

Curriculum Vitae



Dr. Claudio Roncoli

Personal information

Work address	Dynamic Systems & Simulation Laboratory Technical University of Crete 73100 – Chania – Crete, Greece
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Date of birth	30/10/1984
Nationality	Italian

Professional information

Current position	Postdoctoral Research Associate at Technical University of Crete, Greece.
Research interests	<ul style="list-style-type: none">- Real-time traffic management of motorway systems in presence of automated and connected vehicles- Optimisation and control of traffic systems- Macroscopic and microscopic traffic flow modelling- Static and discrete-time transport systems modelling, optimisation, and control- Real-time monitoring of large-scale transportation systems

Education

01/2010 – 04/2013	Doctor of Philosophy in System monitoring and environmental risk management <i>University of Genova, Italy</i> PhD thesis: Dangerous Goods Transport management: methods and models to enhance the safety of transport by road
09/2006 – 07/2009	Master degree in Computer Engineering - Production and Services Management <i>University of Genova, Italy</i> MSc Thesis: Design and development of a decision support system for inventory routing problems. An application to petrol products transportation
09/2003 – 09/2006	Bachelor degree in Computer Engineering <i>University of Genova, Italy</i> Thesis: Application of Web Services, TCP/IP, and UDP/IP in a transmission system from moving vehicles to a control centre and performance analysis

Professional positions

05/2013 – current	Postdoctoral Research Associate at Dynamic Systems & Simulation Laboratory <i>Technical University of Crete, Greece</i>
01/2011 – 07/2011 and 02/2012 – 06/2012	Visiting Research Assistant at Centre for Transport Studies <i>Imperial College London, UK</i>
01/2007 – 04/2013	Research Assistant/Associate at Industrial Automation Lab / DELAB <i>University of Genova, Italy</i>

Participation in Research Projects

05/2013 – current	TRAMAN21 “Traffic Management for the 21st Century” <i>Funded by the European Commission, through an ERC Advanced Grant</i>
04/2009 – 03/2012	SECTRAM “Sécurité du transport de marchandises - Sicurezza nel trasporto merci” (Safety for the transport of goods) <i>Funded by the European Commission under ALCOTRA (2007-2013)</i>
01/2007 – 02/2008	Da.Go.T. “European Reference Framework on Dangerous Goods Transport” <i>Funded by the European Commission under the Sixth Framework Programme</i>
01/2007 – 04/2013	TIP “Transport Integrated Platform” <i>Funded by Eni R&M – Secondary Logistics</i>

Miscellaneous

Event organiser and member of Technical Program Committees

- Principal organiser of the 1st Symposium on “Management of Future motorway and urban Traffic Systems” (<http://mfts2016.tuc.gr>).
- Invited session co-organiser on “Optimal control of motorways” for the 20th Conference of the International Federation of Operational Research Societies (IFORS 2014).
- Special session co-organiser on “Design, modelling, and control of autonomous and cooperative vehicle systems” for the 18th Euro Working Group on Transportation Meeting (EWGT 2015).
- Special session co-organiser on “Advances in motorway traffic control” for the 18th IEEE International Conferences on Intelligent Transportation Systems (ITSC 2015).
- Invited session co-organiser on “Management and control of motorway traffic systems” for the 14th IFAC Symposium on Control in Transportation Systems (CTS 2016).
- Special session co-organiser on “Recent advances in motorway traffic control” for the 19th IEEE International Conferences on Intelligent Transportation Systems (ITSC 2016).
- Open invited track co-organiser on “Traffic modeling, estimation and control” for the 20th World Congress of the International Federation of Automatic Control (IFAC 2017).
- Member of the Scientific Committee for the 19th EURO Working Group on Transportation Meeting (EWGT 2016).
- Member of the Scientific Committee of the European Association for Research in Transportation (hEART).
- Member of the International Program Committee for the 1st and 2nd International Conferences on Vehicle Technology and Intelligent Transport Systems (VEHITS 2015 – 2016 – 2017).
- Member of the Technical Program Committee for the 7th International Conference on System of Systems (IEEE SoSE 2012).

