

Curriculum vitae

Personal data

Edwin Flórez Gómez. Ph.D.
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Education

- 06/2018 PhD in Computing and Information Sciences and Engineering (CISE), University of Puerto Rico at Mayagüez.
Dissertation: A Novel Framework of Structured Measurement Matrix for Compressed Sensing in Wireless Sensor Networks.
- 06/2007 M.Sc. in Scientific Computing (Mathematics and Computers), University of Puerto Rico at Mayagüez.
- 06/2003 B.Sc. in Mathematics (Licenciatura en Matemáticas), Universidad Industrial de Santander, Bucaramanga, Colombia.

Academic Appointments

- 2021–present Assistant Professor, Department of Mathematical Sciences, University of Puerto Rico at Mayagüez.
- 2018–2021 Associate Professor, Biomedical Engineering Department, Polytechnic University of Puerto Rico.
- 2007–2011 Adjunct Professor, University of Puerto Rico at Humacao.

Grants and Funding

- 07/2025 LERAI Foundation, IOAI 2025, Beijing, China. (\$15,000)
- 07/2024–06/2025 Development of automated fluid delivery system to advance neuroscience, PR-INBRE. (\$50,000.00)
- 01/2025 CDS-Exchange Curriculum Development Fellows. CDS-Exchange (\$1,000.00)
- 07/2024 Global AI Summit. IAIO 2024 en Riad, Saudi Arabia (\$20,000.00).
- 2022–present CAHSI Local REU. (\$1000.00 ea.)

Publications

- 05/2025 Lara-Perez, E.; Agosto Rivera, J.; Giray, T.; Megret Laboye, R.; Flórez Gómez, E. FlowerPatch: New Method to Measure Nectar Volume in Artificial Flowers. MDPI Insects 2025, 16, 714.
- 12/2024 Vélez Ramos, D. D. J., Ayala Godoy, J. A., Aparico Cuello, R., Castrillón Velandia, O., & Flórez Gómez, E. (2024). Statistical analysis of social factors

influencing academic performance at the University of Puerto Rico's Business Faculty. AD-GNOSIS, 13(14), e-818.

- 06/2024 Aljohani, A., Samadian, H., Flórez-Gómez, E. Augmented reality and its use in training and education. Alabama Educational Technology Conference.
- 03/2024 Dong Wang, Edwin Flórez-Gómez, Kejie Lu. A Survey on Digital Twin Networks: Use Cases and Enabling Technologies. Springer Nature Switzerland.
- 09/2021 Alexander M. Martínez López, Carlos González Rivera, Edwin Flórez Gómez. Medical image-based diagnostics for cardiovascular diseases using machine learning. Undergraduate Research Program for Honor and Outstanding Students. Polytechnic University of Puerto Rico.

Educational Publications

- 2021-2024 Olimpiada Matemática de Puerto Rico (OMPR). *Libro de problemas y soluciones*, contributing author. Available at: OMPR Website
- 2023, 2024 Olimpiadas Informáticas de Puerto Rico (OiPR). *Libro Bebras Puerto Rico*, contributing author. Available at: OiPR Website

Research Projects

- 01/2024–present Implementation of an Unstructured 3D Mesh and Application of the Finite Element Method to Simulate the 2020 M6.4 Earthquake in Puerto Rico Using SPEC-FEM3D, Master Thesis, Scientific Computing Graduate Student: Daniel Melo.
- 08/2024-12/2024 Exploring Spotify's Algorithmic Recommendations for AI-Generated Songs and Human Compositions, CAHSI Local REU, CS Sub-graduate Student: Emilia Couret.
- 08/2023-2024 Factores sociales que influyen en el rendimiento académico de los estudiantes. In collaboration with Dr. Rafael Aparicio, Dr. Jairo Ayala, Dr. Oscar Castañón and Dr. Daiver Velez from University of Puerto Rico.
- 08/2022-present Development of Automated Fluid Delivery System to Advance Neuroscience. In collaboration with Dr. José Agosto and Dr. Tugrul Giray from University of Puerto Rico at Rio Piedras.
- 02/2024-06/2024 Multiple approaches to solving the classical N-Queens problem, CAHSI Local REU, CS Sub-graduate Student: Julian Soto.
- 02/2023-2024 Implementación de la plataforma WeBWorK para el desarrollo de un sistema de tareas de matemáticas y estadística. Universidad Militar Nueva Granada. Bogotá, Colombia. External advisor. Managers: Prof. Eliseo Gallo Albarracín y Prof. Isnardo Arenas Navarro.
- 02/2022-12/2022 On existence of a strongly regular graph with $\lambda = 2$ and $\mu = 1$. PI Dr. Edwin Flórez, Co-PI Dr. Rafael Aparicio.
- 03/2022-12/2022 Autonomous Computer Aided Assessment System (CAA) using Single-Board Computers (SBCs). CAHSI Local REU. Students: Abner Ortiz, Jonathan

Rodriguez.

