MARCELA M. GOMEZ, PhD

Executive Director of Research Analytics · University of Pittsburgh
(412) 383-4117 · mmg62@pitt.edu · marcelamgomez.net

PROFESSIONAL SUMMARY

I lead research analytics for the University of Pittsburgh, where I founded and direct the team that turns data on the university's research activity into insight that leadership can act on — and that the institution relies on to inform external audiences, including government officials and national higher-education organizations such as the Association of Public and Land-grant Universities (APLU) and the Association of American Universities (AAU). A particular focus of my work is applying artificial intelligence to research analytics: I have conceived and built AI-enabled, enterprise-level tools — including the Pitt Research Analytics hub and the Research Discovery Tool — that let leadership and researchers monitor and engage with research metrics directly. Over the past decade I have also researched spectrum policy and the governance of emerging technologies, with work published across IEEE and policy journals, and I continue to review for journals and chair conference program committees in that field. The thread connecting my career is the use of analysis, modeling, and AI to make complex systems easier to understand and evaluate.

PROFESSIONAL EXPERIENCE

Executive Director of Research Analytics

Office of the Senior Vice Chancellor for Research, University of Pittsburgh · Jan 2026 – Present

- Founded and lead Pitt Research Analytics, the centralized analytics function serving the University of Pittsburgh's research enterprise (over $1 billion in annual research expenditures), spanning sponsored programs, research protections, and innovation and entrepreneurship; the dedicated, university-wide team officially launched January 5, 2026.
- Direct a team of data analysts delivering data strategy, visualization, and decision support directly to the Senior Vice Chancellor for Research and senior university leadership.
- Lead the institution-wide effort to consolidate previously siloed analytics functions across research units into a unified liaison model, in partnership with Vice Chancellors across Sponsored Programs, Research Protections, and Innovation and Entrepreneurship.
- Architected the enterprise research data infrastructure on Snowflake, enabling cross-unit analytics not previously possible at the institution.
- Produce the research funding and trend analyses that inform executive and Board of Trustees-level decision-making.
- Conceived and built AI-enabled, enterprise-level analytics tools that allow leadership and researchers to monitor and interrogate research metrics in real time — most notably the Pitt Research Analytics hub, which applies AI and natural-language interfaces over institutional research data to deliver immediate, up-to-date answers about research activity across the university.
- Lead the evaluation of current data and process-management systems across the Office of the Senior Vice Chancellor for Research, identifying opportunities for data migration and improved data management.

Director of Research Analytics

Office of the Senior Vice Chancellor for Research, University of Pittsburgh · Jan 2023 – Dec 2025

- Led research analytics initiatives for the University of Pittsburgh's research enterprise, directing institutional research data analysis, visualization, and reporting for senior leadership; this work was featured in a case study by the Tambellini Group (2024).

- Led development of the Research Discovery Tool, an AI-enabled enterprise web service that helps University of Pittsburgh researchers find collaborators for multidisciplinary, team-science projects; developed with industry partner Quantiphi and featured in their work (2025).
- Developed and implemented advanced analytics frameworks — including research collaboration network analysis and innovation metrics — to support institutional research strategy and decision-making.
- Built the analytical frameworks, workflows, data infrastructure, and stakeholder relationships that laid the groundwork for the dedicated, university-wide Pitt Research Analytics unit (officially launched January 5, 2026).
- Built partnerships with university stakeholders to develop enterprise-level data solutions, providing a richer view of the factors that shape research at an R1 institution.

Temporary Appointment Stream Faculty
School of Computing and Information, University of Pittsburgh · May 2025 – Present

- Teach Responsible Data Science (CMPINF 2140) in the Master of Science in Data Science online program; each section enrolls over 100 national and international students.
- Revise course materials and resources each term to keep pace with evolving topics and student needs.

