

# EVA N. BURGOS

Greater Houston, TX Area, 77345 ▪ 281-906-4990 ▪ [natalie.e.burgos@gmail.com](mailto:natalie.e.burgos@gmail.com)

## EDUCATION

**Bachelor of Science, Biomedical Engineering** – THE UNIVERSITY OF TEXAS AT DALLAS – Richardson, TX  
Expected Graduation: Spring of 2026, CSWA (Certified SolidWorks Associate), CSWP (Certified SolidWorks Professional), CSWPA-DT (Certified SolidWorks Professional Advanced Drawing Tools).

**Courses:** Introduction to Bioengineering I & II, General Chemistry I & II, Introduction to BMEN Computing, Introduction to Engineering and Computing, Independent Study in Science, Engineering Projects in Community Service. On course to continue my master's degree in Mechanical Engineering through the Fast Track Program at UTD.

## RESEARCH PROJECTS & EXPERIENCE

### **Co-Op: New Product Development Engineering, R&D Department, STERIS, Conroe, TX, 8/2024-12/2024**

- **Sample Container Holder Project:** Designed and fabricated a custom holder for securing sample containers during laboratory testing. Conducted background research to identify optimal materials, creating a CAD design using SolidWorks and 3D printing and prototypes. The project involved iterative testing and adjustments to enhance durability and fit, resulting in a cost-effective and reusable holder that improved workflow efficiency and was widely adopted by the R&D team.
- **Scope Buddy Project:** Leads the design and development of a new O-ring to improve the Scope Buddy 1700 device's seal and water flow. Takes charge of prototyping, performance testing, and design refining, coordinating efforts with the engineering team and presenting critical updates to senior engineers.
- **Syringe Recall and Validation Project:** Collaborates with the marketing team to assess and recommend suitable syringe replacements. Supports the testing and validation of syringes following an FDA recall, which includes updating part numbers and IFUs to meet compliance.
- **Clamshell project:** Designed and prototyped a "clamshell" for an LED project using SolidWorks to ensure consistent curing of valves, addressing misalignment issues in production. Collaborated with senior engineers measuring various valve types, considered wavelength differences, and iterated designs while maintaining compatibility with existing systems.

### **Project: "ASSERT: A Platform Technology for Rapid Electromechanical Sensing of Soil Ammonium."** **Undergraduate Researcher, University of Texas at Dallas, 8/2022-5/2024.**

- Co-authored the following publication based on the project: "ASSERT: A platform technology for rapid electromechanical sensing of soil ammonium," American Chemical Society, University of Texas at Dallas, 2024.
- Collaborated with a Ph.D. student on a year-long project that focused on measuring the stability of soil in order to correct an imbalance in the soil ecosystem affecting carbon sequestration, plant-available nutrients, and microorganisms (through the use of sustainable agriculture that uses the soil efficiently with minimal fertilizer and crop rotation).
- Completed a detailed literature review, conducted the preparation and drop casting of the ion-selective electrode on to the working electrode, and calibrated the sensor response against 3 different soil textures (Clay, Sandy Loam, and Loamy Clay). Set up the experimental apparatus, collected/analyzed sensor response data, and summarized findings.
- Demonstrated the capability of the sensor to measure soil ammonium in a temporally dynamic manner, with a coefficient of variance of 11% that showed robust stability for in-situ monitoring.

### **Project: "Dimensional Profiling of Sweat Dispersion Across a Wearable Biosensor."** **Summer Intern, Clark Summer Research Program, Collegium V Honors Program, 5/2022-8/2022.**

- Selected by Dr. Prasad to join her lab as part of the Summer Research Program within UT Dallas, a leading institution for scientific research. Worked directly with a PhD student on creating a wearable sensor that will absorb a patient's sweat and subsequently detail their spikes of cortisol and glucose.
- Collected and interpreted data on the experiment, testing and recording results. Analyzed data constructing the device to hold the sensor designing the patch worn by the patient. Labeled and organized different samples and medical literature. Presented research at the Summer Platform for Undergraduate Research.
- Competed against 150+ undergraduate and graduate student participants in designing and presenting a research poster explaining experimentation, findings, and applications of the project.
- Earned an award for demonstrated expertise in the topic, as well as strong oration/presentation skills during the SPUR poster symposium upon fulfillment of program requirements.

### **Project: "Designing and Manufacturing a 3D-Printed Child's Prosthetic Hand."** **CAD (SolidWorks) 3D Printing Work: Biomedical Microdevices and Nanotechnology, Dr. Shalini Prasad.**

- Conducted background research on existing prosthetic hand designs, determining the specific needs and dimensions. Planned the project timeline, created initial sketches, and ensured the design contained key components such as fingers, thumb, palm, wrist, and joint mechanisms. Translated sketches into detailed 3D models using SolidWorks.
- Designed individual components, prepared 3D models for printing, troubleshoot printing issues, assembled printed parts, and tested the assembled prosthetic hand for fit, functionality, and comfort. Identified and implemented required adjustments to improve performance and the user experience.
- Collaborated with Engineering Without Borders and donated the hand to the organization.