Editor and reviewer for international journals

- Principal organiser and Guest Editor of the Special Issue on “Management of Future Motorway and Urban Traffic Systems”, within Transportation Research Part C: Emerging Technologies
- Transportation Research Part C: Emerging Technologies
- IEEE Transactions on Intelligent Transportation Systems
- Transportation Science
- IEEE Intelligent Transportation Systems Magazine
- IEEE Control Systems Magazine
- IEEE Transactions on Control Systems Technology
- International Journal of Robust and Nonlinear Control
- IEEE Systems Journal
- Journal of Intelligent Transportation Systems: Technology, Planning, and Operations
- IET Intelligent Transport Systems
- International Journal of Sustainable Transportation
- Transport Policy
- Physica A
- Advances in Mechanical Engineering

Editor and reviewer for conferences	<ul style="list-style-type: none"> - Associate Editor for the IEEE International Conferences on Intelligent Transportation Systems (ITSC) - Transportation Research Board (TRB) Annual Meetings - IEEE Conferences on Decision and Control (CDC) - Symposia of the European Association for Research in Transportation (hEART) - EURO Working Group on Transportation Meetings (EWGT) - IFAC Symposium on Control in Transportation Systems (CTS) - IEEE Intelligent Vehicles Symposium (IV) - European Control Conferences (ECC) - International Conferences on Vehicle Technology and Intelligent Transport Systems (VEHITS) - IEEE International Conferences on System of Systems (SoSE) - International Conferences on System Theory, Control and Computing (ICSTCC)
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Student co-supervision	<ul style="list-style-type: none"> - M.H. Laarabi, PhD student; University of Genova, Italy; “Analysis of agent-based simulation tools for fleet management”; led so far to 1 conference paper. - G.R. Iordanidou, PhD student; Technical University of Crete, Greece; “Feedback-based traffic flow control strategies”; led so far to 2 journal and 2 conference papers. - C. Pasquale, PhD student; University of Genova, Italy; “Optimal control of multi-class freeway traffic to reduce congestion and emissions”; led so far to 1 journal and 1 conference papers. - M. Kontorinaki, PhD student; Technical University of Crete, Greece; “Modelling and real data validation of capacity drop in first-order traffic flow models”; led so far to 1 journal and 1 conference papers. - M. Fountoulakis, MSc student; Technical University of Crete, Greece; “Microscopic simulation testing of a motorway traffic state estimation scheme for a connected vehicles environment”; led so far to 1 journal and 1 conference papers. - G. Perraki, MSc student; Technical University of Crete, Greece; “Evaluation of a model predictive control (MPC) strategy on a calibrated microscopic multilane traffic model. - A. Georgantas, BSc student; Technical University of Crete, Greece; “Optimisation of lane-changing strategies for automated vehicles”. - S. Papadopoulou, MSc student; Technical University of Crete, Greece; “Definition and implementation of a multi-lane traffic state estimation algorithm with mixed connected and conventional vehicles”.
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Language skills

