PURDUE ENGINEERING

WELDON SCHOOL OF BIOMEDICAL ENGINEERING

Postdoctoral position in single molecule super-resolution microscopy

Postdoctoral fellow positions are available at the **optical super-resolution microscopy** lab, directed by Dr. **Fang Huang** at Purdue University, College of Engineering. The candidates are expected to spearhead innovations related to one of the two areas of research focus:

1. **Fluorescence nanoscopy through tissue specimens**. We develop novel imaging instruments and analytical methods to visualize intra- and extra-cellular structures at the nanoscale in thick specimens such as tissues or small animals. In the past, the team developed novel Adaptive Optics and PSF engineering methods to super-resolve brain sections (Nature Methods, 15, 583–586, 2018), deep learning framework for multiplexed single molecule analysis (Nature Methods, 15, 913–916, 2018) and INSPR (in situ PSF retrieval) technology to expand applicability of super-resolution imaging system from cells to tissues (Nature Methods, 17, 531–540, 2020).

2. **Molecular resolution imaging of live cells**. We seek to develop unconventional ultra-high resolution systems that synergistically combines ideas from engineering and physics such as interferometric/4Pi single molecule detection (Cell, 166, 4, 1028–1040, 2016), applied statistics (Nature Methods, 10, 653–658, 2013; Nature Methods, 14, 760 – 761, 2017) and coherent pupil function (Communications Biology, 3, 220, 2020) to significantly advance the achievable resolution limit for living specimens.

The Huang lab also collaborate extensively with cell biologists, neuroscientists, and chemists to tackle fundamental biological questions in areas such as cytokinesis, epigenetics, neural circuits, and cell motility. We apply our imaging technologies to reveal disease mechanisms in Alzheimer's disease, autism, and cancer. A list of the group's recent work can be found here: https://www.fanghuanglab.com/publications.html. The lab's research is mainly funded through awards from NIH, DARPA and BRAIN Initiative.

The applicant will have a PhD related to one (or more) of the areas in optics, microscopy, applied statistics or signal/image processing. Experiences in optical instrumentation, microscopy data analysis, or optical theory will be helpful.

Inquiries and applications (including CV, name/email address of 2-3 referees, and reprints of 2 most significant publications) should be directed to:

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