

# Patrick Pastorelli

**Gender:** Male **Date of birth:** 10/07/2001 **Place of birth:** Nice, France **Nationality:** Italian

## ABOUT MYSELF

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Master degree in computer science with specialization in robotics and IoT at the university of Trento. Interested in competitive programming and participated in the SWERC 2022/2023 as member of the first team of the university of Genova where I obtained my bachelor degree.

Master degree mark: 110 / 110 cum laude

GitHub: [KubriksCodeTN](https://github.com/KubriksCodeTN)

## EDUCATION & TRAINING

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[ 01/09/2023 - 01/12/2025 ]

### Master's degree in computer science

**University of Trento** <https://unitn.it>

**City:** Trento | **Country:** Italy | **Field(s) of study:** Information and Communication Technologies | **Final grade:** 110 cum laude | **Level in EQF:** 7 | **Thesis:** Exploring a Flooding-Based Wake-Up Radio Routing Protocol on a New Ultra-Low Power SoC for the IoT

- Specialization in IoT and robotics systems
- HW and protocols for wireless communications
- Development of firmware and drivers for battery less, low power intermittent computing and robotics systems
- Scientific paper writing within the fields of robotics and low-power IoT applications

This period saw the publication of two papers: one in the field of robotics and one in IoT. A collaboration with CovisionLab was carried out to develop a fast image compression pipeline in CUDA and an internship in PCB designing in Altium Designer

[ 01/09/2020 - 01/07/2023 ]

### Bachelor's degree in computer science

**University of Genova** <https://unige.it>

**City:** Genova | **Country:** Italy | **Field(s) of study:** Information and Communication Technologies | **Final grade:** 110 cum laude | **Level in EQF:** 6 | **Thesis:** Sorted containers: da Python a C++

- Knowledge of computer science and its infrastructures
- Team working and team leading
- Software engineering in both agile and safety critical contexts
- Competitive programming, member of the first team during SWERC 2022/2023

[ 01/09/2015 - 01/07/2020 ]

### High school diploma

**Scientific high school Viesseux** <https://www.liceoimperia.edu.it/>

**City:** Imperia | **Country:** Italy | **Final grade:** 93 | **Level in EQF:** 5

Besides obtaining my diploma, I also carried out PCTO in pharmacy and participated in multiple debating competitions organized by Società Nazionale Debate Italia, as a member of the Viesseux high school team (IM, Italy). Member of the winning team of the debating competition Fiera del libro di Imperia 2019.

[ 01/11/2023 - 01/01/2024 ]

### Image compression pipeline in CUDA with CovisionLab

**CovisionLab** <https://www.covisionlab.com/>

Development and analysis of a high-speed image compression pipeline for AI models using CUDA. The project also included an evaluation of CUDA Optical Flow.

[ 01/09/2020 - 01/07/2023 ]

### JUMP, Job-University Matching Project

**RUI foundation** <https://www.fondazionerui.it/it/>

JUMP is a 3-year, 120-hour interdisciplinary course open to students from all faculties and offered by Fondazione RUI. It enables the development of transferable skills across three main areas: soft skills, modern themes, and interdisciplinary courses.

[ 01/02/2019 - 01/11/2019 ]

### Cambridge English: First (FCE - C1 level)

**Cambridge University** <https://www.cam.ac.uk/>

**Final grade:** 182, Grade A, C1 level

## PUBLICATIONS

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[ 2025 ]

### **Fast Shortest Path Polyline Smoothing With G1 Continuity and Bounded Curvature**

**Reference:** P. Pastorelli, S. Dagnino, E. Saccon, M. Frego and L. Palopoli, "Fast Shortest Path Polyline Smoothing With G1 Continuity and Bounded Curvature" IEEE Robotics and Automation Letters, vol. 10, no. 4, pp. 3182-3189, April 2025

In this work, we propose the Dubins Path Smoothing (DPS) algorithm, a novel and efficient method for smoothing polylines in motion planning tasks. DPS applies to motion planning of vehicles with bounded curvature. In the letter, we show that the generated path: 1) has minimal length, 2) is G1 continuous, and 3) is collision-free by construction, under mild hypotheses. We compare our solution with the state-of-the-art and show its convenience both in terms of computation time and of length of the compute path.

Also presented at IRIM 2024 and IROS 2025

**Authors:** Patrick Pastorelli, Simone Dagnino, Enrico Saccon, Marco Frego, Luigi Palopoli | **Volume, Issue and Pages:** Volume: 10, Issue: 4, April 2025 | **Publisher:** IEEE RAL

[ 2026 ]

### **Every Microjoule Counts: Zero-Failure Task Execution in Batteryless Sensors**

Intermittent computing scheduler for a smart energy harvesting battery

Note: Still needs to be published by the IEEE conference

**Authors:** Matteo Nardello, Maria Doglioni, Simone Dagnino, Patrick Pastorelli, and Davide Brunelli | **Journal Name:** IEEE Sensors 2025

## **LANGUAGE SKILLS**

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**Mother tongue(s):** Italian

**Other language(s):**

**English**

**LISTENING:** C1 **READING:** C1 **WRITING:** C1

**SPOKEN PRODUCTION:** C1 **SPOKEN INTERACTION:** C1

**Chinese**

**LISTENING:** A1 **READING:** A2 **WRITING:** A2

**SPOKEN PRODUCTION:** A1 **SPOKEN INTERACTION:** A1

## **WORK EXPERIENCE**

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### ***University of trento***

**City:** Trento | **Country:** Italy

[ 01/09/2024 - 01/02/2025 ]

### **PC science tutor**

- Assisting students during labs
- Weekly tutoring
- Exams assistance

## **SKILLS**

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### **Computer science**

Zoom | Linux | ChatGPT | Microsoft Office Suite | Google Search | Canva

### **Programming languages**

C++23 (advanced) | C (advanced) | Python (advanced) | Rust (intermediate) | SQL (intermediate) | Bash (intermediate) | Java (intermediate) | Git (basic) | Haskell (basic) | Cuda (basic)

### **Embedded / Robotics platforms**

ROS2 | ESP32 | Texas Instruments | STM32 | Arduino | LoRa | IEEE 802.15.4 | UWB | FreeRTOS

## **HOBBIES AND INTERESTS**

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### **Chess**

Studied chess for 12 years, participated in multiple tournaments organized by Federazione Internazionale di Scacchi such as the international chess festival of Imperia.

### **Mandarin Chinese**

Currently studying mandarin Chinese with the goal of obtaining an HSK certification in the future