William Sharpless | C.V.

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PhD in Sylvia Herbert's Safe Autonomous Systems group at UCSD. Work involves learning for safe, high-dimensional robotics.

Education & Experience

University of California, San Diego
Ph.D., Mechanical and Aerospace Engineering *2021 – 2027*
Advisor: Sylvia Herbert // Committee: Henrik Christensen, Sicun Gao, Miroslav Krstic

Nvidia
Intern *2026*
Mentors: Ed Schmerling, Boris Ivanovic, Marco Pavone

Massachusetts Institute of Technology
Visiting Scholar *2025 – 2026*
Advisor: Chuchu Fan

University of California, Berkeley
Cum laude, B.A. Applied Mathematics & B.S. Biology *2016 – 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

2026: Sharpless, W., So, O., Hirsch, D., Herbert, S. & Fan, C. (Jan. 2026). Bellman Value Decomposition for Task Logic in Optimal Control *Recently submitted to RSS*.

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

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 publications with undergraduate first-authors

2025: Chair of the RSS Multi-Robot Systems Workshop

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

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

Invited Talks

2026: LIDS Student Conference Speaker, MIT

2025: Semi-autonomous Seminar, UC Berkeley

2024: Scientific AI Research Meeting, Oden Institute, UT Austin

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

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)