

Curriculum Vitae

Personal information

First name(s) / Surname(s) **Andrea Orlandini**

Address(es) Istituto di Scienze e Tecnologie della Cognizione, Consiglio Nazionale delle Ricerche (ISTC-CNR), Via San Martino della Battaglia 44, 00185, Roma, Italy

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E-mail andrea.orlandini@istc.cnr.it

Nationality Italian

Date of birth 11 September 1973

Gender Male

Education and training

Dates November 2002 to April 2006

Title of qualification awarded Phd in Computer Science and Automation

Principal subjects/occupational skills covered **Logic-based approach to Automated Planning and Robot Control for Rescue Scenarios**
Studying model-based control systems for cognitive robots, design and implementation of control system for rescue robots based on programming language, participation in ROBOCUP Rescue Competition (3rd Prize Award in Real Robot Rescue competition 2004). Investigation of Planning as Satisfiability with Control Knowledge using LTL model search algorithms.

Name and type of organisation providing education and training Dipartimento di Informatica e Automazione, Università degli Studi ROMA TRE

Dates October 1993 to March 2002

Title of qualification awarded Master Thesis in Computer Science Engineering (Vecchio Ordinamento)

Principal subjects/occupational skills covered **Automated Planning as Model Search in Linear Temporal Logic**

Name and type of organisation providing education and training Dipartimento di Informatica e Automazione, Università degli Studi ROMA TRE

Level in national classification 104/110

Occupational field

Work experience

Dates From November 2019

Occupation or position held Researcher (Permanent)

Main activities and responsibilities Research in Artificial Intelligence & Robotics in EU/National projects on Assistive Robotics, Human-Robot Collaboration in Manufacturing and AI in Cultural Heritage. PI for ISTC in PNRR Fit4MedRob project (MUR PNRR – PNC0000007 D.D. 931 6/6/2022), PI for ISTC in SHAREWORK project (H2020 – Factories of the Future GA 820807). PI for ISTC in Hermes project (Gruppi di Ricerca - Regione Lazio - G04014). Involved in PON SI-ROBOTICS for Assistive Robotics for Elderly people (MUR ARS01_01120). Involved in PON FOCAAL - FOG Computing in Ambient Assisted Living for Assistive Robotics for Elderly people (MISE F/180017/01-05/X43). Involved in SmartSatCare project, funded by ESA for developing telemedicine solutions for elderly people in response to COVID19. Administrative Manager and Technical Coordinator for PON IR SHINE - Strengthening the E-RIHS Italian Nodes (MUR PIR01-00016). Member of the Scientific Committee of ISTC-

	CNR. Supervisor of Bachelor/Master students at Roma TRE University. External advisor of PhD student in Grenoble University. Since September 2022, Contract Professor in “Automated Planning” course at Roma TRE Univ. (Master Computer Science Engineering). Since June 2023, Deputy Coordinator of euRobotics Topic Group on Artificial Intelligence and Cognition in Robotics.
Name and address of employer	Istituto di Scienze e Tecnologie della Cognizione, Consiglio Nazionale delle Ricerche
Type of business or sector	Research and Development
Dates	From April 2015 to October 2019
Occupation or position held	Technician (Permanent)
Main activities and responsibilities	Research activities in Artificial Intelligence and Robotics in EU and National projects on Assistive Robotics and Human-Robot Collaboration in Manufacturing. Involved in FourByThree project (H2020 Factories of the Future 637095). Involved in AAL projects for developing Assistive Robotics and ICT solutions for Elderly people (TV-AssistDem, Maestro). Scientific and Technical support for PON IR SHINE - Strengthening the E-RIHS Italian Nodes (MUR PIR01-00016). Member of the Scientific Committee of ISTC-CNR. Supervisor of Bachelor and Master students at Roma TRE University.
Name and address of employer	Istituto di Scienze e Tecnologie della Cognizione, Consiglio Nazionale delle Ricerche
Type of business or sector	Research and Development
Dates	From September 2012 to March 2015
Occupation or position held	Researcher (Fixed Term)
Main activities and responsibilities	Research activities in Artificial Intelligence and Robotics in EU and National projects on Assistive Robotics. WP Leader (User requirements and Architecture Design) in GiraffPlus project (FP7 ICT GA 288173) for developing an ecological ICT / Robotics approach to healthcare assistance for elderly people. Active role in disseminating the “Nonna Lea and Mr Robin” Story (awarded as Annual Digital Story by EU for 2014) and covered by worldwide news journals, TV and media. Member of the Action Group on “Development of interoperable independent living solutions” of the European Innovation Partnership on Active and Healthy Ageing promoted by EU commission. Involved in AAL EU-funded projects for developing Assistive Robotics and ICT solutions for Elderly people (MAESTRO, SPONSOR). Supervisor of several Bachelor and Master students at Roma TRE University.
Name and address of employer	Istituto di Scienze e Tecnologie della Cognizione, Consiglio Nazionale delle Ricerche
Type of business or sector	Research and Development
Dates	From September 2010 to August 2012
Occupation or position held	Research Fellow
Main activities and responsibilities	Research activities in Artificial Intelligence and Robotics, in International and National projects on Space Robotics and Flexible/Reconfigurable Manufacturing Systems. WP Leader in GECKO project (MUR Progetto Bandiera Fabbrica del Futuro) for developing an AI-based solutions for Manufacturing components. Involved in GOAC project (ESA Tender Contract TRP/T313/006MM) for developing a goal oriented autonomous control system for ESA ExoMARS rover. Involved in AAL EU-funded project for developing Assistive Telepresence Robotics for Elderly people (ExCITE). Supervisor of several Bachelor and Master students at Roma TRE University.
Name and address of employer	Istituto di Tecnologie Industriali e per l’Automazione, Consiglio Nazionale delle Ricerche.
Type of business or sector	Research and Development
Dates	From March 2010 to August 2010
Occupation or position held	Research Fellow

