Summary of BIEL@CNU

New Biomedical Imaging Systems & Techniques

1. Multiscale Photoacoustic Imaging

2. Multimodal Imaging : OCT, US, X-ray, FL

Biomedical Imaging with Deep Learning (DL)

1. Synthetic Images with DL

3D AR-PAM   3D Synthetic

Breakthrough resolution physical limitation Sci. Rep. 2023

Original Structure image   Trained generator   Synthetic PS-OCT imaging

Polarized-sensitive OCT contrastive generation Sci. Rep. 2024

2. Featuring Analysis & Quantification

Microvasculature feature detection Photonics. 2021

Real-time vasculature imaging & quantifications Sensors. 2021

Functional Preclinical/Clinical Applications

1. Small Animal's Label-free imaging

Brain I

JBO 2020   Theranostics 2020

Exp.& mole. Med. 2023   Sci. Rep. 2023

2. Clinical data analysis in Hospital

Medicine 2022, J. Stoke 2021

Graduate Student Recruitment

Projects

- **Project 1:** "Development of 3D multiscale photoacoustic with ultrasound imaging system (Hardware/Software) for preclinical/clinical trials"
  – Opened position: <u>1 PhD & 1 MS or 1 Postdoc & 1MS</u>
- **Project 2:** "Development of AI & deep learning-based imaging (MRI/CT/PET/SPECT/US) techniques for medical and non-medical data"
  - Opened position: <u>2 PhD & 1 MS or 1 Postdoc & 1MS</u>
- **Project 3:** "Development of advanced laser development in bio-photonic imaging"
  - Opened position: <u>1 PhD & 1 MS or 1 Postdoc & 1MS</u>

Your Quantifications

- Experience in physics, electronics, mechanics, computing science, biophysics, bioengineering, nuclear engineering with related fields.
- Candidates who are motivated to learn and develop new biomedical imaging techniques and animal experiments.
- Preferred analytical skills and experience with Python/MATLAB/C-based data processing and analysis.

Contact

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