

Giovanni Claudio

giovanniclaudio.com | giovanniclaudio | jokka | 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
MEDTRONIC, DIGITAL SURGERY

Jan 2025 - Present
London, UK

- Defined and owned the software architecture for a regulated AI-video platform, enabling multiple AI applications to share a single GPU with strict medical/non-medical isolation and sub-frame overlay latency for real-time surgical guidance.
- Built a C++ stack (AI manager, scheduler, TensorRT inference, video/AI recording) with reusable libraries for message-passing middleware, visualization, logging, telemetry and monitoring.
- Led cross-functional AI-video delivery across 8 teams: ML, Systems, DevOps, Cloud, Quality, Regulatory and UI.
- Co-located architecture and documentation with code, automating variant-aware regulatory artifact generation in CI for traceable, submission-ready FDA deliverables.
- Introduced an agentic-AI workspace adopted daily for development, documentation, compliance auditing, FMEA review and regulatory preparation.
- Mentored 5+ engineers through code pairing and technical reviews, increasing delivery pace and design quality.

platform-architecture technical-leadership cpp tensorrt cuda gpu-scheduling fda-submissions

Principal Software Engineer
MEDTRONIC, DIGITAL SURGERY

Jun 2023 - Jan 2025
London, UK

- Achieved sub-10 ms inference on Jetson Orin with >99% accuracy using model compression and quantization-aware training.
- Built an automated AI model conversion and verification pipeline converting PyTorch models to TensorRT, validating on- and off-target datasets spanning thousands of hours of annotated video.
- Containerized the dev and CI toolchain across x86/ARM targets, guaranteeing reproducible builds and test environments.
- Designed modular build system enabling feature-gated releases across product variants from shared code.

cpp python model-optimization pytorch onnx tensorrt model-verification nvidia-jetson ci-cd

* **Senior Robotics Software Engineer**
ARRIVAL, MOBILE ROBOTICS

Mar 2021 - Jun 2023
London, UK

- Owned the hardware and software vision system for the 100+ robot WeMo fleet at Arrival's Bicester microfactory.
- Designed Relative Move To: visual servoing with fiducial markers achieving sub-5 mm, sub-0.3° position accuracy.
- Reduced cross-robot pose-transfer error ~8x (translation) and >15x (orientation) via a teaching-by-showing calibration workflow.
- Built automated single-shot intrinsic/extrinsic calibration and end-of-line validation pipelines for fleet commissioning.

vision-systems camera-calibration commissioning-tooling cpp robot-fleet precision-positioning

* **Robotics Engineer, Autonomous Navigation**
ARRIVAL, MOBILE ROBOTICS

Sep 2019 - Mar 2021
London, UK

- Integrated lidar-based navigation stack for the WeMo AMR fleet, and state reporting to the factory orchestrator.
- Implemented a visual servoing algorithm for automatic docking to charge and factory stations.
- Built the fleet simulation environment used to validate navigation and docking behavior before hardware deployment.

autonomous-navigation kubernetes ros cpp dds integration-testing gazebo unreal-engine

Autonomous Driving Engineer
ITALDESIGN GIUGIARO (VOLKSWAGEN GROUP)

Sep 2017 - Sep 2019
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 testing.
- InTo: led ML/CV dev for passenger-flow prediction using onboard and station cameras; deployed at a Turin metro station.
- 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 autonomous racing car.

autonomous-driving-stack ros cpp ml deep-learning sensor-integration sil-hil perception

- Four years of perception, navigation and visual-servoing research across drones, mobile, industrial and humanoid robots.
- Built a ROS + MATLAB/Simulink + V-REP framework to validate algorithms in simulation and deploy identical code to real robots.
- Implemented visual servoing on Romeo and Pepper for grasping, dual-arm manipulation, and obstacle-aware people following.
- Researched object detection, model-based and template tracking, 3D point-cloud segmentation, augmented reality, face and text recognition, and audio localization.
- Supervised research interns end-to-end on perception and control projects.

visual-servoing research-engineering ros cpp matlab-simulink simulation humanoid-robots

- Developed a C++ algorithm for pose and velocity estimation of a high-speed parallel robot using vision.
- Designed a visual system with high-performance CoaXPress cameras (acquisition frame rate of 2 kHz).

pose-estimation high-speed-robotics cpp machine-vision coaxpress

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)
ÉCOLE CENTRALE DE NANTES (ECN) & UNIVERSITY OF GENOA (UNIGE)

2011 - 2013
Nantes, France / Genoa, Italy



B.Sc. in Computer Science Engineering
UNIVERSITY OF GENOA (UNIGE)

2008 - 2011
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)