Senior Data Analyst
Office of the Senior Vice Chancellor for Research, University of Pittsburgh · May 2020 – Dec 2022

- Performed advanced data analytics to characterize the institutional research landscape and collaboration patterns.
- Developed machine learning models to forecast research and innovation trends.
- Created data visualizations and reports that informed institutional research decision-making.
- Collaborated with the Innovation Institute on patent and invention disclosure analysis.
- Established workflows and built data pipelines to create a durable analytics infrastructure for the office.

Visiting Research Assistant Professor
School of Computing and Information, University of Pittsburgh · Sep 2017 – Apr 2020

- Specialized in evidence-based policy research in telecommunications and technology governance.
- Developed agent-based models to analyze policy proposals for spectrum management.
- Designed and taught the graduate-level Data Analytics course (INFSCI 2725); mentored graduate students on computational modeling and data science research.
- Led a multidisciplinary research working group on the governance of socio-technical systems.
- Co-led a multidisciplinary research working group on blockchain and smart contracts.
- Served on the hiring committee for Appointment Stream faculty positions at the School of Computing and Information.

Research Assistant
Office of the Senior Vice Chancellor for Research, University of Pittsburgh · Jan 2018 – Apr 2020

- Identified research collaboration networks using social network analysis techniques.
- Applied data analytics to generate insights on institutional research productivity; conducted network analysis of innovation and patent data, and predictive analytics to identify potential innovators at the university.

EDUCATION

PhD, Information Science (Concentration: Telecommunications)
University of Pittsburgh · 2017

Dissertation: “Spectrum Markets: from naked spectrum to virtualized commodities.” GPA: 3.92/4.0

Visiting Researcher
Trinity College Dublin · 2016
Research on secondary markets for spectrum under the supervision of Dr. Linda Doyle.

MS, Telecommunications
University of Pittsburgh · 2012
GPA: 3.91/4.0 · Fulbright Scholar

Specialization Course in Telecommunications and Automation Applied to Home Automation
Universidad de Buenos Aires · 2009

BSc, Electronics Engineering
Universidad del Azuay, Cuenca, Ecuador · 2010
Awarded the “Presea Honorato Vázquez,” the top academic honor conferred by Universidad del Azuay.

HONORS & AWARDS

- Fulbright Scholarship, Fulbright Commission (2011–2012) — internationally competitive, government-sponsored award supporting a master’s degree in Telecommunications at the University of Pittsburgh.
- Outstanding Instructor, Master’s in Telecommunications program, Universidad del Azuay (2020).
- O.S. Braunstein Best Student Paper Award, Pacific Telecommunications Council Conference (2016).
- Graduate Student Consortium Participant, Telecommunications Policy Research Conference (2015).
- “Honorato Vázquez” Award, the top academic honor conferred by Universidad del Azuay — Electronics Engineering.
- President of the Student Body, School of Science and Technology, Universidad del Azuay (2008).

PEER REVIEW & PROFESSIONAL LEADERSHIP

Judging the Work of Others

- Program Committee Chair, Telecommunications Policy Research Conference — TPRC 52 (2024). Led the Program Committee in developing the Call for Papers, coordinated reviewers across all submissions, built the conference program, and organized a pre-conference tutorial on policy for emerging threats in emerging technologies.
- Program Committee Vice Chair, Telecommunications Policy Research Conference — TPRC 50 & 51 (2022–2023). Partnered with the Program Chair to review submissions and build the program, and organized a pre-conference tutorial on artificial intelligence.
- Program Committee Member, Telecommunications Policy Research Conference (2019–2022). Reviewed conference submissions.
- Journal Reviewer: IEEE Communications Magazine; IEEE Transactions on Services Computing; IEEE Systems Journal; IEEE Transactions on Mobile Computing.
- Selection Committee Member, Fulbright Program for Ecuadorian grantees (May 2018) — evaluated and selected candidates for this internationally competitive scholarship.

Boards & Advisory Service

- Board of Directors Member, Institute for Research on Innovation and Science (IRIS) (2025–2028).
- Board of Directors Member, Telecommunications Policy Research Conference (2025–2027).