Main activities and responsibilities | Research activities in Artificial Intelligence and Formal Methods, in International and National projects on robust autonomous systems for Space applications. Studying model checking and controller synthesis approach to develop reliable AI-based systems. Involved in EU-funded project for developing robust autonomous systems to control facilities on ISS (FP7 ULISSE GA 218815). Supervisor of several Bachelor and Master students at Roma TRE University.

Name and address of employer | Istituto di Scienze e Tecnologie della Cognizione, Consiglio Nazionale delle Ricerche

Type of business or sector | Research and Development

Dates | From March 2007 to February 2010

Occupation or position held | Research Fellow

Main activities and responsibilities | Research activities in Artificial Intelligence and Formal Methods. Studying specification languages for automated planning systems, model checking and controller synthesis approach to develop reliable AI-based systems. Involved in a PRIN project about Constraint Reasoning. Supervisor of several Bachelor and Master students at Roma TRE University.

Name and address of employer | Dipartimento di Informatica e Automazione, Università degli Studi ROMA TRE

Type of business or sector | Research and Development

Dates | From May 2006 to November 2006

Occupation or position held | Post Doc

Main activities and responsibilities | Research activities in Artificial Intelligence and Space Applications. Involved in a French project on robust autonomous systems for Space applications. Studying specification languages based on Linear Temporal Logic for model based control systems.

Name and address of employer | Laboratoire d'Analyse et d'Architecture des Systemes del Centre National de la Recherche Scientifique Francese (LAAS-CNRS)

Type of business or sector | Research and Development

Personal skills and competences

Mother tongue(s) | **Italian**

Other language(s)

Self-assessment

European level ()*

English

French

Understanding		Speaking		Writing
Listening	Reading	Spoken interaction	Spoken production	
C2	C2	C2	C2	C2
B1	B1	B1	B1	B1

(*) [Common European Framework of Reference for Languages](#)

Social skills and competences | Public Speaking, Scientific Writing. Storytelling. Empathy and listening skills. Synthesis skills.

Organisational skills and competences | Project Management, Problem solving, Process planning, Stress management, Financial planning, Task priority and deadline management, Decision Making.

Technical skills and competences | Expert in AI and Robotics, Socially Assistive Robotics and Collaborative Robots. A long experience in studying, designing and developing ICT systems for healthcare assistance for elderly people; Keen in formal methods and reliable software design and development.

Additional information

Andrea acts/acted as “Chair” of Conferences, Special Tracks, Workshops and other International and National scientific events in the field of AI and Robotics on a regular basis. He is a regular member of Program Committee of the most relevant conferences in AI. He is reviewer for many important scientific journals about AI and Robotics. Worth to mention that Andrea was a Program Chair of the 21st International Conference of the Italian Association for AI (AIxIA 2022). Andrea was Conference Chair of the International Conference on Automated Planning and Scheduling (ICAPS) in Prague 2023 and he is General Chair of the 22nd International Conference of the Italian Association for AI (AIxIA 2023) to be held in Rome in November 2023. A complete list of research activities can be found on the following web page: <http://www.istc.cnr.it/people/andrea-orlandini>

Teaching activities

[2022-] Andrea was Contract Professor for the course: “Automated Planning” of the Master’s Degree of the Engineering Department at the University of Roma TRE .

