Erik Mischiatti

Mechatronic Engineering Master Student

26 Marzo 1998

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Education

M.Sc. MECHATRONICS ENGINEERING ELECTRONICS and ROBOTICS
University of Trento | 2021-2024 | Ongoing

B.Sc. MECHATRONICS ENGINEERING INFORMATION ENGINEERING L-8
University of Padova | 2017-2021
THESIS: Detection of human arm muscle activity using EMG sensors

High School Diploma at Liceo Scientifico Applicato "L. Mondin" | 2013-2017

Skills

Computing: Python, Matlab, Docker, Git, Linux, Windows, LaTeX, Mathematica, VSC

Robotics: ROS, Gazebo, OpenCV

3D modeling: SolidWorks, Fusion 360, 3d printing

Autonomous Systems

Languages

Italian: Mother Tongue
English: B2

Extra Activities

Sport: Running, Swimming, Basketball, Gym
Hobbies: Traveling, Cooking, Photography

Professional Experience

April 2024 — Master Thesis Research — Technical University of Vienna (TUW), Austria

- I am currently working on my master thesis at the Institute of Autonomous Systems at TUW.
- This project involves creating a system that leverages "demonstration learning" on a robotic arm to perform complex tasks using modular Assembly Task Boards (ATB). The approach will utilize vision and object reconstruction technologies, including Unified 6D Pose Estimation, tracking of novel objects, and behavior trees. Additionally, the thesis project will focus on the implementation of imitation learning algorithms to teach a robot how to reverse a previously learned task. The idea is to leverage the acquired knowledge to learn the "direct" task (e.g., an assembly) to accelerate its reversal (e.g., disassembly), thus reducing interaction with the human instructor. The approach will be experimentally validated in realistic contexts.
- The goal is to develop a system that can learn from human demonstrations and perform tasks autonomously.
- Skills: ROS, Gazebo, Python, OpenCV, Docker, 3D modeling, , Fusion 360, 3D printing, Behavior trees, Object Detection and Tracking

Aug. 2023 — Erasmus activity — Linnaeus University, Sweden

- I spent 6 months in Sweden, studying at Linnaeus University in Växjö. I attended courses in the field of robotics, automation and mechanics.

2023 — StartUp Lab — University of Trento, Italy

- CLab Trento is the interdepartmental laboratory of the University of Trento, managed with HIT (Hub Innovazione Trentino), where starting to create your professional future.
- Hachi team (our startup)

Achievements

2023-2024 — Modular Drone - UWB communication

Article Deconstructing for Superiority: Aristotelian Modularization in UAV Systems
Quick Description:This paper introduces a method for establishing communication between a UAV's flight controller and electronic speed controllers using ultra-wideband (UWB) technology. Our solution enables the development of modular drones with UWB communication systems, offering a practical approach to creating efficient UAVs without geometric constraints. This technology holds potential for smart logistics applications.
Results:This system enables arbitrary objects to fly by using modules that contain the entire propulsion system and connect wirelessly to a flight controller. These modules can be attached to objects like boxes, allowing them to become airborne.
Skills:CAD design; Fusion360; 3D printing; Tinkering; Soldering; PCB design;UWB communication; Unamanned vehicles topics, LaTeX; Leadership; Teamwork; Technical writing