- Community Advisory Board Member, Research Evaluation and Analytics Capacity Hub (REACH) (2025–2027).
- Faculty Affiliate, Center for Governance and Markets, University of Pittsburgh.
- Founding Member, Governance and Technology Research Group, University of Pittsburgh.

PUBLICATIONS

Journal Articles

- Bustamante, P., Gomez, M. M., Weiss, M. B. H., Murtazashvili, I., Palida, A. "A Techno-Economic Study of Spectrum Sharing with Blockchain and Smart Contracts." IEEE Communications Magazine, 2022.
- Bustamante, P., Cai, M., Gomez, M. M., Harris, C., Krishnamurthy, P., Law, W., Madison, M., Murtazashvili, I., Murtazashvili, J., Mylovanov, T., Shapoval, N., Vee, A., Weiss, M. B. H. "Government by Code? Blockchain Applications to Public Sector Governance." Frontiers in Blockchain, 2022.
- Bustamante, P., Gomez, M. M., Murtazashvili, I., Weiss, M. B. H. "Spectrum Anarchy: why self-governance of the radio spectrum works better than we think." Journal of Institutional Economics, 2020.
- Gomez, M. M., Weiss, M. B. H. "A comprehensive secondary market model for virtualized wireless connectivity." Telecommunications Policy, 2020.
- Bustamante, P., Weiss, M., Sicker, D., Gomez, M. M. "FCC's Experimental Radio Service (ERS) as a Vehicle for DSA: An Analysis of 10 Years of Experimental Licenses Data." Data & Policy Journal, Cambridge University Press, 2020.
- Bustamante, P., Gomez, M. M., Murtazashvili, I., Weiss, M. B. H. "Self-governance in Spectrum Sharing Scenarios: An Agent-Based Modeling Analysis for the 1695–1710 MHz band." Journal of Institutional Economics.
- Bodon, H., Bustamante, P. J., Gomez, M. M., Krishnamurthy, P., Madison, M., Murtazashvili, I., Murtazashvili, J., Mylovanov, T., Weiss, M. B. H. "Ostrom amongst the Machines: Blockchain as a Knowledge Commons." Cosmos + Taxis — Studies in Emergent Order and Organization, 2019.
- Gomez, M. M., Chatarjee, S., Abdel-Rahman, M., MacKenzie, A., Weiss, M. B. H., DaSilva, L. "Market-driven Stochastic Resource Allocation Framework for Wireless Network Virtualization." IEEE Systems Journal.
- Gomez, M. M., Weiss, M. B. H., Krishnamurthy, P. "Improving Liquidity in Secondary Spectrum Markets: Virtualizing Spectrum for Fungibility." IEEE Transactions on Cognitive Communications and Networking, 2019.
- Gomez, M. M., Weiss, M. B. H. "Wireless Network Virtualization: Opportunities for Spectrum Sharing in the 3.5 GHz Band." EAI Endorsed Transactions on Wireless Spectrum, 2017.

Conference Papers

- Bustamante, P., Gomez, M. M., Krishnamurthy, P., Lehr, W., Murtazashvili, I., Palida, A., Weiss, M. B. H. "Unassigned Spectrum: An Institutional Analysis of Radio Spectrum Management." 51st Telecommunications Policy Research Conference, 2023.
- Bustamante, P., Gomez, M. M., Krishnamurthy, P., Madison, M. J., Murtazashvili, I., Palanisamy, B., Palida, A., Weiss, M. B. H. "On the Governance of Federated Platforms." 51st Telecommunications Policy Research Conference, 2023.
- Bustamante, P., Gomez, M. M., Lehr, W., Murtazashvili, I., Palida, A., Weiss, M. B. H. "Polycentric Governance in the US Amateur Radio Community: Unassigned Spectrum and Promoting Open Innovation." 50th Telecommunications Policy Research Conference, 2022.
- Babichenko, D., Healy, P., Gomez, M. M., Kane-Gill, S., Littleton, E. B., Brusilovsky, P., Cohen, P., Patel, R. "The Use of Agent-based Models as Non-Player Characters in Serious Games." IEEE 8th International Conference on Serious Games and Applications for Health (SeGAH), 2020.
- Das, D., Znati, T., Weiss, M. B. H., Bustamante, P., Gomez, M. M., Rose, S. "Matchmaking of volunteers and channels for dynamic spectrum access enforcement." IEEE Global Communications Conference (GLOBECOM), 2020.
- Bustamante, P., Das, D., Rose, S., Gomez, M. M., Weiss, M. B. H., Park, J., Znati, T. "Toward Automated Enforcement of Radio Interference." 48th Telecommunications Policy Research Conference, 2020.
- Das, D., Znati, T., Weiss, M. B. H., Bustamante, P., Gomez, M. M., Rose, S. "Spectrum Misuse Detection in Cooperative Wireless Networks." IEEE CCNC, 2020.

