# THEO GUEGAN

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## SKILLS

**Robotics & Control:** Humanoid Control, Sim-to-Real, ROS2, RTOS, Behavior Trees, Kinematics, MPC
**AI & Learning:** VLA (pi0.5, RT-X), Reinforcement Learning, Imitation Learning, PyTorch, JAX
**Languages:** C++17, Python 3.13, Rust, C, MATLAB, Lua, Bash
**Simulation & Tools:** MuJoCo, Isaac Sim, Gazebo, Docker, CMake, Git, CI/CD

## EXPERIENCE

**Machine Learning Intern - Humanoid Control**                    **Dec 2025 – Present**
R Claire Inc.                                                          *Palo Alto, CA*
- Building learning-based control systems for humanoid robots, deploying RL and VLA policies to close the sim-to-real gap.
- Engineering intuitive teleoperation and human-in-the-loop tools to accelerate data collection and model evaluation.
- Digging into the full robotics stack to optimize Python/C++ pipelines, reducing latency in embodied perception loops.
- training multimodal foundation models on real-world datasets for robust object manipulation.

**Embedded Drone Software Engineer Intern**                       **Sep 2024 – Feb 2025**
Thales Land & Air Systems                                    *Vélizy-Villacoublay, France*
- Architected a real-time embedded Lua scripting engine in C++ (TDD), enabling rapid mission prototyping on hardware.
- Streamlined build processes for embedded Linux targets, ensuring reliable deployment in messy real-world conditions.
- Integrated local LLMs via Rust/Docker, handling hardware constraints and demonstrating ownership of the full software stack.

**Autonomous Vehicle Control Lead**                              **Feb 2024 – Jun 2025**
UTonome – UTAC Challenge                                             *Compiègne, France*
- Led the deployment of control software to a Renault Zoe (ROS/Python), validating algorithms in real-world track scenarios.
- Designed adaptive cruise control and obstacle avoidance (99% sim safety), successfully transferring code from simulation to hardware.

## PROJECTS

**LeRobot: Teleoperation & VLA for Manipulation**
- Built a dual-arm teleoperation rig for data collection, directly addressing the "messy real world" data problem.
- Trained and deployed pi0.5 VLA policies via Imitation Learning, achieving 80% success on dexterous tasks.

**Neural Surrogate for Model Predictive Control**
- Benchmarked RL and Behavioral Cloning approaches in MuJoCo, creating a robust sim-to-real surrogate for MPC.
- Optimized inference times to ensure control loops met hard real-time constraints.

**Real-Time Kernel (RTOS)**
- Developed a preemptive RTOS in C and Rust for STM32, implementing mutexes and priority inheritance.
- Demonstatrates deep understanding of low-level bottlenecks, interrupts, and concurrency management.

## EDUCATION

**Université de Technologie de Compiègne (UTC)**                  **Compiègne, France**
M.Sc. Computer Science - Embedded & Autonomous Systems,              Sep 2021 – Jun 2026
- GPA: 5.0/5.0 | Focus: Robotics Control, Embedded Systems, Kinematics

**University of Waterloo**                                          **Waterloo, Canada**
Exchange - Computer Engineering,                                     Sep 2025 – Present
- Coursework: Deep Reinforcement Learning, Image Processing, Deep Learning