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

Louisiana's growing advanced manufacturing and materials industries are benefitting from the young minds that are shaping our future. The Consortium for Innovation in Manufacturing & Materials (CIMM), is proud to provide educational and research experiences as part of the cutting-edge research funded by a National Science Foundation $20 million 5-year Research Infrastructure Improvement (RII) Track-1 award. This two-part newsletter features shining examples of how CIMM is nurturing students to become our future talented homegrown researchers and workforce.

CIMM graduate student researcher, Alexa Robinson, analyzes a theoretical model of a Chromium-Cobal-Iron-Nickel (CrCoFeNi) high entropy alloy.

Devan Kemnitz, a Junior at the Louisiana School for the Visually Impaired, demonstrates how to print glasses frames with the 3D printer. ***Watch the Video***

Alexa Robinson

Louisiana Tech University (LATech)

Over the past two years and counting, Alexa Robinson has been a part of CIMM's multi-institutional alloy research team. Robinson started in CIMM's summer Research Experiences for Undergraduates (REU) program as a Chemistry undergraduate at Grambling State University (GSU). She conducted research on the oxidation of Titanium-Aluminum alloys, and decided to continue her alloy research at LATech with Dr. Derosa after the summer program was over. They collaborated with Dr. Phillip Sprunger's group at Louisiana State University (LSU) who were able to confirm experimentally what her team had predicted through theoretical calculations.

Alexa Robinson

Later, she transitioned her focus to iron-chromium alloys, and she is currently researching the oxidation of high entropy alloys. In this theoretical research for CIMM, she uses Molecular Dynamics and Density Functional Theory to study the properties of a chromium-cobalt-iron-nickel (CrCoFeNi) high entropy alloy.

Robinson is homegrown talent from the small town of Marion, Louisiana. She initially wanted to leave the state to attend college to become a cardiologist. She decided to stay close to home, because at the time, her great-grandmother, a very important figure in her life, was very ill. Grambling State University was a great choice because dual enrollment and other collaborations at GSU Laboratory schools created a clear path for the best undergraduate experience.

Robinson started graduate school this year at LATech, and is working toward her Master's and Ph.D. in Molecular Sciences and Nanotechnology. "Working with Drs. Ramu Ramachandran, Collin Wick and Pedro Derosa not only solidified my decision to attend graduate school, but also through their mentorship and advice, I decided that I wanted to pursue theoretical research. After working with them and being welcomed so warmly by them, I knew that LATech was where I wanted to pursue my graduate education," said Robinson.

Devan Kemnitz

Louisiana School for the Visually Impaired (LSVI)

Devan Kemnitz, a native of Louisiana, is a Junior at LSVI, a boarding school for visually impaired students in Baton Rouge, Louisiana. CIMM has developed a partnership with the school, regularly providing hands-on presentations on a variety of STEM topics, such as computer science and materials science. CIMM has also provided the school with software needed to run their 3D printers. The school uses the printers primarily to create classroom learning aids for their visually impaired students, and temporary glasses frames for students

Devan Kemnitz

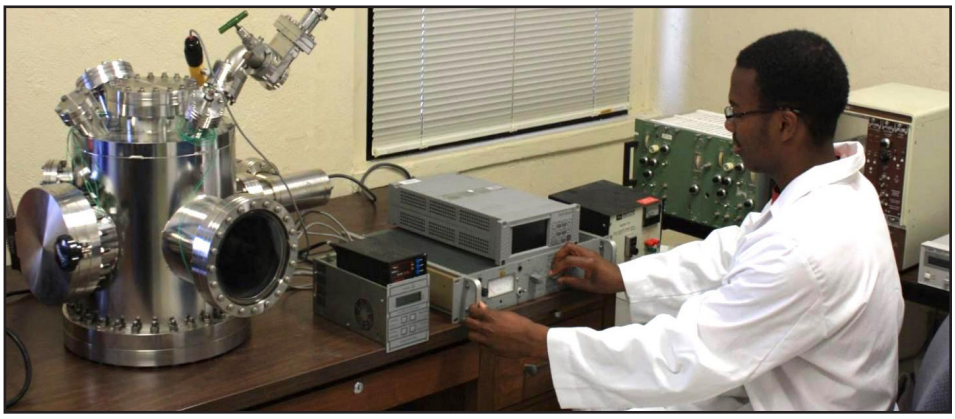
that accidentally break their glasses. LSU engineering students came up with this ingenious solution for broken glasses frames: Watch the video.

Exposure to these 3D printers has helped Kemnitz develop a passion for 3D printing and computers. "You can take what would be nothing as a program base and make it into essentially whatever you wanted it to be. Or just a pile of junk parts and make it into a working unit. It makes me think that if I can do that with nothing, then what can I do with myself in this industry?" Kemnitz said.

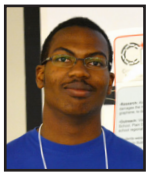
Kemnitz suffers from polycystic kidney disease and nystagmus, a condition in which the eyes make uncontrolled movements, diminishing his vision. He is considering attending LSU for his undergraduate degree, and graduate school in Computer Science at MIT. He believes computer science is a good career for him because of his experience and passion, and he can be accomplished in it regardless of his medical conditions.

Darrian Mills
LATech

When entering college three years ago as a double major in Physics and Computer Science, Darrian Mills only had a vague idea of what research and a track toward graduate school looked like. As he soon found out, research fits him well! Dr. Chester Wilson, Associate Professor and CIMM researcher, introduced Mills to the research being done by the CIMM consortium. Mills joined the team and researched innovative metal feedstock powders for 3D printing. "CIMM was vital to getting my foot through the door with regards to research," said Mills. "Through my CIMM experience, I have gained valuable experience, knowledge and skills that go beyond what I have learned in my classes (and even their associated labs)," he added.



Darrian Mills testing nanostructure materials samples for suitability using laser spectroscopy. Photo courtesy of Louisiana Tech University.



Darrian Mills

Mills has since continued to expand his research to a number of different research teams at LATech. He earned a prestigious Minority Research Scholars fellowship with NASA through the Louisiana Space Consortium to research and develop an inexpensive new carbon and metal nanostructured material that can be used for radar imagery to monitor spaceships.

Mills is currently starting his senior project, and after graduation next year, Mills plans on attending graduate school and eventually earning a Ph.D. Research is in Mills' future, and he hopes to someday contribute to the development of new energy technologies that produce cheaper and cleaner energy, or medical technologies that will advance the medical field. "My interactions with these individuals have given me insight into the life that lies beyond my undergraduate degree and I now feel better prepared for the future," concluded Mills.

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