

SUMMER SCHOLARS PROJECTS

PROJECT CATEGORY:

BIOSENSORS AND DIAGNOSTICS TECHNOLOGY

STARTUP:

ARMA BIOSCIENCES USA INC.

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PROJECT TITLE

Electrochemical biosensors for at-home and point-of-care diagnostics.

PROJECT DESCRIPTION

At Arma Biosciences, we have developed a rapid, versatile sensor platform to enable continuous monitoring of a multitude of physiological markers. Our platform is compatible with saliva, blood, urine, sweat, and tears, and can be quickly developed to detect for various health indications.

We're seeking a highly motivated intern to join our team and assist with the optimization of our biosensing assay, measurement conditions and to help us in running experiments with clinical samples.

JOB EXPECTATIONS:

- Conduct measurements on our biosensors using electrochemical sensing techniques
- Help execute experiments with Surface Plasmon Resonance (SPR)/ Bio-Layer Interferometry (BLI) to measure and characterize molecular interactions between different biomolecules such as antibody-antigen interaction (training will be provided).
- Evaluate conditions to improve binding kinetics between biomolecules of interest
- Keep detailed records of protocols, experiments, results, and analysis
- Collaborate with other team members to design and implement experiments
- Present results to the team and provide recommendations for future experiments

DESIRED EXPERIENCE:

- Currently enrolled in an undergraduate or a graduate program in electrochemistry, biochemistry, biotechnology, bioengineering, chemical engineering, or related field
- Laboratory skills and experience/interest in electrochemical techniques
- Strong written and verbal communications skills
- Familiarity in data analysis and processing; coding language familiarity is a plus

TIME COMMITMENT:

This will be a full-time internship for 8 weeks with flexible dates over the summer.

TRAINING MENTORING:

- Initial Meeting:
 - The intern will meet with the project supervisor to discuss the project goals and objectives, as well as the expectations for the internship.
 - The intern will be provided with a project overview, including relevant background information, literature review, and experimental protocols.
 - The intern will be given a tour of the lab facilities and introduced to the lab equipment and procedures.
- Weekly Progress Meetings:
 - The intern will meet with the project supervisor on a weekly basis to discuss progress, any challenges encountered, and next steps.
 - The supervisor will provide guidance and feedback on the experimental design and data analysis.
 - The intern will also have the opportunity to ask questions and receive feedback on any challenges they may be facing.
- Data Analysis and Interpretation:
 - The intern will be trained on data analysis and statistical methods and will receive guidance on the interpretation of results.
 - The supervisor will provide feedback on data analysis and interpretation and will help the intern to identify any trends or patterns in the data.
- Research Presentations:
 - The intern will be required to give presentations on their research progress and findings to the lab group and other relevant stakeholders.
 - The supervisor will provide feedback on the intern's presentation skills and will help the intern to improve their communication and presentation skills.
- Final Report and Presentation:
 - The intern will be required to prepare a final report and give a final presentation on their research project.
 - The supervisor will provide feedback on the report and presentation and will help the intern to prepare for the final submission.
- Evaluation and Feedback:
 - At the end of the internship, the supervisor will provide the intern with an evaluation and feedback on their performance.
 - The intern will also have the opportunity to provide feedback on their mentoring experience and the internship program.

Feedback will be given informally regularly during the internship, as well as with two formalized sessions, one occurring halfway through the internship and a written evaluation occurring at the end of the internship, both containing a performance review of the intern's progress and work. The development of the intern will focus on improving problem solving skills in a professional engineering context, solidifying verbal and written technical communication, and emphasizing collaborative engineering work.