Gabriel Diaz Ramos

Fulbright Scholar
Rice University
Applied Physics PhD Program
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Education

- **PhD in Applied Physics**, Rice University, USA 2022 – Present
  Advisor: Richard Baraniuk
  Research: Convolutional neural networks for solving hard optimization graph problems.
  Expected graduation: May 2027
  GPA: 3.91

- **MSc in Applied Physics**, Rice University, USA 2022 – 2025
  Thesis: *Shortest Path Solutions for Connecting Multiple Terminals via Deep Learning.*
  Committee: Richard Baraniuk (Chair), Lydia Kavraki, Moshe Vardi
  Earned as part of the PhD program in Applied Physics.

- **MicroMasters in Statistics and Data Science**, MIT, USA 2023 – 2024
  Completed the General Track, covering probability, statistics, machine learning, data analysis, and a proctored capstone exam.

- **Specialty in Environmental Engineering**, Universidad Panamericana, Mexico 2019 – 2020
  One-year graduate-level specialization focused on environmental engineering practices.
  GPA: 3.64

- **BSc in Mechatronics Engineering**, Universidad Panamericana, Mexico 2015 – 2019
  Graduated first in class with the highest GPA in the program.
  GPA: 3.72

Work Experience

- **Fulbright Student Committee Lead**, Rice University, USA 2024 – 2025
  Organized networking, cultural, and art events to support incoming Fulbright scholars.

- **High School Robotics and Physics Professor**, Modern American School, Mexico 2019 – 2022
  Taught robotics (elementary–high school extracurricular) and physics (curricular) courses.

- **Blades Trainee LATAM**, Vestas Wind Systems, Mexico 2019 – 2020
  Conducted drone-aided blade inspections and applied convolutional neural networks for damage classification and maintenance planning.

Research Experience

- **Graduate Research Assistant**, Rice University, USA 2023 – Present
  Assisting Dr. Richard Baraniuk in research projects focusing on deep learning, graph theory and algorithmic studies.

- **Undergraduate Research Assistant**, Universidad Panamericana, Mexico 2018 – 2020
  Assisted Dr. Hiram Ponce in research focusing on robotics, artificial intelligence, modeling and control balance design for bio-inspired robots.

Awards and Honors

- **Data to Knowledge (D2K) Research Mentoring Fellow**, Rice University, USA 2025
  Selected as mentor for the NASA Re-entry Data Science Capstone Project.

- **Fulbright-García Robles Fellowship**, Comexus, USA-Mexico 2022 – 2024
  Prestigious binational fellowship supporting graduate study in the United States.

- **Undergraduate Excellence Scholarship**, Universidad Panamericana, Mexico 2015 – 2020
  Full scholarship awarded for combined academic excellence and athletic merit.

- **Best of Class 2015–2019**, ANFEI, Mexico 2021
  National recognition for graduating top of class in Mechatronics Engineering.

Publications

- Díaz-Ramos, G., Arikan, T., & Baraniuk, R. G. *MazeNet: An Accurate, Fast, & Scalable Deep Learning Solution For Steiner Minimum Trees*, 2024, arXiv:2410.18832.

- Ponce, H., Acevedo, M., González-Juárez, J., Martínez-Villaseñor, L., Díaz-Ramos, G., & Mayorga-Acosta, C. *Modeling and simulation for designing a line walking chameleon-like legged robot*, Simulation Modelling Practice and Theory, 2022, 121, pp. 10264, Elsevier.

- Ponce, H., Acevedo, M., Morales-Olvera, E., Martínez-Villaseñor, L., Díaz-Ramos, G., & Mayorga-Acosta, C. *Modeling and control balance design for a new bio-inspired four-legged robot*, In Advances in Soft Computing: 18th Mexican International Conference on Artificial Intelligence (MICAI), 2019, pp. 728-739, Springer International Publishing.

- Mayorga, C., Díaz-Ramos, G., González-Juárez, J., Acevedo, M., Morales-Olvera, E., & Martínez-Villaseñor, L. *GABOT: Garbage Autonomous Collector for Indoors at Low Cost*, In International Conference on Mechatronics, Electronics and Automotive Engineering (ICMEAE), 2019, pp. 56-61, IEEE.

Conferences

- Speaker in a series of lightning talks at the International Conference on Robotics and Automation (ICRA), May 13–17, 2025, Atlanta, USA.

- Volunteer at the LatinX in AI (LXAI) Workshop during the International Conference on Machine Learning (ICML), July 22, 2024, Vienna, Austria.
- Presenter at the 2019 International Conference on Mechatronics, Electronics and Automotive Engineering (ICMEAE), Nov 26–29, 2019, Cuernavaca, Mexico.
- Presenter at the 18th Mexican International Conference on Artificial Intelligence (MICAI) 2019, Oct 27 – Nov 2, 2019, Xalapa, Mexico.

Diplomas

- **Back-End Engineer Career Path**, Codecademy 2024 – 2025
  Comprehensive training in databases, APIs, authentication, and deployment for scalable web applications.
- **Applied Statistics**, ITAM, Mexico 2020 – 2021
  Postgraduate diploma covering statistical inference, regression models, and multivariate analysis.
- **Data Science**, Universidad Panamericana, Mexico 2019 – 2020
  Diploma program emphasizing Python, machine learning, and applied analytics for business.

Research Interests

- Deep learning, graph theory, machine learning, artificial intelligence for physics applications, quantum information theory, artificial intelligence for education

Skills

- Python, PyTorch, Numpy, Scipy, Matplotlib, Git, GitHub, SQL, PostgreSQL, JavaScript, Node, Express, HTML, REST API design, Web Security, DevOps Fundamentals, Quantum information theory, Theoretical and computational research, Data analysis, Machine learning, Qiskit

Relevant Coursework

- APPL 500: Intro Applied Physics, ELEC 677: Quantum Computing with Qiskit, PHYS 521: Quantum Mechanics I, PHYS 605: Electrodynamics & Nanophotonics, APPL 800: Research and Thesis, ELEC 581: Quantum Information Processing, ELEC 660: Quantum Information, CHBE 501: Fluid Mech & Transport Processes, PHYS 515: Classical Dynamics, PHYS 522: Quantum Mechanics II, PHYS 532: Classical Electrodynamics