José A. Lasalde-Ramírez

Ph.D. Student
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Education

California Institute of Technology — Pasadena, CA
Ph.D. in Medical Engineering — *09/2021 – Present*
Advisor: Wei Gao

University of Puerto Rico at Mayagüez — Mayagüez, PR
B.S. in Mechanical Engineering (GPA: 3.92/4.00) — *08/2016 – 05/2021*

Research Experience

California Institute of Technology | Department of Medical Engineering — Pasadena, CA
Graduate Student Researcher in Wei Gao's Group — *09/2021 – Present*
- Designing wearable bioelectronic sensors for management of chemical biomarkers in readily accessible bodily fluids.

University of Pennsylvania | Department of Physiology — Virtual
Undergraduate Intern in Michael Ostap's Group — *06/2020 – 07/2020*
- Studied the effect of point mutations that cause hypertrophic cardiomyopathy in the ATPase pathway of the actomyosin complex.

Johns Hopkins University | Department of Chemical and Biomolecular Engineering — Baltimore, MD
Undergraduate Researcher in Konstantinos Konstantopoulos' Group — *06/2019 – 08/2019*
- Fabricated microfluidic devices that simulate anatomical confining microenvironments to study cancer cell migration.
- Explored potential activators of cancer cell motility through image data analysis of confocal imaging.

California Institute of Technology | Department of Medical Engineering — Pasadena, CA
Undergraduate Research Fellow in Wei Gao's Group — *06/2018 – 08/2018*
- Designed an electrochemical biosensor to monitor chemotherapeutics in different bodily fluids.

Cornell University | Department of Mechanical and Aerospace Engineering — Ithaca, NY
Undergraduate Researcher in Alan Zehnder's Group — *06/2017 – 08/2017*
- Constructed an in-house instrument to perform Digital Image Correlation (DIC) experiments using self-healing hydrogels.
- Identified optimal surface patterns to execute reliable fracture mechanics studies of self-healing hydrogels.

University of Puerto Rico at Río Piedras | Department of Chemistry — San Juan, PR
Undergraduate Researcher in Eduardo Nicolau's Group — *08/2016 – 05/2021*
- Synthesized polymer/ceramic composites as separators for supercapacitors.
- Engineered pH-responsive polymer films for water remediation applications.

University of Puerto Rico at Mayagüez | Department of Mechanical Engineering — Mayagüez, PR
Undergraduate Researcher in Pedro Resto's Group — *08/2019 – 05/2021*
- Analyzed a sensor system to monitor bacterial contamination in public beaches.

University of Puerto Rico at Mayagüez | Department of Chemical Engineering — Mayagüez, PR
Undergraduate Researcher in Arturo Hernandez's Group — *08/2018 – 06/2019*
- Examined the adsorption properties of carbon/Y zeolite composites functionalized with different transition metals through dynamic adsorption experiments.

Scholarships & Fellowships

2021 – 2024 National Science Foundation Graduate Research Fellowship (NSF-GRF)
2021 – 2026 Caltech Engineering and Applied Sciences Chair Scholars
2020 – 2021 *NSF* Center for Advancement of Wearable Technologies Research Scholarship

2018 – 2019 NSF University of Puerto Rico at Mayagüez Centers of Research Excellence in Science and Technology (NSF CREST-CIREEN) Research Scholarship

Awards & Honors

2022 Caltech Y Advocate Change Together Award
2019 Annual Biomedical Research Conference for Minority Students Poster Presenter Award

Teaching & Leadership

AON Robotics Team Mayagüez, PR
Team Captain *06/2019 – 06/2021*
Led a 20-member collegiate robotics team developing competitive robots in compliance with the VEX Robotics platform whilst promoting and partaking in STEM-oriented outreach activities for the general public.

Puerto Rico Institute of Robotics San Juan, PR
Robotics Teacher *08/2016 – 12/2016*
Taught middle school and high school students the basic principles of robotics via seminars and interactive workshops.

Outreach

NSF CREST-CIREEN Outreach *2018-2019*
Visited underprivileged schools in Puerto Rico to show interactive STEM-promoting experiences.

San Jorge Children's Hospital *2016-2017*
Once a year, visited the patients to showcase the competition robots and motivate the children to pursue careers in STEM.

Publications

Ramírez-Colón, J. L., Santiago-Maldonado, X., Laboy-López, S., Méndez-Fernández, P. O., Torres-Díaz, M., ***Lasalde-Ramírez, J. A.***, ... & Nicolau, E. Porous Cellulose Acetate/Block Copolymer Membranes for the Recovery of Polyphenolic Compounds from Aquatic Environments. *ACS Omega*. 2022.

Fernández-Reyes, B., Ortiz-Martínez, K., ***Lasalde-Ramírez, J. A.***, & Hernández-Maldonado, A. J. Engineered adsorbents for the removal of contaminants of emerging concern from water. In *Contaminants of Emerging Concern in Water and Wastewater*. Butterworth-Heinemann. 2020.

Álvarez-Sánchez, C., ***Lasalde-Ramírez, J. A***., Massó-Ferret, R., Ortiz-Quiles, E., Nicolau, E. Polymer MTiO3 (M= Ca, Sr, Ba) Composites as Facile and Scalable Supercapacitor Separators. Energy Science and Engineering. 2019.

Presentations

"Effects of manufacturing parameters on laser-engraved graphene electrode functionality." Puerto Rico Louis Stokes Alliance for Minority Participation (PR-LSAMP) Junior Technical Meeting. PR. 2021. (Virtual, Oral)

"Using Microfluidic Models to Understand Cancer Metastasis." Annual Biomedical Research Conference for Minority Students. Anaheim, CA. 2019. (Poster)

"Synthesis of pH-Responsive Nanofibers for the Recovery of Polyphenolic Compounds." Puerto Rico Louis Stokes Alliance for Minority Participation (PR-LSAMP) Junior Technical Meeting. PR. 2018. (Oral)

"On the Design and Fabrication of Hybrid Multipurpose Materials using Bionanomaterials as Separators for Supercapacitors." Society for Advancement of Chicanos/Hispanics & Native Americans in Science (SACNAS) Conference. PR. 2017. (Poster)