- Gomez, M. M., Kibilda, J., Weiss, M., DaSilva, L. “Assessing the Sharing Potential in the 3.5 GHz band: An Analytical Approach.” 47th Telecommunications Policy Research Conference, 2019.
- Gomez, M. M., Weiss, M., Park, S., Krishnamurthy, P. “Technology Adoption in Spectrum Sharing: Estimating the Impact on Incumbents in the 3.5 GHz Band.” 47th Telecommunications Policy Research Conference, 2019.
- Gomez, M. M., Bustamante, P., Weiss, M., Madison, M., Krishnamurthy, P., Mylovanov, T., Bodon, H. “Is Blockchain the next step in the Evolution Chain of [Market] Intermediaries?” 47th Telecommunications Policy Research Conference, 2019.
- Bustamante, P., Gomez, M. M., Weiss, M., Znati, T., Das, D., Rose, S. “A Collaborative Enforcement Mechanism for Spectrum Sharing Using Blockchain and Smart Contracts: An application for the 1695–1710 MHz band.” 47th Telecommunications Policy Research Conference, 2019.
- Das, D., Znati, T., Weiss, M. B. H., Bustamante, P., Gomez, M. M., Rose, S. “Crowdsourced Misuse Detection in Dynamic Spectrum Sharing Wireless Networks.” International Conference on Networks, 2019.
- Bustamante, P., Gomez, M. M., Weiss, M. B. H., Znati, T., Park, J., Das, D., Rose, S. “Agent-based Modeling Approach for Developing Enforcement Mechanisms in Spectrum Sharing Scenarios: An Application for the 1695–1710 MHz Band.” TPRC, 2018.
- Gomez, M. M., Weiss, M. B. H., Lehr, W., McHenry, G. “Spectrum Valuation: Implications for Sharing and Secondary Markets.” TPRC, 2018.
- Gomez, M. M., Weiss, M. B. H., McHenry, G., Doyle, L. “Matching Markets for Spectrum Sharing.” TPRC, 2017.
- Weiss, M. B. H., Krishnamurthy, P., Gomez, M. M. “How can Polycentric Governance of Spectrum Work? (Revised Version).” 2017 IEEE International Symposium on Dynamic Spectrum Access Networks (DySPAN), 2017.
- Weiss, M. B. H., Krishnamurthy, P., Gomez, M. M. “How can Polycentric Governance of Spectrum Work?” TPRC, 2016.
- Gomez, M. M., Weiss, M. B. H. “Wireless Network Virtualization: Opportunities for Spectrum Sharing in the 3.5 GHz Band.” International Conference on Cognitive Radio Oriented Wireless Networks, Springer, 2016.
- Gomez, M. M. “Wireless Network Virtualization as an Enabler for Spectrum Sharing.” Pacific Telecommunications Council, Hawaii, 2016. (Best Student Paper Award)
- Weiss, M. B. H., Lehr, W. H., Acker, A., Gomez, M. M. “Socio-technical considerations for Spectrum Access System (SAS) design.” 2015 IEEE International Symposium on Dynamic Spectrum Access Networks (DySPAN), 2015.
- Gomez, M. M., Cui, L., Weiss, M. “Trading Wireless Capacity Through Spectrum Virtualization Using LTE-A.” TPRC, 2014.
- Cui, L., Gomez, M. M., Weiss, M. “Dimensions of cooperative spectrum sharing: Rights and enforcement.” 2014 IEEE International Symposium on Dynamic Spectrum Access Networks (DySPAN), 2014.
- Gomez, M. M., Weiss, M. “How do limitations in spectrum fungibility impact spectrum trading?” TPRC, 2013.

