MARÍA G. MENDOZA

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EDUCATION

2023–present **University of California, Berkeley** · Berkeley, CA
Ph.D., Mechanical Engineering *GPA: 3.9/4.0*
Advisor: Prof. S. Shankar Sastry · Research area: multi-agent systems design and control

2021 **Purdue University** · West Lafayette, IN
M.S., Aeronautics and Astronautics

2017 **University of Southern California** · Los Angeles, CA
B.S., Mechanical Engineering

RESEARCH INTERESTS

Multi-agent systems, reinforcement learning, distributed optimization, game theory, mechanism design, learning-enabled control, sequential decision-making under uncertainty, human–autonomy interaction, cyber-physical systems, and humanitarian- and societal-scale autonomy.

PROFESSIONAL EXPERIENCE

2017–2022 **Research Scientist** · Lockheed Martin

- Led AI/ML and robotics research projects in hypersonic systems, human–drone communication, and vehicle coordination in constrained environments.
- Managed multi-university research collaborations (5 partner institutions) on hypersonic technologies; proposed novel aircraft-weight prediction methods.
- Performed aerothermal analysis to develop next-generation high-speed-vehicle avionics and structures.

PUBLICATIONS

* indicates equal contribution. Full list at Google Scholar.

Journal Articles

[J1] C. Maheshwari*, **M. G. Mendoza***, V. M. Tuck*, P.-Y. Su, V. L. Qin, S. A. Seshia, … & S. Sastry. *"Privacy-Preserving Mechanisms for Coordinating Airspace Usage in Advanced Air Mobility (AAM)."* **ACM Journal of Autonomous Transportation Systems**, 2025.

Conference Papers

[C2] **M. G. Mendoza***, P.-Y. Su*, B. L. Ferguson, S. S. Sastry. *"Dynamic Multi-Robot Task Allocation under Uncertainty and Communication Constraints: A Game-Theoretic Approach." Under review*, 2026. Pre-print: arxiv.org/abs/2604.11954.

[C1] **M. G. Mendoza**, A. Kalanther, D. Bostwick, E. Stephan, C. Maheshwari, S. Sastry. *"Coordinated Autonomous Drones for Human-Centered Fire Evacuation in Partially Observable Urban Environments."* **IEEE Global Humanitarian Technology Conference (GHTC)**, 2025.

[C0] J. Choi, J. Aloor, J. Li, **M. G. Mendoza**, C. Tomlin, H. Balakrishnan. *"Resolving Conflicting Constraints in Multi-Agent Reinforcement Learning with Layered Safety."* **Robotics: Science and Systems (RSS)**, 2025.

Workshop Papers

[W2] **M. G. Mendoza***, L. Waldburger*, J. Lee, S. Sastry. *"Hierarchical Generative Agents for Simulating Sequential Human Behavior."* **ICLR Workshop on Multi-Agent Learning in the Era of Generative AI**, 2026 (Poster).

[W1] **M. G. Mendoza**, V. Tuck, C. Maheshwari, S. Sastry. *"Decentralized Ergodic Coverage Control in Unknown Time-Varying Environments."* **AAMAS Autonomous Robots and Multirobot Systems (ARMS) Workshop**, 2026 (Oral).

Earlier and Other

- Multiple Lockheed Martin internal publications (classified), 2017–2022.
- "Reduction of Semi-Truck Aerodynamic Drag." **AIAA Region VI Student Paper Conference**, 2017. *Third-place award.*

RESEARCH EXPERIENCE

2023–present **Graduate Student Researcher** · Sastry Lab, UC Berkeley

- Develop algorithms for modeling and controlling multi-agent systems using distributed control, optimization, learning-based methods, game theory, and mechanism design in uncertain, dynamic, and complex environments.
- Applications: Advanced Air Mobility (AAM), autonomous robotics for humanitarian assistance, strategic vehicle path planning and dynamic routing, and safety-aware multi-agent reinforcement learning for collision avoidance.

2017 **Undergraduate Researcher** · IMPACT Lab, USC *(Prof. Yan Jin)*

- Developed and evaluated machine-learning prediction algorithms for mechanical design, including ship collision-avoidance algorithms.

