# Curriculum Vitae

Giulio Attenni

## Personal and contact information


Giulio Attenni

Italian

02.01.1996

Computer scientist

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## Education

**M.Sc. in Computer Science** Currently enrolled
*Sapienza Università di Roma*

**Bachelor's degree in Computer Science** 2016 - 2019
*Sapienza Università di Roma*
Graduated with full marks and honours, i.e., 110 cum laude.
Thesis work: *"Automatic generation of price policies for Smart Grids"*.
Advisor: *Professor Igor Melatti*

## Awards

**Honours Programme in Computer Science** 2018 - 2019
*Sapienza Università di Roma*
Topic: *"Algorithms and tools for Smart Cities and Smart Grids"*.
Advisor: *Professor Igor Melatti*

## Experience

**Task assignment in aerial networks** 2021 - present
Thesis work at *Sapienza University of Rome* (M.Sc. Computer Science).
Advisor: *Professor Gaia Maselli*

*Description:* Design and implementation of a system that exploits an autonomous swarm of drones to provide a collaborative parcel delivery service.

*Skills:* Define complex MILP problems; Gurobi; research methods and academic writing.

**Intensive Computation** 2021
Project for Intensive Computation course held by Professor A. Massini at *Sapienza Università di Roma* (M.Sc. Computer Science).

*Description:* Exploit parallel computation to find MOLS (Mutually Orthogonal Latin Squares) among Latin Squares composed by permutations obtained performing routing on a set of MIN configurations.

*Skills:* Matlab, C, CUDA

**Development and performance evaluation of algorithms and protocols for IoUT systems** 2020 - 2021
Scholarship for research activity purpose at *Sapienza University of Rome*.
Advisor: *Professor Chiara Petrioli*

*Description:* Collaboration in the context of a project concerning the usage of Underwater IoT systems to understand (and fight) climate change.

*Skills:* I learned about state of the art seawater measurements with regard to quality of data acquisition.

**RL-based MAC protocol** 2021
Project for Autonomous Networking course held by Professor G. Maselli at *Sapienza University of Rome* (M.Sc. Computer Science).

*Description:* Design and implementation of a Reinforcement Learning based mac protocol that queries drones to retrieve data packets. This protocol is inspired by multi-armed bandit problem.

*Skills:* RL Q-learning approach.

**RL-based Routing protocol** 2021
Project for Autonomous Networking course held by Professor G. Maselli at *Sapienza University of Rome* (M.Sc. Computer Science).

*Description:* Design and implementation of a Reinforcement Learning based routing protocol that allow a drone in a patrolling scenario to deliver packets while exploring an area of interest with minimum packet loss.

*Skills:* RL Q-learning approach.

**Bad smell detection** 2020
Project for Knowledge Analysis and Management course held by Professor P. Tonella at Università della Svizzera Italiana (during Erasmus+ program).

*Description:* Creation, population and querying of an ontology representing the Java language using Python to detect bad smells in Java code.

*Skills:* Python libraries: owlready2, ast, javalang, rdflib

**Multi-source code search** 2020
Project for Knowledge Analysis and Management course held by Professor P. Tonella at Università della Svizzera Italiana (during Erasmus+ program).

*Description:* Implementation of several multi-source code search engines based on different natural language processing models.

*Skills:* Python libraries: Gensim

**Centralized task assignment for drone-swarm** 2020
Project for Computer Network Performance course held by Professor N. Bartolini at *Sapienza University of Rome* (M.Sc. Computer Science).

*Description:* Design and implementation of a model for swarms of aerial drones' centralized task assignment problem.

*Skills:* Define MILP problems; comparison and performance evaluation of MILP models; Python API of CPLEX.

**"L'uomo e lo spazio" (Human and Space)** 2020
Summer School organized by *Villa Nazareth university college of excellence.*

*Description:* Moderator of the conference *"La prima immagine di un buco nero"* (The first image of a black hole), speaker of which was Professor Luciano Rezzolla from Goethe University Frankfurt.
Attendee of the conference *"Le missioni esplorative su Marte"* (Exploratory missions on Mars), speaker of which was Doctor Leila Lorenzoni from ESA.

*Skills:* Moderate a conference; insights into the *Event Horizon Telescope* project and into *Mars 2020* and other space missions.

**Automatic generation of price policies for Smart Grids** 2018 - 2019
Thesis work at *Sapienza University of Rome* (Bachelor in Computer Science).
Advisor: *Professor Igor Melatti*

*Description:* Design and implementation of a service that provides Time of Usage tariffs applicable to energy bills in order to influence users' behaviour so as to reduce peaks in the aggregate power demand of a certain Smart grid. This thesis work is based on European Commission project SmartHG. In order to find the best price policy we exploit both exhaustive and local search strategies.

*Skills:* Define MILP problems; CPLEX; Java; Slurm.