William Sharpless | C.V.

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PhD in Sylvia Herbert's Safe Autonomous Systems group at UCSD. As of fall 2025, a visiting scholar Chuchu Fan's group at MIT. Work involves games and learning for safe, high-dimensional robotics.

Education

University of California, San Diego
Ph.D., Mechanical and Aerospace Engineering — *May 2026*
Advisor: Sylvia Herbert // Committee: Henrik Christensen, Sicun Gao, Miroslav Krstic

Massachusetts Institute of Technology
Visiting Scholar — *Sep. 2025*
Advisor: Chuchu Fan

University of California, Berkeley
Cum laude, B.A. Applied Mathematics & B.S. Biology — *Dec. 2020*
Advisors: Claire Tomlin, Adam Arkin

Honors and Awards

2022-2024: NIH/HHMI Interfaces Fellow

2024: Hellman Society Fellow

2024: Office of Naval Research Co-Awardee

2019: Winner of the UC Big Ideas Competition

Selected Publications

2025: Sharpless, W., Hirsch, D., Tonkens, S., Shinde, N., & Herbert, S. (Sept. 2025). Dual Objective Reinforcement Learning with Novel Hamilton-Jacobi-Bellman Forms. *Recently Submitted to ICLR*.

2025: Teoh, R., Tonkens, s., Sharpless, W., Yang, A., Feng, Z., Bansal, S. & Herbert, S. (Sept. 2025). MADR: MPC-guided Adversarial Deepreach. *Recently Submitted to ICRA*.

2024: Sharpless, W., Feng, Z., Bansal, S., &Herbert, S. (Dec. 2024). Linear Supervision for High-Dimensional, Nonlinear Neural Control and Differential Games. *L4DC*. **Nominated for Best Paper.**

2024: Sharpless, W., Chow, Y. T., & Herbert, S. (Apr. 2024). Conservative Linear Envelopes for High-Dimensional, HJR for Nonlinear Systems. *TAC*.

Service & Outreach

2023-25: Mentor of 3x undergraduate student researchers, resulting in 2 publication submissions with undergraduate first-authors

2025: Chair of the RSS Multi-Robot Systems Workshop

2023-2024: Outreach Chair, Contextual Robotics Institute Graduate Student Association

2024: Member of the IEEE CSS Technical Committee on Hybrid Systems

2022-2023: Founder of the URM/FGLI Montgomery Middle School Coding Program

Invited Talks

2025: Semi-autonomous Seminar, UC Berkeley

2024: Scientific AI Research Meeting, Oden Institute

2024: Society of Industrial and Applied Mathematics (SIAM), Session on High Dimensional Control and HJE

2023: Southern California Controls Workshop

2023: Safe and Intelligent Autonomy Meeting, USC

2023: The Level Set Collective Seminar, UC Los Angeles

Software

HopfReachability.jl: High-Dimensional Differential Game Solver using Nonsmooth Cvx Optimization

Margo.js: an interactive level set solver, made in WebGL/GLSL

Deepreach.py: (Contributor) Deep learning of HJ-PDE's for differential game/control value functions and policies

Teaching

2023: Probability and Statistics (UG), Systems and Control Theory (UG)