



Student Success: Meet Louisiana's Future STEM Graduates and Researchers

Part 2: Student Success, continued.

Joshua Joffrion

Louisiana Tech University

As an undergraduate student, Joffrion envisioned that he would obtain a master's degree and go straight into industry. However, that

changed in the fall of 2016 when he sought out a research assistantship with Dr. Chester Wilson. "Working with Dr. Wilson's research



Joshua Joffrion

group under the CIMM project has completely altered the trajectory of my life. I have been fortunate to experience many aspects of research— designing and conducting experiments, publishing and presenting my work, attending conferences, and even proposal writing!" said Joffrion.

With two B.S. degrees in Physics and Electrical Engineering now under his belt, Joffrion is currently starting his pursuit of both a Master's and Ph.D. in Micro and Nanoscale Systems.

Joffrion grew up in Moreauville, a rural town in Louisiana, and briefly considered attending school elsewhere. He credits the interdisciplinary environment of LATEch's Institute for Micromanufacturing as a primary reason for staying at LATEch, because it allows researchers to tackle problems from different vantage points.

"After completion of my Ph.D. program, I hope to be able to actually bring my efforts in the lab to the world



Joshua Joffrion uses the scanning electron microscope (SEM) at Louisiana Tech University to obtain a size distribution of nanoparticles he synthesized for the creation of dielectric feedstock that can be used to 3D print electronic devices.

through start-up companies," he said.

In fact, his research team was recently awarded an NSF Innovation Corps (I-Corps) award. The I-Corps focuses on bridging the gap between the university laboratory and the commercialization of technology. Joffrion served as the team's entrepreneurial lead and spent seven weeks traveling and interviewing people in the solar industry. The team then developed a business model for solar technology that has come from our research group. "This was a very enlightening experience that shed light on the importance of conducting research that will be directly beneficial to society," said Joffrion.

Timothy Ismael

Tulane University

Education and curiosity runs deep in Ismael's family. In his childhood home in the Caribbean island of Dominica, his mother, a teacher, would often make their home an extension of her

classroom, and his father's fascination with electronics and weather systems was a source of great admiration. He was fortunate to attend STEM-focused schools for all of his schooling.

"At an early age, I found myself salvaging electronic components and saving them for different applications. My insatiable desire to understand the fundamental theories of their operations pushed me to pursue studies Electrical Engineering Technology at our local community college," said Ismael.



Timothy Ismael

Ismael then attended GSU, where he double majored in Electronics Engineering Technology and Mathematics & Physics and had the opportunity to conduct research at both GSU and LATEch. He then went to LATEch to earn his Masters degree in Applied Physics.

Several CIMM researchers mentored Ismael while he conducted research at LATech working toward improving additive manufacturing techniques with a focus on understanding oxidation mechanisms in high entropy alloys. "CIMM senior researchers, Drs. Pedro Derosa, Ramu Ramachandran, and Thomas Bishop at LATech, and Dr. Phillip Sprunger at LSU all played a critical role in my development as a researcher," said Ismael.

"As a part of CIMM, I also had the opportunity to collaborate with other student researchers and instructors from various institutions. CIMM graduate student retreats and conferences were instrumental in providing the opportunity to build presentation skills, share findings and discuss research with colleagues, network and furthermore revealed the benefits of collaborative efforts in scientific research," added Ismael.

Ismael is currently a Ph.D. student at Tulane University where he is researching 2D materials for various applications. He plans on pursuing a career in academia, to continue the same type of mentorship for future students that he is grateful to have received.



Research Experiences for Undergraduates participants Ryan Katona from Lynchburg College and Eliseo Rivera from Baton Rouge Community College perform nanoparticle research at LSU in 2016.

Katona is now in graduate school at the University of Virginia and researches metal alloys. Rivera is about to receive his B.S. in Mechanical Engineering at LSU.

Eliseo Rivera
Louisiana State University

Eliseo Rivera started working right out of high school in Atlanta, Georgia. However, after finding out that his mother and younger brothers were homeless in Baton Rouge, Louisiana, he quit his job and moved here. After successfully helping his family get back on their feet, he enrolled in Baton Rouge Community College, where a professor told him about the CIMM Research Experiences for Undergraduates (REU) program, and he jumped on the opportunity.



Eliseo Rivera

searching the atomization of nanoparticles at LSU with CIMM mentor, Dr. Shengmin Guo, and toured Louisiana research and engineering facilities. "I felt that I was on the forefront of materials research. It actually made me feel really small because there are people out there doing this every day, and at any time a researcher can create a new material or method that can revolutionize the world," said Rivera.

Rivera transferred to LSU and he is currently a senior majoring in Mechanical Engineering and has an internship with ISC Constructors, LLC, an industrial engineering and construction company based in Baton Rouge. When he graduates, Rivera plans to jump right into the engineering workforce to create financial security for himself and his family.

Rivera spent the summer of 2016 re-

