

## Postdoctoral Fellow in Biomedical Optics and Medical Physics

We are seeking skilled and enthusiastic candidates for Postdoctoral Fellow positions in the Biomedical Imaging and Radiation Technology Laboratory (BIRTLab). **Our mission is to innovate, develop, and apply cutting-edge biomedical technology to empower cancer research.** Successful candidates will join our team to contribute to one of the following projects: **a) Developing a single pixel optical imaging for 3D in vivo cell tracking, or b) advancing bioluminescence tomography for brain metastases detection in lung cancer research.**

Specifically, the **project a)** focuses on developing a single-pixel imaging system to address the limitations of conventional imaging techniques in detecting low-level optical signals emitted from luminescent cells in vivo. The primary goal is to achieve 3D in vivo cell tracking, which will enable a deeper understanding of cancer cell migration patterns and immune cell responses to therapeutic interventions. This project will significantly contribute to the development of effective cancer therapies.

The **project b)** aims to advance 3D bioluminescence tomography (BLT) as an image-guided system to enable high-precision detection of brain metastases in lung cancer animal models. The development of orthotopic spontaneous brain metastases animal models combined with the BLT-guided system is highly significant and complementary as a research tool. This integrated platform faithfully recapitulates brain metastases observed in patients, facilitating high precision pre-clinical investigations that closely reflect clinical scenarios. This is particularly important as the population of brain metastases patients is increasing, highlighting the need to better understand the underlying mechanisms and develop effective therapies.

Both project involves developing machine learning-based image reconstruction algorithm, advancing optical system, and conducting related biological experiments. These projects are multi-disciplinary, integrating algorithm development, optics, engineering, physics, biology, and industrial components. Candidate do NOT need to have expertise in both software and hardware development to apply.

BIRTLab provides an exceptional environment for candidates to grow and achieve successful careers:

- Lab director Dr. Wang works tirelessly with candidates to ensure they meet their career goals. Through attentive guidance, he encourages members to think creatively and develop their own research projects. All activities are supported by extramural funding through the NIH and Texas CPRIT.
- Successful members are also eligible for basic clinical medical physics training and a tuition fee waiver to enroll in a certificate program with CAMPEP-accredited courses, which covers medical physics didactic elements for people who enter the medical physics profession through an alternative pathway. This opportunity allows members working toward board-certified medical physicist in radiation oncology sector, ultimately contributing to patient care.

The multi-disciplinary projects, strong research environment, and the medical physics pathway together offer a unique opportunity to prepare the candidate for careers in academia, industry, or as professional medical physicist in the U.S.

Candidates with established experience in **computational imaging, machine learning algorithms, analytical calculations, tissue optics and optical system design are desired**. Applicants holding a Ph.D in physics, optics, mathematics, or engineering are encouraged to apply.

Compensation are based on candidates' experience and NIH scale with competitive benefits. Interested candidates should send a statement of interest, CV, and the contact information for 3 references to:

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