

Francesco Bertoli

Personal

Born: June 20th, 1987 in Milano, Italy.
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Current Position

PhD student in Computer Science at ANU and Data61 (CSIRO)

Supervisor: Dr. Philip Kilby.
Start date: March 2014.
Expected end: October 2017.

Education

2011-13 [Master program in Mathematics - University of Milan.](#)
Final score: 110/110 cum laude
Thesis: *The influence of Topology in Consensus Problems*
Advisor: Dr. Giacomo Aletti

2012 [Erasmus student at the University of Amsterdam.](#)

2006-10 [Bachelor program in Mathematics - University of Milan.](#)
Final score: 110/110 cum laude
Thesis: *Trasformazioni Cremoniane Tra Piani Proiettivi* (in Italian)
Advisor: Dr. Antonio Lanteri

Scientific Interest

- Discrete optimization problems (in particular transportation related problems).
- Application of Operation Research, specifically mathematical programming based techniques, to real-world problems.

Publications

- Adaptively blocked particle filtering with spatial smoothing in large-scale dynamic random fields. (with A. Bishop). *Available online at <http://arxiv.org/abs/1407.0220>*
- Reducing the bias in blocked particle filtering for high-dimensional systems (with A. Bishop). *Available online at <http://arxiv.org/abs/1407.0220>*
- An error analysis in the limit approximation in path integral control (with A. Bishop). *Submitted.*
- Nonlinear stochastic receding horizon control: stability, robustness and Monte Carlo methods for control approximation (with A. Bishop). *International Journal of Control*. *Url: <http://dx.doi.org/10.1080/00207179.2017.1349340>*
- Monte Carlo methods for controller approximation and stabilization in nonlinear stochastic optimal control (with A. Bishop). *17th IFAC Symposium on System Identification (Invited Paper)*
- A general and scalable CG approach to fleet design for rich VRPs (with P. Kilby and T. Urli). *Submitted to Journal of Heuristics.*
- A column generation-based approach to fleet design problems mixing owned and hired vehicles. (with P. Kilby and T. Urli). *Submitted to International Transactions in Operational Research.*
- Vehicle routing problems with split deliveries over days. (with P. Kilby and T. Urli). *In Journal of Vehicle Routing Algorithms.*

Talks and Conferences

Nov 2014 [Radboud University - Nijmegen, The Netherlands](#)

- “Stability and convergence properties of Monte Carlo methods for nonlinear stochastic optimal control.”*
- Dic 2014 [Oxford University - Oxford, United Kingdom](#)
“Monte Carlo methods for nonlinear stochastic optimal control - reducing the bias in blocked particle filtering for high-dimensional systems”
- Feb 2015 [Defence Science and Technology Organization - Adelaide, Australia](#)
“Monte Carlo methods for nonlinear stochastic optimal control”
- Oct 2015 [17th IFAC Symposium on System Identification – Beijing, China](#)
“Monte Carlo methods for controller approximation and stabilization in nonlinear stochastic optimal control” (Invited Session)
- Jun 2016 [VeRoLog - Nantes, France](#)
“A general and scalable fleet design approach for rich vehicle routing problems”
- Jun 2016 [University of Bologna - Bologna, Italy](#)
“A branch-and-price approach to fleet design over long planning horizons for rich vehicle routing problems”
- Jun 2016 [University of Milan - Milan, Italy](#)
“A branch-and-price approach to fleet design over long planning horizons for rich vehicle routing problem”
- Jul 2016 [University of Brescia - Brescia, Italy](#)
“A branch-and-price approach to fleet design over long planning horizons for rich vehicle routing problem”
- Nov 2016 [24th National Conference of ASOR - Canberra, Australia](#)
“A column generation approach to fleet design for rich vehicle routing problem”
- Sep 2017 [47th Annual Meeting of Airo - Sorrento, Italy.](#)
“Including complex operational constraints in territory design for vehicle routing problems”.

Patent

(Pending) Transporting goods using a fleet of vehicles (with P. Kilby and T. Urli, owned by Data61 – CSIRO)

Schools and Workshops Attended

Nov 2015 [Workshop on Nonlinear Control.](#)
 Sydney. Australia

Feb 2016 [NICTA Optimization Summer School.](#)
 Kioloa. Australia

Work Experience

2017 [Hivery](#)
 Data Scientist Intern. Sydney, Australia

Grants and Scholarships

2014 ANU and NICTA PhD International Scholarship

2014 ANU and NICTA PhD Supplementary Scholarship

2012 6-months scholarship for student mobility

2006-2009 University of Milan refund for most valuable students

Other

Languages Italian: Native Speaker
 English: Fluent (TOEFL Certificate).

Programming Languages: Matlab, Python, C++

Optimization Software: MiniZinc, Gurobi

28 June 2017