University of Maryland | A. James Clark School of Engineering

ROBERT E. FISCHELL INSTITUTE FOR BIOMEDICAL DEVICES

2026 Projects include

- **Oxidative Stress Clinical Analysis**: The intern will work with researchers on a project aimed at developing an objective measurement of oxidative stress, a biological factor increasingly linked to psychiatric disorders. Over the summer, the intern will analyze serum samples from clinical studies, assess measurement reproducibility, and explore relationships between oxidative stress levels and patient reported symptoms, gaining hands-on experience in biomedical research, data analysis, and interdisciplinary collaboration. This project will be located in College Park, Maryland

- **Brillouin Microscopy**: The intern will characterize temperature-induced sensitivity changes in a Brillouin spectrometer and design an active temperature control system to enable stable long-term operation, testing the system on a standalone setup before integrating it into the primary instrument. In parallel, the intern will assist in finalizing, testing, and deploying a fully automated data analysis pipeline for Brillouin microscopy, helping reduce post-processing time and enable real-time visualization on the main instrument. This project will be located in Baltimore, Maryland

- **Automated Electrochemical Measurement System**: This internship focuses on advancing an automated electrochemical experimentation platform used to measure electrical signals from biological samples, such as cells or proteins, to better understand their behavior. The intern will take ownership of a working prototype that already includes automated liquid handling and measurement capabilities and help validate, refine, and expand the system so it can be reliably used for research. Responsibilities include integrating new hardware components such as sensors or cameras, designing and running validation experiments to assess performance, and documenting system reliability and functionality. This role is ideal for a self-directed student with an interest in automation and hands-on electronics who is comfortable working independently and has basic experience with Python programming. This project will be located in College Park, Maryland

- **UCleaner | Medical Device Start Up**: The UCleaner intern will support the development of innovative, affordable dental technologies by working across product design, regenerative research, and outreach. Intern duties include iterating CAD designs and fabricating dental device components using 3D printing, testing prototypes for functionality and fit, assisting with basic cell culture and 3D bioprinting for regenerative dentistry applications, and evaluating constructs through assays and microscopy. The intern will also contribute to UCleaner's social media and marketing efforts by brainstorming and creating content that expands awareness of the company's mission and impact in the dental space. This project will be located in College Park, Maryland