation accuracy in images with high speckle noise and presence of shadow. The project is done under the supervision of Professor Galeotti and its result published in the 2018 MICCAI.

Subcutaneous Blood Flow Imaging using the FLIR system

Pittsburgh, PA

Recipient of Carnegie Heart Fellowship

May 2016-August 2016

Performed motion stabilization and variance analysis on FLIR videos to improve flap surgery accuracy. Collaborated with surgeons and nurses to collect video data in operation room. This was a summer research fellowship done under the supervision of Professor Srinivasa Narasimhan and his PhD student Chao Liu.

Projects

Marco: an Indoor Localization Tool

Pittsburgh, PA

Android Deployment

January 2017-May 2017

Created an android application that determines indoor location using visual features. In order to actualize SURF feature detection and extraction in real-time, I developed a C++ image processor using custom built OpenCV library and Android NDK. This was a capstone project done in collaboration with two teammates, Ani Sridhar and Nikhil Choudary.

Midsagittal Plane Extraction in MR Images

Pittsburgh, PA

Personal Project

April 2017

Implemented the paper by Teverovskiy et.al (2006) to extract midsagittal plane from MR images. The volume was pre-processed using SimpleITK and the extraction algorithm was written in Python3 using the Numpy library. This was a term project for the graduate-level course Medical Imaging Analysis.

Vessel Detection in the Radon Domain

Pittsburgh, PA

Member

November 2016-December 2016

Devised a circle recognition algorithm utilizing Radon transform and RANSAC. The algorithm is robust with sampling rate as low as 7 angles and Signal to Noise Ratio as low as 15. This is a term project done in collaboration with Ani Sridhar for graduate-level course Image and Video Processing.

Experience

18-793: Image and Video Processing

Pittsburgh, PA

Teaching Assistant

August 2017-May 2018

Work under Professor Aswin Sankaranarayanan to teach recitation sessions, lead office hours, and prepare homework solutions for the graduate level course.

Career and Professional Development Center

Pittsburgh, PA

Career Peer Mentor

August 2015-May 2018

Lead workshops in dormitories and introduce first year students to resume writing, career fairs, and networking. Foster peer to peer mentor-ship.

Conference Paper

Mathai, T. S., **Jin, L.**, Gorantla, V., & Galeotti, J. (2018, September). Fast Vessel Segmentation and Tracking in Ultra High-Frequency Ultrasound Images. In International Conference on Medical Image Computing and Computer-Assisted Intervention (pp. 746-754). Springer, Cham.

Fellowship

Summer Undergraduate Research Fellowship

Pittsburgh, PA

granted by Carnegie Mellon University Undergraduate Research Office

Summer 2017

Carnegie Heart Fellowship

Pittsburgh, PA

granted by Carnegie Mellon Biomedical Engineering Department

Summer 2016

Skills

Programming Languages: MATLAB, Java, C, LaTeX, Python, JavaScript, HTML/CSS, Assembly

Software: OpenCV, Android Studio, ITK/SimpleITK, Git

Languages: Mandarin, English

Leadership

Biomedical Engineer Society

Pittsburgh, PA

Research and Project Chair

August 2015-May 2018

Organize monthly research seminars that informs students about exciting projects and foster interest in research. Coordinate the annual BMES research fair, providing a platform for students to connect with graduate researchers and professors.

CMU Emergency Medical Service

Pittsburgh, PA

Responder

September 2014-May 2018

Coordinate closely with team members to provide the best care in critical time and space limits. Keep a calm patient rapport while communicating with the police department and city paramedics.