2020-2021	Machine learning techniques in medical imaging-based diagnostics for cardiovascular diseases. Undergraduate Research. Students: Alexander Martinez, Carlos Gonzalez.
2020-2021	Strategies to minimize risk factors among health professionals. Undergraduate Research. Student: Britanie Nieves.
2019-2020	Long-term multi-parameter assessment of the impact of seasonality and Hurricane Maria on colony measures: A case study of Africanized Honey Bees in Puerto Rico. Undergraduate Research. Student: Stephanie L. Cruz.
2016-05/2018	A Novel Framework of Structured Measurement Matrix for Compressed Sensing in Wireless Sensor Networks. PhD thesis. Advisor: Dr. Kejie Lu.
08/2014-05/2015	Golden Number's decimal places behavior. High School research project in University Garden HS, PR with the student Gerilizmar Martino. Advisor.
Summer 2012	A simulated model for distribution of precision time signals using wireless mesh networks, MIT HayStack Observatory. Supported by the Pre-College Summer Research Internship program by AGMUS Institute of Mathematics in the Ana G. Mendez University System.
08/2011-08/2012	MRI: Development of a Versatile Service-Oriented Wireless Mesh Network for Disaster Relief and Environmental Monitoring in Puerto Rico. PI, PhD. Kejie Lu, Co-PI PhD. Domingo Rodríguez.
08/2011-06/2012	Improving the Curriculum of Electrical and Computer Engineering through A Wireless Network Testbed: A Vertical Integration Approach. PI, PhD. Kejie Lu.
12/2010	Winter 2010 Pre-College Research Symposium, CCCE Alliance. Poster winner: Wifi User Location by Fernando Sánchez Santiago.
05/2007	New Results in Tournament Matrices, Master thesis. Advisor: Dr. Xuerong Yong.

Professional Development

05/2025	21st International Bebras Task Workshop, Seoul, Korea.
04/2025	CDS-Exchange Community Fellows program, annual symposium.
03/2025	External Advisory Committee Meeting and Annual Retreat, PR-INBRE.
03/2025	40th Interuniversity Seminar on Research in Mathematical Sciences, SIDIM.
10/2024	How to submit proposals and their negotiations, CEP, UPRM.
03/2024	39th Interuniversity Seminar on Research in Mathematical Sciences, SIDIM.
10/20223	NSF CISE Funding Opportunities for Collaborative Research in Puerto Rico, NSF, CAHSI.
05/2019	Fourth Biomedical Engineering Educational Summit Meeting. Addressing Skills for Career Success. Tinkhan Veale University, Cleveland, OH. (Attender)

01/2019	BioTech 82 Bio-informatics for Beginners (Attender)
02/2010	University of Puerto Rico at Mayagüez. XXV Inter-university Research Seminar in Mathematical Sciences.
03/2009	University of Puerto Rico at Rio Piedras. XXIV Inter-university Research Seminar in Mathematical Sciences. (Attender)

Programming Skills

Prog. Languages: Java, C/C++, Python, Pascal, PHP, Perl, JavaScript.

Oper. Systems: Unix/Linux, Windows, MS-DOS, MacOS.

Markup Lang.: $\text{\TeX}$ / $\text{\LaTeX}$, HTML.

Math Software: Matlab, Scilab, Octave, Mathematica, Maple, Maxima, GeoGebra, WeBWork, Jupyter, R.

Hardware Skills

Single-Board Computers: Raspberry Pi, Arduino & Omega2.

References

- Fariñas, Wilfredo Polytechnic University of Puerto Rico. Biomedical Department. Phone: (787) 622-8000 - Ext. 343. Email: wfarinas@upr.edu.
- Kejie Lu University of Puerto Rico at Mayagüez. Department of Electrical and Computer Engineering. Phone: 787-832-4040 Ext. 3510. Email: kejie.lu@upr.edu
- Luis F. Cáceres University of Puerto Rico at Mayagüez. Department of Mathematical Sciences. Phone: 787-832-4040 Ext. 2647. Email: luis.caceres1@upr.edu