Book Chapter

- Weiss, M. B. H., Gomez, M. M. “Polycentric Governance for Spectrum Sharing” in Frequencies: International Spectrum Policy, eds. Taylor, G. and Middleton, C. McGill-Queen’s University Press, 2020.

Posters

- Bustamante, P., Gomez, M. M., Weiss, M. B. H. “Using Agent-based Modeling to Analyze Enforcement Alternatives in Spectrum Sharing Scenarios.” Modeling the World’s Systems Conference, Washington, DC.
- Gomez, M. M., Weiss, M. B. H. “Wireless Network Virtualization: Opportunities for Spectrum Sharing in the 3.5 GHz Band.” Telecommunications Policy Research Conference, Virginia, 2015.

Opinion Articles

- “Crypto-Powered IoT Networks Are on Their Way to Over 250 US Cities” (collaborator). CoinDesk, September 24, 2019.
- “Spectrum Sharing, a way to keep Philly on cutting edge.” The Philadelphia Inquirer, February 10, 2017.

TEACHING

- CMPINF 2140: Responsible Data Science (Online) — University of Pittsburgh (Summer 2025–Present).
- INFSCI 2725: Data Analytics (Online) — University of Pittsburgh (Fall 2017–Fall 2019).
- INFSCI 3350: Doctoral Seminar on Governance in Information Systems (Co-instructor) — University of Pittsburgh (Fall 2017).
- Instructor, Wireless Communications — Master's in Telecommunications program, Universidad del Azuay (2020).
- Invited Instructor, Research Methods and Data Analysis with Python — Universidad del Azuay (2019).
- Led the faculty working group to develop the Computational Modeling curriculum (Spring 2019); designed the online Data Analytics course for the MSIS program (Spring 2018).

PRESENTATIONS

- "Beyond the Numbers: Leveraging Data to Contextualize Research Performance and Peer Comparisons," Research Analytics Summit 2025 (accepted presentation), April 7, 2025.
- "Data-Driven Excellence: Alteryx's Role in Advancing the University of Pittsburgh's Mission," Alteryx Inspire 2024 (accepted presentation). Co-presented with Sarah Vinski, Joshua Rodes, and Jaya Vasudevan.
- "Data-Driven Insights and Internal Funding Programs — 3Rs: ROI, Re-evaluating, and Restructuring," National Organization of Research Development Professionals (NORDP) Annual Conference, 2023 (accepted presentation). Co-presented with Kate Bullard (Lehigh University) and Chetna Chianese (Syracuse University).
- "Polycentric Governance for Spectrum Sharing," Canadian Spectrum Summit 2017 (invited presentation), University of Calgary, Canada, May 2017. Co-presented with Martin Weiss.

PROFESSIONAL DEVELOPMENT & CERTIFICATIONS

- University of Pittsburgh Emerging Leaders Program (2025) — nominated by the Office of the Senior Vice Chancellor for Research to participate in this university-wide initiative.
- Certificate in Organizational Leadership and Ethics — University of Pittsburgh (2025).
- Applied Data Analytics Training Program — Coleridge Initiative / NSF (2019–2020).

TECHNICAL SKILLS & LANGUAGES

Data & Visualization: Python, R, SQL, Tableau, Power BI, Alteryx, Snowflake, Airtable.
Modeling & Analytics: Machine Learning, Statistical Analysis, Agent-Based Modeling (Repast Simphony, NetLogo), Advanced Excel.
Programming: Python, R, MATLAB.
Languages: Spanish (native), English (fluent), French (fluent), Italian (basic).