2016 **Visiting Undergraduate Researcher** · Tsinghua University, Beijing *(Prof. Mingguo Zhao)*

- Designed and tested mechanical components for passive walking in bipedal robots; studied human locomotion and passive-dynamic mechanisms.

2014 **Undergraduate Researcher** · Materials Lab, CSU Northridge *(Drs. Reiner & Bavarian)*

- Battery material selection, corrosion analysis, and potentiostatic testing.

TEACHING

Spring 2026 **Graduate Student Instructor** · UC Berkeley

EE 290 — Learning Enabled Multi-Agent Systems

2022–2023 **Engineering Faculty** · Cañada College, San Mateo Community College District

- ENGR -100 Introduction to Engineering
- ENGR - 215 Computational Methods for Engineers and Scientists

INVITED TALKS AND PRESENTATIONS

Spring 2026 **EE290 – Learning Enabled Multi-Agent Systems (Guest Lecture)**

"RESCUE-Resilient Exploration and Search Coordination of UAVs in Unknown Environments: A framework for multi-UAV coordination to assist humans and emergency responders during disasters"

2025–2026 **DARPA Assured Neuro-Symbolic Learning and Reasoning (ANSR) Program Meetings**

"Coordinated Autonomous Drones for Human-Centered Fire Evacuation in Partially Observable Urban Environments."

Oct 2025 **IEEE Global Humanitarian Technology Conference (GHTC)**

"Coordinated Autonomous Drones for Human-Centered Fire Evacuation in Partially Observable Urban Environments."

Sep 2024 **Encuentro de Mujeres Latinas en STEM del Área de la Bahía** · Invited Speaker
Symposium hosted by the Government of Chile. Talk: *"Un renacer científico en el extranjero: Una travesía entre lo profesional, la readaptación cultural y el proceso de autoconocimiento."*

2017 **AIAA Region VI Student Paper Conference**
Technical paper presentation: "Reduction of Semi-Truck Aerodynamic Drag."

HONORS AND AWARDS

2024 **NSF Research Fellowship for Digital Transformation of Development**
2021 Extraordinary Engineering and Technology Award, Lockheed Martin
2017 Tony Maxworthy Award for combined experimental and analytical excellence, USC
2017 Third Place, AIAA Region VI Student Paper Conference — Semi-truck Aerodynamic Drag Reduction

MENTORSHIP AND OUTREACH

Summer 2025 **Graduate Mentor** · UC Berkeley Transfer-to-Excellence (TTE) Research Program

- Designed and supervised independent research projects for two community-college students in robotics and AI: (i) modeling human behavior for human–robot interaction, and (ii) simulating dynamic fire environments for UAV disaster relief in Unity.
- Guided students through the full research arc — project design, data analysis, and poster preparation — culminating in presentations at the program's research symposium.

Summer 2015 **Mentor** · Upward Bound, College of the Canyons

LEADERSHIP AND SERVICE

2026 **Treasurer**, Latino Association of Graduate Students in Engineering & Science (LAGSES), UC Berkeley
2025 **Corporate Liaison**, LAGSES, UC Berkeley
2016 **Outreach Chair**, Society of Hispanic Professional Engineers (SHPE), USC
2014 **Founder & President**, SHPE Chapter, College of the Canyons

PROFESSIONAL MEMBERSHIPS

Society of Hispanic Professional Engineers (SHPE) · Institute of Electrical and Electronics Engineers (IEEE) · Latino/a Association of Graduate Students in Engineering and Science (UC Berkeley) · Women in Robotics

SPECIALIZED SKILLS

Control & Optimization: Distributed optimization, game theory, mechanism design, classical control, trajectory optimization, safety-critical control.

Reinforcement Learning & ML: Multi-agent RL, deep RL (PPO), probabilistic modeling, Gaussian processes, supervised & unsupervised learning.

Robotics & Autonomous Systems: Multi-agent systems, UAV systems, human–robot interaction, ROS 1/2, Gazebo, AirSim, Isaac Sim, agent-based simulation.

Programming & Tools: Python, MATLAB, C++, Linux, Docker, Git.

CAD & Engineering Software: Siemens NX, SolidWorks, CREO, CATIA V5, STAR-CCM+, Thermal Desktop, SINDA, FEMAP.

Other Technical: Aerodynamics & CFD, experimental methods (wind-tunnel testing).