

Giovanni Claudio

giovanniclaudio.com | giovanniclaudio | jokla | London, UK



Senior Principal Software Engineer translating research-grade AI/video into certified, real-time products on embedded GPUs across surgical robotics, autonomous vehicles, AMR fleets and humanoid platforms. End-to-end ownership spanning research, simulation, architecture design, development, on-target validation, and cross-functional technical leadership.

Experience

Sr. Principal Software Engineer, AI-Video Technical Lead Jan 2025 - Present
Medtronic MEDTRONIC, DIGITAL SURGERY London, UK

- Architected a regulated AI-video platform with three core goals: isolate multiple AI apps sharing one GPU, enforce clear medical/non-medical boundaries, and low overlay latency for real-time surgical guidance.
- Designed core runtime capabilities including AI scheduling, inference hardening, video and AI data recording, overlay generation, time synchronisation, and benchmarking.
- Act as the technical bridge across ML, Systems, Quality, Regulatory, and UI, turning requirements into a delivery roadmap.
- Built the platform to scale future AI features through shared x86/ARM dev containers, a modular build system, common libraries, and automated end-to-end model verification before deployment.
- Designed hardware-in-the-loop testing, CI-published documentation, and variant-aware build/versioning practices to make releases, regression testing, and submission artifacts repeatable under change control.
- Technical lead for a team of 5 engineers, combining hands-on architecture work with mentoring, reviews, and pairing.

ai-video computer-vision deep-learning medical-robotics edge-deployment software-architecture cpp python regulated

Principal Software Engineer Jun 2023 - Jan 2025
Medtronic MEDTRONIC, DIGITAL SURGERY London, UK

- Optimized PyTorch/ONNX models for low-latency execution on embedded NVIDIA GPUs maintaining target accuracy.
- Built on-target validation and benchmarking workflows to measure latency/accuracy trade-offs and generate evidence for release and verification reviews.
- Led the move to a modular monorepo with scalable build/CI pipelines, improving module ownership, integration consistency, and release execution.

computer-vision deep-learning medical-robotics edge-deployment cpp python

Senior Robotics Software Engineer Mar 2021 - Jun 2023
ARRIVAL ARRIVAL, MOBILE ROBOTICS London, UK

- Owned the hardware and software vision system across the 100+ autonomous mobile robots running Bicester microfactory.
- Built vision-based positioning achieving sub-centimetre, sub-degree accuracy across single and cluster robot configurations.
- Implemented automated tools for camera sub-assembly, intrinsics and extrinsics calibration, and end-of-line robot validation.

autonomous-navigation computer-vision calibration cpp mobile-robots

Robotics Engineer, Autonomous Navigation Sep 2019 - Mar 2021
ARRIVAL ARRIVAL, MOBILE ROBOTICS London, UK

- Built navigation and simulation software for the WeMo AMR fleet that assembles vehicles in Arrival's microfactories.
- Defined the motion, docking and state-reporting interfaces consumed by the factory orchestrator.
- Stood up fleet bring-up and test infrastructure spanning simulation, hardware integration and sensor setup.

autonomous-navigation simulation cpp dds ros mobile-robots

Autonomous Driving Engineer Sep 2017 - Sep 2019
ITALDESIGN ITALDESIGN GIUGIARO (VOLKSWAGEN GROUP) Turin, Italy

- Pop.Up (with Audi & Airbus): built drone localization, and autonomous latching. Demo at Amsterdam Drone Week 2018.
- Autonomous Driving: built sensor stack, perception, mapping, planning, control, logging/replay, and SIL/HIL.
- InTo: led ML/CV for crowd-density and passenger-flow prediction using onboard and station cameras; deployed at Turin's Re Umberto metro station in 2019.
- Wheem-i: built obstacle/free-space perception and shared-control driver assistance for a semi-autonomous mobility device; finalist in Toyota's \$4M Mobility Unlimited Challenge.
- Roborace: trained and deployed CNNs for object detection and semantic segmentation on the autonomous racing car.

autonomous-driving perception deep-learning slam cpp ros

- Four years of perception, navigation and visual-servoing research across drones, mobile, industrial and humanoid robots.
- Built a ROS + MATLAB/Simulink + V-REP framework: validate algorithms in simulation, deploy the identical code to real robots.
- Implemented visual servoing on Romeo and Pepper for grasping, dual-arm manipulation, and obstacle-aware people following.
- Supervised research interns end-to-end on perception and control projects.

visual-servoing humanoid-robots manipulation computer-vision ros cpp matlab

Skills

AI & ML	TensorRT ONNX CUDA Edge inference Model optimisation CI/CD for ML Agentic AI
Programming	C++20/23 Python CMake
Computer Vision	Detection & tracking Image/video processing Point-cloud segmentation Calibration AR
Architecture	Software architecture C4 modeling Greenfield systems Tech roadmapping
Medical Devices	IEC 62304 Design controls Risk management Traceability V&V SaMD DFMA
Leadership	Technical leadership Cross-team collaboration Mentoring Agile/Scrum
Robotics	Autonomous vehicles Mobile robots Manipulators Humanoid robots Drones
Middleware	DDS Zenoh ROS
Sensors	Cameras Depth cameras Lidar Radar IMU GNSS Ultrasonics
Platforms & Infra	Linux Docker Kubernetes NVIDIA Orin AWS GitHub Actions
Languages	English ●●●● Italian ●●●● French ●●●● Spanish ●●●●

Education

 **M.Sc. ARIA, Advanced Robotics (double degree)** 2011 - 2013
ÉCOLE CENTRALE DE NANTES (ECN) & UNIVERSITY OF GENOA (UNIGE) *Nantes, France / Genoa, Italy*

 **B.Sc. in Computer Science Engineering** 2008 - 2011
UNIVERSITY OF GENOA (UNIGE) *Genoa, Italy*

Publications

Visual Servoing in an Optimization Framework for the Whole-Body Control of Humanoid Robots
RA-L | JOURNAL | 2017 | ALSO PRESENTED AT ICRA 2017.

Vision-based Manipulation with the Humanoid Robot Romeo
HUMANOIDS | CONFERENCE | 2016

Interfacing Matlab/Simulink with V-REP for an Easy Development of Sensor-Based Control Algorithms for Robotic Platforms
ICRA WORKSHOP | WORKSHOP | 2014 | HONG KONG, CHINA.

Other interests

Pop/rock singer and music event organizer

Groups	Organised and led bands and musical events in France, Italy and UK
Member of Mika's choir	Concert at Roundhouse in Chalk Farm, 13 Dec 2012 (London, UK)
AIMS Summer School	Courses attended: Cabaret class, Vocal Technique, Musical class (Eastbourne, UK)
1st Place	Singing competition "Solo per una voce". Jury headed by TOSCA. Prize: AIMS Summer School (2012)