Italian	Mother tongue
English	Fluently
French, Greek	Basic knowledge

Publication list

International journals

1. Roncoli, C., Bersani, C., Sacile, R., 2013, "A risk-based system of systems approach to control the transport flows of Dangerous Goods by road", *IEEE Systems Journal*, vol. 7(4), pp 561-570.
2. Iordanidou, G.R., Papamichail, I., Roncoli, C., Papageorgiou, M., 2015, "Feedback-based mainstream traffic flow control for multiple bottlenecks on motorways", *IEEE Transactions on Intelligent Transportation Systems*, vol. 16(2), pp. 610-621.
3. Pasquale, C., Papamichail, I., Roncoli, C., Sacone, S., Siri, S., Papageorgiou, M., 2015, "Two-class freeway traffic regulation to reduce congestion and emissions via nonlinear optimal control", *Transportation Research Part C: Emerging Technologies*, vol. 55, pp. 85-99.
4. Roncoli, C., Papageorgiou, M., Papamichail, I., 2015, "Traffic flow optimisation in presence of Vehicle Automation and Communication Systems - Part I: A first-order multi-lane model for motorway traffic", *Transportation Research Part C: Emerging Technologies*, vol. 57, pp. 241-259.
5. Roncoli, C., Papageorgiou, M., Papamichail, I., 2015, "Traffic flow optimisation in presence of Vehicle Automation and Communication Systems - Part II: Optimal control for multi-lane motorways", *Transportation Research Part C: Emerging Technologies*, vol. 57, pp. 260-275.
6. Roncoli, C., Papamichail, I., Papageorgiou, M., 2016, "Hierarchical model predictive control for multi-lane motorways in presence of Vehicle Automation and Communication Systems", *Transportation Research Part C: Emerging Technologies*, vol.62, pp. 117-132.
7. Bekiaris-Liberis, N., Roncoli, C., Papageorgiou, M., 2016, "Highway traffic state estimation with mixed connected and conventional vehicles", accepted in *IEEE Transactions on Intelligent Transportation Systems*.
8. Roncoli, C., Bekiaris-Liberis, N., Papageorgiou, M., 2016, "Motorway traffic state estimation using speed measurements: Case studies on NGSIM data and motorway A20 in the Netherlands", accepted in *Transportation Research Record*.
9. Kontorinaki, M., Spiliopoulou, A., Roncoli, C., Papageorgiou, M., "First-order traffic flow models incorporating capacity drop: Overview and real-data validation", submitted to *Transportation Research Part B Methodological*.
10. Iordanidou, G.R., Papamichail, I., Roncoli, C., Papageorgiou, M., "Feedback-based integrated motorway traffic flow control with delay balancing", submitted to *IEEE Transactions on Intelligent Transportation Systems*.
11. Fountoulakis, M., Bekiaris-Liberis, N., Roncoli, C., Papamichail, I., Papageorgiou, M., "Highway traffic state estimation with mixed connected and conventional vehicles: Microscopic simulation-based testing", submitted to *Transportation Research Part C: Emerging Technologies*.

12. Han, Y., Hegyi, A., Yuan, Y., Hoogendoorn, S., Papageorgiou, M., Roncoli, C., "Resolving freeway jam waves by discrete first-order model-based predictive control of variable speed limits", submitted to *Transportation Research Part C: Emerging Technologies*.
13. Roncoli, C., Bekiaris-Liberis, N., Papageorgiou, M., "Lane-changing feedback control for efficient lane assignment at motorway bottlenecks", submitted to *Transportation Research Record*.

Conference proceedings

1. Roncoli, C., Bersani, C., Sacile, R., Minciardi, R., "Optimal traffic flow assignment for planned deliveries in Dangerous Good Transportation", *Proceedings of the 2011 IEEE International Systems Conference (SysCon 2011)*, pp. 292-297, Montreal, QC, Canada, 4-7 April 2011.
2. Roncoli, C., Bell, M.G.H., Kanturska, U., Haji Hosseinloo, S., "Hypertours: risk averse distribution of hazardous materials", *Global Supply Chain Security conference (SCS 2011)*, London, UK, 7-8 July 2011.
3. Roncoli, C., Bersani, C., Sacile, R., "A decentralised control model for the risk-based management of Dangerous Good Transport flows on road", *Proceedings of the IEEE International Systems Conference (SysCon 2012)*, pp. 225-229, Vancouver, BC, Canada, 19-22 March 2012.
4. Benza, M., Bersani, C., D'Inca, M., Roncoli, C., Trotta, A., Pizzorni, D., Briata, S., Ridolfi, R., "Intelligent Transport Systems (ITS) applications on Dangerous Good Transport on road in Italy", *Proceedings of the 7th International Conference on System of Systems Engineering (SOSE 2012)*, pp. 223-228, Genova, Italy, 16-19 July 2012.
5. Bersani, C., Roncoli C., "Real-time risk definition in the transport of dangerous goods by road", *Proceedings of the 7th International Conference on System of Systems Engineering (SOSE 2012)*, pp. 131-136, Genova, Italy, 16-19 July 2012.
6. Roncoli, C., Bell, M.G.H., Sacile, R., "Operational and real-time team decision problems in the risk-averse transportation of dangerous goods by road", *Proceedings of the 7th International Conference on System of Systems Engineering (SOSE 2012)*, pp. 209-213, Genova, Italy, 16-19 July 2012.
7. Roncoli, C., Bersani, C., Sacile, R., "Distributed control of dangerous goods flows", *Proceedings of the 9th International Conference on Informatics in Control, Automation and Robotics (ICINCO 2012)*, pp. 325-328, Rome, Italy, 28-31 July 2012.
8. Laarabi, M.H., Roncoli, C., Sacile, R., Boulmakouly, A., and Garbolino, E., "An overview of a multi-agent-based simulation system for dynamic management of risk related to Dangerous Goods Transport", *Proceedings of the IEEE International Systems Conference (SysCon 2013)*, pp. 830-835, Orlando, FL, USA, 15-18 April 2013.

