JORDAN A. CARABALLO-VEGA

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EDUCATION

University of Puerto Rico at Humacao *2015-2020*
Bachelor of Science - Computational Mathematics
Major Computer Science, GPA: 3.91/4.0

PROFESSIONAL EXPERIENCE

Science Data Processing Branch, Goddard Space Flight Center Fall 2018 - Present
Computer Engineer AST *Greenbelt, Maryland*

Responsible for the development of software to support science research in the areas of Earth Observation, artificial intelligence, and hardware-accelerated applications. Some ongoing projects include: land cover land use change (LCLUC), object detection, and semantic segmentation of multi-spectral remote sensing imagery.

Partnership for Research and Education in Materials (PREM), NSF 2013 - 2020
Computational Research Assistant *Humacao, PR*

· Lead a team of five undergraduate students in the development of material science computational projects. Developed and implemented software to accelerate molecular dynamics simulations in HPC environments. Assisted and collaborated with ongoing research projects in the area of data mining, clustering, image processing, and machine learning. Studied biological and electrical systems applied to physical sensors by means of molecular dynamics simulations.

NASA Center for Climate Simulation, Goddard Space Flight Center June 2016 - July 2018
Computer Science Trainee *Greenbelt, Maryland*

Intern: Summer 2016, Fall 2016, Summer 2017, Summer 2018

Contractor under ADNET LLC: Spring 2017, Fall 2017, Spring 2018

· Responsible for the engineering of software and information systems to support a critical log analysis infrastructure for monitoring and anomaly detection of high-performance computing systems. Served as a Linux and Unix system administrator for security and resource intensive systems, including revision control, networking, and user-facing virtual machines. Designed and developed software to support several computing intensive applications via multi-node MPI implementations and DevSecOps initiatives.

TECHNICAL STRENGTHS

Programming Languages	Python, C++, Perl, NodeJS, Bash
Computing Skills	Data Mining, Image Processing, GPU, MPI
Machine/Deep Learning	TensorFlow, PyTorch, NVIDIA RAPIDS, SkLearn
Remote Sensing	QGIS, GDAL, Rasterio
Simulation Skills	NAMD2, LAMMPS, GROMACS
Security Skills	ELK, Risk Assessment, Compliance and Vulnerabilities, Networking
DevOps	Containers, DevSecOps, Continuous Integration, Kubernetes
Operating Systems	System Administration of Linux, Unix, WindowsR2, FreeBSD
Website Development	HTML5, CSS, Javascript, Drupal
Soft Skills	Advanced Spanish, Advanced English, Effective Conflict Management
Security Clearance	Public Trust

PEER REVIEWED PUBLICATIONS

Abstract - Cantu, L; Caraballo-Vega, J (2021) Application of the Data Science Workflow to Molecular Dynamic Simulations, Published Poster.

Abstract - Caraballo-Vega, J (2018) Millions of Messages per Minute! Surviving the NCCS's Log Avalanche, Published Demo.

Abstract - Caraballo-Vega, J (2017) Cybersecurity Machine Learning, Published Demo.

Abstract - Caraballo-Vega, J (2016) Building Cost Effective High Performance 100 Gbps Firewall, Published Demo.

Article - JAC, Mir., F.M. (2014) Molecular dynamics simulation of electrodes for capacitors made with nano-onions, NCUR.

MOST RECENT PRESENTATIONS

Caraballo-Vega, J (2020) Deep Learning Techniques for the Classification of VHR Resolution Satellite Imagery, PREP-I, NASA Goddard Space Flight Center, Greenbelt, MD.

Caraballo-Vega, J (2020) Machine Learning Techniques for Protein-Type Classifications, NSF Science Symposium, Humacao, PR.

Caraballo-Vega, J (2020) Para-aminobenzamidine Spacer Arm Morphology Classification, SACNAS Conference, Honolulu, Hawaii.

Caraballo-Vega, J (2019) Computational Study of Gallium Crystals by Means of Molecular Dynamic Simulations, JTM Symposium, Caguas, PR.

Caraballo-Vega, J (2019) DevSecOps: Continuous Integration meets Containers Security, XXXVI Interdisciplinary Computer Science and Math Conference, Humacao, PR.

Caraballo-Vega, J (2018) Millions of Messages per Minute! Surviving the NCCS's Log Avalanche, 2018 Super Computing Conference, Denver, Colorado.

Caraballo-Vega, J (2018) Using Machine Learning for Anomaly Detection in HPC Environments, 2018 Institute for Teaching and Mentoring - South Reg. Education Board, Crystal City, VA.

INTERNSHIPS

June-August 2018	Summer Internship, NASA Goddard Space Flight Center, Greenbelt, MD.
June-August 2017	Summer Internship, NASA Goddard Space Flight Center, Greenbelt, MD.
August-December 2016	Fall Internship, NASA Goddard Space Flight Center, Greenbelt, MD.
June-August 2016	Summer Internship, NASA Goddard Space Flight Center, Greenbelt, MD.
June-August 2014	REU, University of Pennsylvania, Philadelphia, PA.
June-August 2013	Summer Internship, Caribbean Computing Excellence Institute, Caguas, PR.

LEADERSHIP POSITIONS

Solutions for Enterprise-Wide Procurement (SEWP) 2021-Present
IT SME *Source Evaluation Board Member*

Member of the Source Evaluation Board (SME) for the SEWP federal procurement program. Serve as the IT SME in the development of RFPs and contractual evaluations.

Partnership for Research and Education in Materials 2018-2020
Lead *IRG2 Computational Research Team*

· Lead a team of five undergraduate students in the task of computational material science, software engineering, and data science research. Prepared reports, posters and research presentations for Board and NSF stakeholders. Performed laboratory technician work in the area of high-performance computing and networking.

Partnership for Research and Education in Materials Nanodays   2017-2020
Student Representative   *IRG2 Research Team*

· Gathered and communicated the ideas of all research students to the Board of PI's. Organized research talks, symposiums, and provided assistance to new students. Taught material science and computer science topics to K-12 students.

Society for Advancement of Chicanos/Hispanics Native Americans (SACNAS) 2018-2019
Journalist   *UPRH Chapter*

· Served as lead journalist of the program. Documented and published articles displaying research performed by local students, outreach activities, upcoming events, and several analysis articles emphasizing outreach impacts to STEM programs at the University.

ORGANIZATIONS

NASA Intelligent Systems for Data Analysis Technologies (ISDAT)
NASA Hispanic Advisory Committee for Employees (HACE)
Emeritus Member of UPRH Association of Mathematics and Computer Science (ASMACC)
Materials Research Society (MRS)

AWARDS AND RECOGNITIONS

Robert H. Goddard Exceptional Achievement for Mission Support (2019), Greenbelt, MD
Microsoft's PR Best Research Award (2019), Humacao, PR
John Mather Scholarship Awardee (2017), Greenbelt, MD
Humacao Citizenship Award (2016), Humacao, PR
NASA MUREP Scholarship Awardee (2015), Washington D.C
University of El Turabo Best Values and Academic Achievement (2015), Gurabo, PR
Brystol Myers Squib Excellence in Science and Math Scholarship (2015), San Juan, PR
Top 5 Research Presentations, Material Research Society Conference (2014), Boston, USA