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Internship opportunity in BIOS lab

Topic: Machine learning and signal processing for nanoplasmonic biosensing

Duration: Two to Six months

Host: Biophotonic Systems Laboratory, École Polytechnique Fédérale de Lausanne (EPFL), Switzerland

Research Description:

BIOS Lab led by Prof. Hatice Altug at EPFL is specialized in nanophotonic technologies for on-chip biosensing. We employ a variety of nanophotonic technologies including nanoplasmonics and metamaterials. We integrate our on-chip sensor technologies with micro/nanofluidic systems for efficient analyte trapping and manipulation.

Recently, we have achieved successful integration of microfluidic live cell culture technique with the nanoplasmonic biosensor, which enables real-time cell analysis in a label-free manner under physiological conditions. At the meantime, we are developing high-end imaging techniques for high-throughput and multiplexed biosensing platform, to further implement it in broader biomedical applications (e.g. single cell analysis, screening for cell therapy). Therefore, it is essential to equip the platform with robust and reliable signal processing to realize ultra-sensitive biodetection.

This opportunity is suitable for an internship or a master's project.

Required knowledge and skills:

- Programming expertise in Matlab, Python or similar system engineering software
- Familiarity with machine learning techniques
- Knowledge in optics, microscopy, and spectroscopy (not a must)

What you will learn:

- Surface functionalization for plasmonic biosensor
- Human cell culture

Application:

Please send your CV to Saeid Ansaryan: Saeid.ansaryan@epfl.ch