9. Roncoli, C., Papageorgiou, M., Papamichail, I., "Motorway flow optimisation in presence of Vehicle Automation and Communication Systems", *Proceedings of the 1st International Conference on Engineering and Applied Science Optimization (OPT-i)*, pp. 519-529, Kos, Greece, 4-6 June 2014.
10. Roncoli, C., Papageorgiou, M., Papamichail, I., "Optimal control for multi-lane motorways in presence of Vehicle Automation and Communication Systems", *Proceedings of the 19th World Congress of the International Federation of Automatic Control (IFAC 2014)*, pp. 4178-4183, Cape Town, South Africa, 24-29 August 2014.
11. Iordanidou, G.R., Papamichail, I., Roncoli, C., Papageorgiou, M., "A feedback-based approach for mainstream traffic flow control of multiple bottlenecks on motorways", *Proceedings of the 19th IFAC World Congress (IFAC 2014)*, pp. 11344-11349, Cape Town, South Africa, 24-29 August 2014.
12. Roncoli, C., Papamichail, I., Papageorgiou, M., "Model predictive control for multi-lane motorways in presence of VACS", *17th International IEEE Conference on Intelligent Transportation Systems (ITSC 2014)*, pp. 501-507 Qingdao, China, 8-11 October 2014.
13. Roncoli, C., Papageorgiou, M., Papamichail, I., "An optimisation-oriented first-order multi-lane model for motorway traffic", *94th Annual Meeting of the Transportation Research Board (TRB)*, paper n. 15-2905, Washington, USA, 11-15 January 2015.
14. Roncoli, C., Papamichail, I., Papageorgiou, M., "Model predictive control for motorways in presence of mixed manual and VACS-equipped vehicles", *18th Meeting of the EURO Working Group on Transportation (EWGT 2015)*, Delft, the Netherlands, 14-16 July 2015.
15. Pasquale, C., Papamichail, I., Roncoli, C., Sacone, S., Siri, S., Papageorgiou, M., "A nonlinear optimal control approach for two-class freeway traffic regulation to reduce congestion and emissions", *14th annual European Control Conference (ECC 2015)*, pp. 2651-2656, Linz, Austria, 15-17 July 2015.
16. Bekiaris-Liberis, N., Roncoli, C., Papageorgiou, M., "Highway traffic state estimation with mixed connected and conventional vehicles using speed measurements", *18th International IEEE Conference on Intelligent Transportation Systems (ITSC 2015)*, pp. 2806-2811, Las Palmas de Gran Canaria, Spain, 15-18 September 2015.
17. Kontorinaki, M., Spiliopoulou, A., Roncoli, C., Papageorgiou, M., "Capacity drop in first-order traffic flow models: Overview and real-data validation", *95th Annual Meeting of the Transportation Research Board (TRB)*, paper n. 16-3541, Washington, USA, 10-14 January 2016.
18. Roncoli, C., Bekiaris-Liberis, N., Papageorgiou, M., "Motorway traffic state estimation using speed measurements: Case studies on NGSIM data and motorway A20 in the Netherlands", *95th Annual Meeting of the Transportation Research Board (TRB)*, paper n. 16-2071, Washington, USA, 10-14 January 2016.

19. Bekiaris-Liberis, N., Roncoli, C., Papageorgiou, M., "Highway traffic state estimation with mixed connected and conventional vehicles", *14th IFAC Symposium on Control in Transportation Systems (CTS 2016)*, pp. 309-314, Istanbul, Turkey, 18-20 May 2016.
20. Iordanidou, G.R., Roncoli, C., Papamichail, I., Papageorgiou, M., "Feedback-based integrated motorway traffic flow control with delay balancing", *14th IFAC Symposium on Control in Transportation Systems (CTS 2016)*, pp. 315-322, Istanbul, Turkey, 18-20 May 2016.
21. Bekiaris-Liberis, N., Roncoli, C., Papageorgiou, M., "Predictor-based adaptive cruise control design", accepted for the *IEEE Multi-Conference on Systems and Control (MSC 2016)*.
22. Fountoulakis, M., Bekiaris-Liberis, N., Roncoli, C., Papamichail, I., Papageorgiou, M., "Highway traffic state estimation with mixed connected and conventional vehicles: Microscopic simulation-based testing", submitted to the *19th International IEEE Conference on Intelligent Transportation Systems (ITSC 2016)*.
23. Roncoli, C., Bekiaris-Liberis, N., Papageorgiou, M., "Optimal lane-changing control at motorway bottlenecks", submitted to the *19th International IEEE Conference on Intelligent Transportation Systems (ITSC 2016)*.
24. Roncoli, C., Bekiaris-Liberis, N., Papageorgiou, M., "Lane-changing feedback control for efficient lane assignment at motorway bottlenecks", submitted to *96th Annual Meeting of the Transportation Research Board (TRB)*.

