Jan de Priester

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Professional Summary

Ph.D. Candidate & Safe RL Researcher with 5+ years of experience developing reinforcement learning and hybrid control methods with formal **safety, stability, and robustness guarantees**. Builds RL policies (Python, PyTorch, JAX) that prevent failure in adversarial edge cases and transfer reliably to real-world hardware. First-author researcher (**RLC** 3x, **ACC**) and **RLC** Senior Reviewer seeking a 2027 Research Scientist role or internship in the SF Bay Area.

Technical Skills

Core Competencies: Machine Learning (ML), Reinforcement Learning (RL), Safe & Robust Control, Hybrid Control, Simulation
Programming & Tools: Python (PyTorch, JAX), MATLAB/Simulink, Git, Docker, LaTeX

Experience

Machine Learning Researcher (Ph.D.) Sep. 2022 – Present
Hybrid Systems Laboratory, University of California, Santa Cruz *Santa Cruz, CA*

- Proved mathematically that standard RL policies **intrinsically guarantee closed-loop stability** without imposing constraints on the learning process, showing that stability scales directly with learning performance (*Published:* ***RLC 2026***).
- Developed a hysteresis-based multi-policy RL framework using learned latent features to **guarantee crash prevention under adversarial perturbations**, achieving **100% obstacle avoidance success** in simulation (vs. 60% for standard RL) and transferring reliably to a physical quadrotor across the sim-to-real gap (*Published:* ***RLC 2024****; In Prep.:* ***IEEE T-RL***).
- Designed a predictive hybrid supervisor that **guarantees robust commitment** between multiple viable decisions or policies, **preventing deadlocks** under adversarial perturbations while preserving underlying policy properties such as stability (*Published:* ***RLC 2025***).
- **Mentored and directed** a Master's researcher through an experimental robotics project, formulating the hybrid hysteresis control logic that enabled **reliable, oscillation-free physical manipulation** under real-world sensor drift and disturbances (*Published:* ***IEEE CCTA 2026***).

Education

University of California, Santa Cruz Santa Cruz, CA
Ph.D. in Electrical and Computer Engineering (Advisor: Prof. Ricardo G. Sanfelice) *Sep. 2022 – Expected Sept. 2027*

Eindhoven University of Technology Eindhoven, Netherlands
M.Sc. in Mechanical Engineering *Sep. 2018 – Nov. 2020*

Eindhoven University of Technology Eindhoven, Netherlands
B.Sc. in Mechanical Engineering *Sep. 2015 – Jul. 2018*

Selected Publications

1. **Jan de Priester**, Joseph Lullo, Kyle Volle, Prashant Ganesh, and Ricardo G. Sanfelice. "Latent Multi-Policy Hysteresis-Based Reinforcement Learning for Robust 3D Obstacle Avoidance". *In Prep., Target IEEE Trans. on Robot Learning (****T-RL****)* (2026).
2. **Jan de Priester** and Ricardo G. Sanfelice. "Intrinsic Closed-Loop Practical Asymptotic Stability in Discrete-Time Reinforcement Learning". *Reinforcement Learning Journal (****RLC/RLJ****)* (2026).
3. India Spott, **Jan de Priester**, and Ricardo G. Sanfelice. "An Experimentally Validated Hybrid Control Strategy for Robust Contact Detection and Force Regulation". *IEEE Conf. on Control Tech. & Applications (****CCTA****)* (2026).
4. **Jan de Priester** and Ricardo G. Sanfelice. "A Timer-Based Hybrid Supervisor for Robust, Chatter-Free Policy Switching". *Reinforcement Learning Journal (****RLC/RLJ****) 6* (2025), pp. 2508–2529.
5. **Jan de Priester**, Zachary Bell, Prashant Ganesh, and Ricardo G. Sanfelice. "MultiHyRL: Robust Hybrid RL for Obstacle Avoidance against Adversarial Attacks". *Reinforcement Learning Journal (****RLC/RLJ****) 4* (2024), pp. 2017–2040.
6. **Jan de Priester**, Ricardo G. Sanfelice, and Nathan van de Wouw. "Hysteresis-Based RL: Robustifying Reinforcement Learning-Based Control Policies via Hybrid Control". *IEEE American Control Conference (****ACC****)* (2022).

Honors, Service & Presentations

Leadership | Holistic Reviewer (Senior Reviewer), **RLC** (2026); Reviewer, **RLC** (2025), ACM **HSCC** (2025), **NAHS** (2023)
Talks & Presentations | Northern California Control Workshop (**NorCal**) (2026); Reinforcement Learning Conference (**RLC**) (2026, 2025, 2024); Bay Area Robotics Symposium (**BARS**) (2022)
Awards | Chancellor's Fellowship, UCSC (2022); **1st Place**, Business Process Intelligence Challenge (2019); **1st Place**, Shell Energy Challenge (2018)