Name: Jordan A. Caraballo-Vega

University: University of Puerto Rico (UPR) Humacao Campus

Code 587, Science Data Processing Branch

High Performance Computing Branch

Mentors: George Rumney, John Jasen, Jasaun Neff

Jordan Alexis Caraballo-Vega is a senior at the University of Puerto Rico (UPR) at Humacao pursuing a Bachelor’s Degree in Computational Mathematics while majoring in Computer Science. Since the beginning of his early career, he has participated in several formal investigations related to chemical engineering, computational chemistry, materials science, IT/security, and programming directed to scientific applications.

Caraballo has been working since 2016 as a Security Intern/Trainee at Goddard Space Flight Center with the NASA Center for Climate Simulation (Code 606.2) as an Intern, an ADNET subcontractor, and now as a Pathways student. Some of his skills include: compliance and vulnerabilities SCAP assessments, log analysis, web-based software penetration testing, high performance software tuning, machine learning, molecular dynamics simulations, Linux/Unix systems administration, and data mining, among many others in the computational field.

As the lead of the UPR-Computational Group for the last four years, he has been developing Python, Bash, and C++ code to perform molecular dynamics (MD) simulations of nano-devices and biological systems interactions. Ongoing UPR projects under the Partnership for Research and Education in Materials (PREM) involve simulations for capacitors made with nano-onions, gold nano-particles, and cellulose nano-crystals for fiber matts filters.

In addition to NASA Goddard, he has participated in summer internships at the University of Pennsylvania and UPR at Humacao. Caraballo has published one paper titled “Molecular Dynamics Simulation of Electrodes for Capacitors Made with Nano-Onions” in the *National Council on Undergraduate Research Journal* (2013). Other achievements include receiving the John Mather Nobel Scholarship (2017), the NASA Minority Undergraduate Research Education Program Scholarship (2015), the Bristol-Myers Squibb Industry Excellence in Science and Math Scholarship (2015), and the Partnership for Research and Education in Materials High School Research Scholarship (2013), and a two times Best Poster Award at the Pre-college Research Symposium (2013-2014).

Described as a dedicated leader and relentless worker; Caraballo has proven that age does not outweigh enthusiasm and dreams. Therefore, he plans to continue conducting productive research under securing and improving High-Performance Computing/Engineering environments at NASA. As he says, “People will not remember you for what you did through life, they will remember you by what you did in theirs.”

Feel free to look at some of his work at https://github.com/jordancaraballo