Book chapters

1. Benza, M., Bersani, C., D'Incà, M., Roncoli C., Sacile, R., Tomasoni, A.M., 2012, "Technical and functional standards to provide a high quality service for Dangerous Good Transport on road"; In: Garbolino, E., Tkiouat, M., Yankevich, N., Lachtar, D., *Transport of Dangerous Goods: methods and tools for reducing the risks of accidents and terrorist attack, NATO Science for Peace and Security series C: Environmental Security*. Springer Netherlands.
2. Roncoli, C., Papageorgiou, M., Papamichail, I., 2015, "Motorway traffic flow optimisation in presence of Vehicle Automation and Communication Systems"; In: Lagaros, N.D., Papadrakakis, M., *Engineering and Applied Sciences Optimization: Volume 1, Dedicated to the memory of Professor M.G. Karlaftis*. Springer Switzerland.
3. Papageorgiou, M., Diakaki, C., Nikolos, I., Ntousakis, I., Papamichail, I., Roncoli, C., 2015, "Freeway traffic management in presence of Vehicle Automation and Communication Systems"; In: Meyer, G., Beiker, S., *Road Vehicle Automation 2*. Springer-Verlag.

Scientific presentations
(presented by *)

1. Benza, M.*, D'Incà, M.*, Roncoli, C.*, "DGT information system architecture", *Risk prevention for environment and human society against Dangerous Goods Transport accidents and malicious intents: methods and tools*; NATO advanced training course, Paris, France, 5-9 July 2010.
2. Roncoli, C.*, Papageorgiou, M., Papamichail, I., "Motorway traffic control in presence of Vehicle Automation and Communication Systems", *TRAMAN21 Workshop 2013*, Chania, Greece, 1 November 2013.
3. Roncoli, C.*, Papageorgiou, M., Papamichail, I., "Optimal control for multi-lane motorways in presence of Vehicle Automation and Communication Systems", *20th conference of the International Federation of Operational Research Societies (IFORS)*, Barcelona, Spain, 13-18 July 2014.
4. Papageorgiou, M.*, Diakaki, C., Iordanidou, G.R., Karafyllis, I., Nikolos, I., Ntousakis, I.A., Papamichail, I., Roncoli, C.*, "Traffic management in presence of Vehicle Automation and Communication Systems: the project TRAMAN21", *94th Annual Meeting of the Transportation Research Board (TRB)*, Washington, USA, 11-15 January 2015.
5. Roncoli, C.*, "Network-wide motorway traffic control in presence of Vehicle Automation and Communication Systems", *IPAM Workshop on Traffic Control, Part of the long program "New directions in mathematical approaches for traffic flow management"*, University of California Los Angeles, Los Angeles, USA, 26-30 October 2015.
6. Roncoli, C.*, "Traffic management in the era of Vehicle Automation and Communications Systems (VACS) and Smart Infrastructure", *Invited lecture*, University of Glasgow, UK, 9 December 2015.
7. Roncoli, C.*, "Traffic management applications based on linear systems", *Guest lecture for the course on "Linear Systems"*, Technical University of Crete, Greece, 17 December 2015.
8. Roncoli, C.*, "Introduction to Intelligent Transport Systems", *Invited lecture*, Aalto University, Finland, 24 May 2016.
9. Roncoli, C. *, Bekiaris-Liberis, N., Papageorgiou, M., "Optimal lane-changing control at bottleneck areas", *1st Symposium on Management of Future motorway and urban Traffic Systems*, Chania, Greece, 2-3 June 2016.

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