Massimo Paolucci

Associate professor

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Education and training

1990

Ph.D. in Electronic Engineering

Univeristy of Genova - Genova - IT

Academic experience

2017 - ONGOING

Associate professor in Operations Research

University of Genova - Genova - IT

1992 - 2017

Assistant professor in Operations Research

University of Genova - Genova - IT

Teaching activity

I am currently teaching:
Methods and models for decision support (cod: 80172) (Master degree in Computer Engineering and in Security Engineering: Transport and Territorial Systems)
Models and methods for decision support (module of environmental systems modelling) (Master degree in Engineering for Natural Risk Management)
Operations research (module of mathematical methods and operations research) (Master degree in Multimedia Signal Processing And Telecommunication Networks)

Postgraduate research and teaching activity

Supervision of PhD students, residents and post-doctoral fellows

I am currently supervisor of a PhD student in Computer Science and System Engineering

PhD committees membership

Since 2016 member of the Academic Board of the PhD program in Computer Science and Systems Engineering.

Research interests

- *Matheuristic and metaheuristic algorithms for combinatorial optimization:* Hybrid metaheuristic approaches (such as, integration of tabu search (TS), simulated annealing (SA) and variable neighborhood search (VNS)); population based metaheuristics (ant colony optimization (ACO), particle swarm optimization (PSO)). Matheuristic approaches for the solution of Mixed Integer Programming (MIP) models. Optimization approaches combining simulation with metaheuristic optimization algorithms (simulation-optimization).
- *Planning and scheduling in manufacturing systems:* Lot sizing problems for systems combining both manufacturing and re-manufacturing production. Assembly line balancing problems. Energy-aware scheduling, aiming at optimizing, besides the classical objectives for manufacturing production, the electricity consumption due to the operation of the machines. Matheuristic approaches based on rolling horizon strategy for production planning in mixed-model assembly lines manufacturing environment. Algorithms for scheduling of parallel machines in the presence of sequence-dependent setup with the objective of minimizing the total tardiness and both earliness and tardiness.
- *Logistics problems:* Maritime logistics problems, in particular, the Master Bay Planning Problem (MBPP) consisting in determining an optimal loading plan for a containership ship (collaboration with researchers of DIEC (Deptartment of Economics) of University of Genova. Optimization of transport operation in intermodal transport networks. Optimization of the train loading plan. Electrical Vehicle Routing.
- *Decision support systems for environmental problems:* Optimal management of the collection of municipal solid waste. Optimal planning vehicle operations for the separate waste collection.
- *Multi-objective optimization and multi-criteria decision making:* Definition of hyper-heuristic algorithms for determining the set of Pareto optimal solution in optimization problems with multiple objective. Development of approaches for supporting decision making in presence of multiple criteria.

Grants

2014 – ONGOING

Progetto Cluster Tecnologico Nazionale Fabbrica Intelligente Smart Manufacturing 2020
MIUR - IT
Participant

2018 – ONGOING

Lighthouse Plant
Ansaldo Energia - IT
Participant

Progettazione integrata difesa e controllo Nave Militare (ProDifCon)
MIUR - Distretto Ligure delle Tecnologie Marine (DLTM) di La Spezia - IT
Participant

GESTEC TecnoloGie orientatE ai Servizi per lo sviluppo e per l'inTEgrazione di piattaforme ICT
MIUR - IT
Participant

Elica a Pale Modulari Multistadio
Regione Liguria (Progetto POR FESR Polo Tecnologico del mare e Ambiente marino) - IT
Participant
Role in the project: support to the mathematical analysis of design alternatives by multi-objective optimization and design of experiment methods

LogisticsDataSpace
Regione Liguria (Progetto POR FESR - Polo TRANSIT) - IT
Participant
Role in the project: support to mathematical methods and model for logistic flows estimation.

Development of a decision support system for optimal planning waste disposal
AMIU Genova - IT
Participant

Smart PORt Terminals - SPORT
MIUR (PRIN) - IT
Participant

DRP - Un sistema di Distribution Resource Planning a livello tattico per la filiera agroalimentare
sedApta Spa - IT
Participant

Other professional activities

Since 2010 I am member of IROI srl, a spinoff of the University of Genoa applying to industrial problems methodologies for decision support, in particular optimization and simulation methods.

Since 2013 I am member of NOVIGO TECHNOLOGY Srl, a second spinoff of the University of Genoa, operating for the development of innovative ICT solutions for the manufacturing industry.