



ROBERT E. FISHELL INSTITUTE FOR BIOMEDICAL DEVICES

2024 Projects include:

- [Clinical Analysis](#): Measure the levels of oxidative stress in clinical serum samples collected from persons being treated for addiction and mental health disorders.
- [Additive Manufacturing](#): Integrate advanced methods from electrochemistry and biology (e.g., protein engineering) to expand the emerging additive manufacturing method of electro-bio-fabrication.
- [Redox Biology](#): Use redox as a modality to enable communication between biology and electronics.
- [Material Science](#): Develop renewable materials (e.g., polysaccharides and phenolics) as a sustainable platform for electronic and interactive materials.
- [Synthetic Biology](#): Couple synthetic biology with electrochemistry to enable gene expression to be controlled electronically.
- [Data Analytics](#): Apply physics-based models (e.g., mathematical, molecular and engineering) with data-driven approaches to extract meaning from experimental measurements of complex biological systems.
- [Device Fabrication](#): Build electrochemical devices to sense chemical and biological activities, and to actuate responses.
- [Artificial Olfaction](#): The intern will work toward creating a means for introducing airborne odorants to the cells in such a manner that the cells can stay alive and functioning without drying out. Several approaches are possible, from gels to porous membranes, which the intern will evaluate.