Curriculum Vitae

Giulio Attenni

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Education

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*
All course attended and relative marks are listed in attachment 1.

M.Sc. in Computer Science Currently enrolled
Sapienza Università di Roma
All course attended and relative marks are listed in attachment 2.

Awards

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

Scholarship for research activity purpose 2020 - 2021
Sapienza Università di Roma
Topic: *"Development and performance evaluation of algorithms and protocols for IoUT systems"*.
Project: *"Underwater IoT systems to understand (and fight) climate change"*.
Advisor: *Professor Chiara Petrioli*

Experience

Automatic generation of price policies for Smart Grids 2018 - 2019
Thesis work at *Sapienza Università di Roma* (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.

Home Credit Default Risk, Kaggle
Project for Foundations of Data Science course held by Professor M. Bressan at *Sapienza Università di Roma* (M.Sc. Computer Science).

Description: The task of the project was to build a model which, learning from a dataset of past loans, can predict whether a loan will be repaid or not.

Skills: Python libraries: Pandas, Sklearn, Matplotlib, Seaborn.

Centralized task assignment for drone-swarm
Project for Computer Network Performance course held by Professor N. Bartolini at *Sapienza Università di Roma* (M.Sc. Computer Science).

Description: Goal of the project was to design and implement a model for swarms of aerial drones' centralized task assignment problem.

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

RL-based MAC protocol
Project for Autonomous Networking course held by Professor G. Maselli at *Sapienza Università di Roma* (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
Project for Autonomous Networking course held by Professor G. Maselli at *Sapienza Università di Roma* (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
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
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

Big Data Computing
Project for Big Data Computing course held by Professor G. Tolomei at *Sapienza Università di Roma* (M.Sc. Computer Science).

Description: Comparison of different cluster analysis techniques applied to large datasets.

Skills: PySpark

Intensive Computation
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

Currently ongoing activities

Task assignment in aerial networks
Thesis work at *Sapienza Università di Roma* (M.Sc. Computer Science).
Advisor: *Professor Gaia Maselli*

Description: Design and implement a software to exploit an autonomous swarm of drones to provide a collaborative parcel delivery service.

Skills: Define complex MILP probelms; Gurobi.