Summer Research Openings

Opportunity with Dr. Stanley Qi's laboratory
Lab Mentor: Crystan Chen
Project Title: Computational Design to Enhance T Cell Therapy under Tumor Environments
Project Description: The Stanley Qi Lab (https://med.stanford.edu/qilab/home.html) develops innovative strategies to design safer and more predictable cell therapies for disease treatment. Previously, we have developed new genome and epigenome editing methods that can enhance T cell therapies to enable them to thrive in the challenging tumor microenvironment during cancer treatment. In this summer project, the undergraduate student will join a highly interdisciplinary team to explore how computational tools in genomics and transcriptomics can be leveraged to guide the rational design of T cells for improved responses to tumor environments. We are seeking students with a strong motivation, a mind of resilience, and an interest in learning and applying computational and experimental skills to address critical questions at the intersection of basic research and potential clinical applications.
Contact: Crystal Chen (crystalx@stanford.edu)

Opportunity with Dr. Gary Darmstadt's laboratory
Lab Mentor: Dr. Ivana Maric (with Dr. Gary Darmstadt)
Project Title: Metabolic and clinical profiling of neonates born to mothers with pregnancy complications
Project Description: Pregnancy complications such as preeclampsia, gestational hypertension and gestational diabetes have been associated with adverse neonatal outcomes. The goal of this project is to characterize metabolomic signatures of neonates born to mothers with pregnancy complications. We will use machine learning/AI methods to analyze large California Biobank data containing neonatal metabolic measurements from dried blood spots (DBS) collected at birth. Using these tools, the student will be able to identify metabolic changes and the most predictive biomarkers (metabolites). This will characterize the impact of specific pregnancy complications on the newborn metabolome, potentially leading to new insights into the underlying biology.
Contact: Dr. Gary Darmstadt (gdarmsta@stanford.edu)

Opportunity with Dr. Ivana Maric's laboratory
Lab Mentors: Dr. Ivana Maric and Dr. Gary Darmstadt
Project Title: Evaluation of Large Language Models for prediction and profiling of neonatal outcomes
Project Description: Large Language Models (LLMs), generative models pre-trained on vast amounts of data, have shown effectiveness in assisting in disease prediction. In this project, a student will evaluate their capability to predict and profile several neonatal outcomes. The student will have an opportunity for both literature review and for a hands-on project. Large data sets containing clinical data and clinical notes, as well as omics data will be analyzed.
Contact: Dr. Ivana Maric (ivanam@stanford.edu)