

Education

- 2003: Doctoral degree in Computer Engineering, Dept. of Electronics and Information, Politecnico di Milano, Italy.
- 1999: Diploma in Computer Engineering, Dept. of Electronics and Information, Politecnico di Milano, Italy.

Positions

- 2020–: Assistant Professor, Dept. of Electronics, Information and Bioengineering, Politecnico di Milano, Italy.
- 2018–2020: Principal Engineer, Fair Isaac Corp., Birmingham UK.
- 2013–2018: Senior Engineer, Fair Isaac Corp., Birmingham UK.
- 2013–: Adjunct Professor, Dept. of Mathematical Sciences, Clemson University, Clemson, South Carolina, USA.
- 2010–2013: Assistant Professor, Dept. of Mathematical Sciences, Clemson University, Clemson, South Carolina, USA.
- 2008–2010: Visiting Assistant Professor, Dept. of Industrial & Systems Engineering, Lehigh University, Bethlehem, Pennsylvania, USA.
- 2006–2008: Postdoctoral Fellow, Tepper School of Business, Carnegie Mellon University, Pittsburgh, Pennsylvania, USA.
- 2003–2006: FIRB Assistant Professor, Dept. of Electronics and Information, Politecnico di Milano, Italy.

Research interests

Mixed Integer Nonlinear Optimization (MINLO): exact methods for MINLO; bound reduction techniques, branching mechanisms, reformulation and convexification of nonconvex optimization problems; exact solvers for convex and nonconvex Mixed Integer Quadratically Constrained problems.

Multiobjective optimization: exact methods for Mixed Integer Linear Optimization (MILP) problems with two or more objective functions; branching rules and fathoming rules for multiobjective MILPs; efficient storage of Pareto points in biobjective MILPs.

Multicommodity network flow problems: exact and heuristic methods for network design problems arising in Telecommunications. Valid inequalities for network design with stepwise node costs; valid inequalities and a decomposition approach for shared protection network design; row-column generation for multi-layer network design; robust optimization applied to network design with uncertainty in the traffic matrix.

The Maximum Feasible Subsystem problem: Parallel implementation of a randomized, thermal relaxation methods for the problem of finding, in an infeasible linear system, a feasible subsystem with as many inequalities as possible.

Other interests: obnoxious location problems; sphere packing problems in n dimensions.

Awards

- 2019: Oberwolfach *Research in Pairs* fellowship, 22 Sep. – 5 Oct. 2019.
- 2017: Best paper, “On handling indicator constraints in mixed integer programming”, *Computational Optimization and Applications (COAP)* 65: 545–566, 2016.
- Nov. 2010: COIN-OR Informs Cup on the best COIN-OR software for Optimization, *Couenne*.
- June 2009: Best paper award: G. Panza, A. Capone, D. Pinarello and P. Belotti. “Robustness in Next-Generation Networks”, ICT Summit Europe.

1998: Honorable mention, Camerini-Carraresi prize for the best M.Sc. thesis in Operations Research, Italy, 1998.

Research grants

2013: Co-P.I., "Algorithms for mixed integer conical optimization," National Science Foundation, \$150,000, with T.K. Ralphs.

2010: P.I., "Robust planning of the production of liquid gases under energy uncertainty," PITA – Pennsylvania Infrastructure Technology Alliance. \$27,060, with L.V. Snyder and T.K. Ralphs.

2009: Co-P.I., "Computational models and algorithms for enterprise-wide optimization of process industries," PITA – Pennsylvania Infrastructure Technology Alliance. \$19,250, with L.V. Snyder.

2009: Co-P.I., "Capacity planning for a gases supply chain with network disruptions and interruptible power," PITA – Pennsylvania Infrastructure Technology Alliance. \$33,000, with L.V. Snyder.

Memberships

2010-: COIN-OR Foundation

2008-: Mathematical Optimization Society

Software

COUENNE: A Branch&Bound solver for non-convex, Mixed Integer Nonlinear problems, based on Linearization techniques and released within the Coin-OR framework.

CRÈME: Parallel randomized thermal relaxation method. Tested on instances with up to 18 million constraints on a BlueGene/L supercomputer. Released within the Coin-OR framework.