

SHUAIBIN CHANG

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EDUCATION

Ph.D. candidate in Electrical Engineering

Boston University

📅 Sept 2018 – Present

Advisor: Prof. David A. Boas

Lab Website: <https://sites.bu.edu/boas/people/students/>

B.Sc. in Applied Physics

University of Science and Technology of China

📅 Sept 2014 – June 2018

EXPERIENCE

Augmented Human Sensing Intern

Nokia Bell labs

📅 June 2022 – August 2022

- Brain computer interface related work. Designed and built an all-fiber optical tomography system, and measured optical properties in multiple phantoms.
- Graphic User Interface (Python) for data collection, processing and visualization
- Independent research experience; collaboration with coworkers specialized in various background.

Research Assistant

Boston University

📅 Sept 2018 – Present

- Collaboration with three extinguished research groups (based in US and Italy) in a multi-million NIH Brain Initiative project. The final goal is to establish a pipeline that can routinely generate the microscopic image of human brain.
- Designed and built a Serial Sectioning Polarization Sensitive Optical Coherence Tomography (PSOCT) and Two Photon Microscope (2PM), which generates microscopic scale 3D brain image with multiple contrasts.
- Automation software written in LabVIEW, Python, and CUDA. I also wrote a complete user manual to train future users.
- Help developed the post-processing pipeline in MATLAB.

SKILLS AND INTERESTS

Python MATLAB LabVIEW Zemax Solidworks CUDA

Vasculature/ Retinal/ Skin Imaging using PSOCT

Blood Flow/ Blood Pressure/ Oxygen Level Measurement

Human Machine Interface Portable/Wearable Device

Swept Light Source and Interferometry

PUBLICATIONS

📄 Journal Articles

- Chang, S., Boas, D. A., Wang, H., & et al. (2022a). Scalable mapping of myelin and neuron density in the human brain with micrometer resolution. *Scientific Reports*.
- Chang, S., Boas, D. A., Wang, H., & et al. (2022b). Serial block-face psoct-2pm for large-scale label-free human brain imaging and quantitative analysis. *In progress*.

CONFERENCE

Brain Initiative Investigator's Meeting

📅 April 2019

📍 Washington DC

- Poster: Block-face imaging of human brain to link microscopic immuno-staining with ex-vivo MRI structure

SPIE Bio-optics and Sensing

📅 March 2021

📍 virtual

- Oral: Measuring myelin content and cell density in human brain with Optical Coherence Tomography

OSA Biophotonics

📅 April 2022

📍 Florida

- Poster: Large-scale myelin content and cell body imaging of post-mortem human brain: Application in the neurodegeneration study of Alzheimer's disease (AD) and Chronic Traumatic Encephalopathy (CTE)

AWARDS

Distinguished Electrical Engineering Fellowship

📅 2018-2019

📍 Boston University

National Science Foundation NRT Trainee

📅 2019-Present

📍 Neurophotonics Center, BU

TEACHING

Grader for Optical Microscopy class (Prof. Jerome Mertz)

📅 2020, 2021, 2022

📍 Boston University