Juan Esteban Flórez-Coronel

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Education

Ph.D. in Mechanical Engineering – GPA: 4.00 Aug. 2024 – Present
Texas A&M University *College Station, TX*

Coursework: Numerical Methods for PDEs, Finite Elements, Material Science, Design Optimization
Research Focus: Bayesian optimization, Accelerated material discovery, High Performance Computing

M.S. in Scientific Computing – GPA: 3.60 Aug. 2021 – July 2024
University of Puerto Rico *Mayagüez, PR*

Coursework: Numerical Analysis, Numerical Linear Algebra, Bayesian Machine Learning, Data Mining, Automatas and Formal Languages
Thesis: A Bayesian Adaptive Smoothing and Thresholding Approach for Activation Detection in Single-Subject fMRI

Data Science Certification May. 2023 – Dec. 2023
Henry School *Argentina*

Coursework: Data Engineering, Data Analytics, Machine Learning

B.S. in Mechanical Engineering – GPA: 3.91 Aug. 2017 – May 2021
University of Puerto Rico *Mayagüez, PR*

Coursework: Adv. Thermodynamics, Computing Founds, Modern Algebra, Engineering Optimization, Funds of Mathematics, Graph Theory, Logic

Experience

Graduate Research Assistant Aug. 2024 – Present
Computational Design Laboratory *Texas A&M University*

Sports Statistician Jan. 2024 – May 2025
Semi-Pro Rank: Football, Volleyball, Soccer, Basketball, Ice Hockey *Genius Sports*

Data Scientist Jan. 2024 – July 2024
Caribbean Climate Adaptation Network *University of Puerto Rico: Medical Sciences*

Developer and Administrator of Pre-Calculus Digital Book Aug. 2023 – July 2024
Department of Mathematical Sciences *University of Puerto Rico: Mayagüez*

Graduate Research Assistant Jan. 2023 – Dec. 2023
HASPNeL Project *University of Puerto Rico: Mayagüez*

Graduate Teaching Assistant Aug. 2021 – Dec. 2022
Department of Mathematical Sciences *University of Puerto Rico: Mayagüez*

Mathematics Support Center Tutor Aug. 2021 – Dec. 2023
Department of Mathematical Sciences *University of Puerto Rico: Mayagüez*

Biostatistician June. 2022 – July 2022
NIH All of Us Program *University of Puerto Rico: Medical Sciences*

Manufacturing Laboratory Assistant Aug. 2021 – May 2022
Department of Mechanical Engineering *University of Puerto Rico: Mayagüez*

Data Analyst Programmer Aug. 2020 – Dec. 2020
National Institute of Congestion Reduction *University of Puerto Rico: Mayagüez*

Co-Founder Aug. 2018 – May 2019
Cosecha'o Aquí *Mayagüez, PR*

Skills

OS: Linux, ChromeOS, iOS, MacOS Windows, Raspbian
Tools: AWS, Google Cloud, Local Servers (SSH), Google Workspace Tools, Microsoft Office Tools, Hadoop, Spark, Power BI, DAX, LaTeX
Programming Languages: Python, MATLAB, Arduino, R, JAVA, C, C++, Fortran, HTML, CSS, SQL
CAD, CAM, FEA, CFD & Others: ANSYS, Star-CCM+, Siemens NX, SolidWorks, OnShape, Inventor, OpenRocket
Manufacture: 3D Printing, CNC Cutting Machines, Lathe, Milling and other mechanical machines
Project Management: Gantt Charts, MeisterTask, Risk Assesments, Trello, Work Breakdown Structures (WBS)
Languages: Spanish (native), English (fluent)

Publications, Posters & Presentations

Mapping of microstructure transitions during rapid alloy solidification using Bayesian-guided phase-field simulations
Other Authors: José Mancias, Brent Vela, Rouhollah Tavakoli, Douglas Allaire, Raymundo Arróyave, Damien Tourret
Paper DOI: https://doi.org/10.1016/j.actamat.2025.121354

Incorporating Equity in the Vehicle Rebalancing Operations of Dockless Micromobility Services
Other Authors: Lina Zapata, Daniel Rodriguez-Roman, Juan González-López and Alberto Figueroa-Medina
Paper DOI: https://doi.org/10.1016/j.latran.2024.100009

Bayesian Adaptive Smoothing for Activation Detection in fMRI
Advisor: Israel Almodóvar
Conference Presentation in 2023 SACNAS NDiSTEM Conference and 2023 BEER-XIV Conference

Equity Considerations in the Rebalancing Operations of Dockless Micromobility
Other authors: Lina Zapata, Daniel Rodriguez-Roman, Juan González-López and Alberto Figueroa-Medina
Conference Paper from XX PANAM 2021 hosted by the Pan American Society of Transportation Research

Prediction of Trip Productions for Exclusive Zones of a Dockless Electric Scooter Service using Machine Learning Regression Algorithms
Other authors: Daniel Rodriguez-Roman and Benjamín Colucci-Ríos
Conference Poster for 2020 Transportation Research Board Annual Meeting

Projects

Alpha Astrum Aug. 2021 – May 2022
Vice-President of STEM Outreach *University of Puerto Rico: Mayagüez*

- Lead a team in order to fulfill the mission and vision of developing awareness of STEM areas throughout all educational levels of Puerto Rico

DRACO Rocketry Team Aug. 2018 – May 2021
NASA Student Launch University Initiative (NSL) *University of Puerto Rico: Mayagüez*

- Led a team in the design, manufacture and launch of a high-power rocket with an experimental payload to an approximate height of 4,500 ft, recover it and complete a specified mission
- Developed mathematical models and computational simulations in order to understand and predict the mission performance of the rocket with less than 3% of error
- Managed the project using Systems Engineering tools such as requirement establishment, risk assessments, decision matrix, single-point failures, BOM by order of assembly, proposal, PDR, CDR, FRR and professional presentations, all with high quality as awarded by NASA panel

Workshops

Advanced Computing Workshop August 2025
Institute of Data Science *Texas A&M University*
Computational Materials Science Summer School July 2025 – Aug. 2025
Department of Materials Science and Engineering *Texas A&M University*
Sampling Advanced Mathematics for Minority Students Program June 2019 – July 2019
Department of Mathematics *Ohio State University*

Awards

- **Best Presentation** SACNAS NDiSTEM Conference 2023
- **First Place** Programming Competition UPR-Bayamon 2022
- **Fellowship** Dwight David Eisenhower Transportation 2020
- **First Place** Project Review in NSL 2020
- **Rookie Award** NSL 2020
- **Second Place** STEM Engagement in NSL 2020
- **Top 25% and 30%** Putnam Math Competition 2019 and 2018
- **First Place** Calculus Olympiads UPRM 2018
- **Third Place** Calculus Olympiads Interamerican University 2018
- **Gold Medal** OMPR Second and Third Phases 2015 - 2017