[2013-2021] Andrea has carried out supplementary teaching activities for the courses: "Functional Programming" and "Logic for Computer Science" of the Didactic College of Computer Science Engineering at the University of Roma TRE. An annual course has been provided for each academic year.

[2002 – 2008] Andrea has carried out integrative and practical teaching activities in the Computer Science course of the Degree Course in Motor Sciences at the University Institute of Motor Sciences (IUSM) of Rome. An annual course has been provided for each academic year.

[2002 – 2006] Andrea has carried out integrative and practical teaching activities within the course of the Algorithms and Data Structures of the College Computer Science Engineering Teaching at the University of Studies ROMA TRE. A six-month course was provided for each academic year.

[2003 – 2010] Andrea has carried out integrative and practical teaching activities within the course of the Logics and Informatics of the College Computer Engineering Teaching at the University of Studies ROMA TRE. A six-month course was provided for each academic year.

[2004 – 2007] Andrea has carried out integrative and practical teaching activities within the course of the Artificial Intelligence of the College Computer Engineering Teaching at the University of Studies ROMA TRE. A six-month course was provided for each academic year.

[2005 – 2007] Andrea has carried out teaching activities at the SSIS-Lazio (L 143/2004 - secondary school) as part of the courses Programming in C, Laboratory of Programming in C, Operating Systems and Operating Systems Laboratory. Four quarterly courses were delivered for each academic year.

[2004 – 2005] Andrea carried out teaching activities within the course of Agents intelligent, automatic reasoning and planning of the Master on Complex Systems for Sustainable Underground Mobility at the Department of Computer Science and Automation University of Rome TRE. A quarterly course was provided for the academic year.

Student advisor activities

Andrea is/was supervisor or external advisor of several PhD students:

- Oleksandr Firsov, Ecole Doctorale Mathématiques, Sciences et Technologie de l’Information, Informatique, Grenoble University, France. Advisor Prof Damien Pellier and Humbert Fiorino.

Application of automated planning techniques in the scheduling and management of industrial processes

- Alessandro Umbrico, (Ciclo XXIX) Dipartimento di Ingegneria dell'Università degli Studi Roma TRE. Advisor Prof.ssa Marta Cialdea Mayer.
Timeline-based planning and execution with uncertainty.
- Nicola Gigante, (Ciclo XXXI) Dipartimento di Informatica dell'Università di Udine, Italia. Advisor Prof. Angelo Montanari. *Expressivity and Complexity of timeline-based planning.*
- Pablo Munoz, Dipartimento di Automatica dell'Università di Alcalá, Spagna. Advisor Prof.ssa Maria Dolores Rodriguez Moreno. *Methodologies and Tools for Autonomy in Space Robotics Mission.* (partially funded by European Space Agency).

Andrea was (co-)advisor of many Bachelor/Master Thesis (L. 341/90 and D.M. 509/99) on Artificial Intelligence and Robotics. Here a list of students supervised at Università degli Studi ROMA TRE:

- A.A. 2022/2023 Study and development of a Safety-aware multi-objective planning framework for Human-Robot Collaboration in Manufacturing. Alex Bonini (Laurea Triennale D.M. 509/99). Advisor Prof.ssa Marta Cialdea Mayer;
- A.A. 2022/2023 Progettazione di un Sistema di Controllo per Robot Mobili ed Implementazione di un Prototipo. Marcello Tascioni. (Laurea Triennale D.M. 509/99). Advisor Prof.ssa Marta Cialdea Mayer;
- A.A. 2021/2022 Realizzazione di un sistema di Dialogue Management per la Somministrazione di Esercizi Cognitivi. Antonio Della Porta. (Laurea Triennale D.M. 509/99). Advisor Prof.ssa Marta Cialdea Mayer;
- A.A. 2020/2021 Una rete neurale per il riconoscimento di attività e abitudini di utenti nel contesto dell'assistenza robotica. Matteo Pantaleoni. (Laurea Magistrale D.M. 509/99). Advisor Prof.ssa Marta Cialdea Mayer;
- A.A. 2018/2019 Progettazione di un'applicazione di Planning & Scheduling per la robotica collaborativa Elisa Foderaro. (Laurea Triennale D.M. 509/99). Advisor Prof.ssa Marta Cialdea Mayer;
- A.A. 2018/2019 Esecuzione di Piani Temporalmente Flessibili tramite Strategie per Timed Game Automata Annarita Lanzilli. (Laurea Triennale D.M. 509/99). Relatore Prof.ssa Marta Cialdea Mayer;
- A.A. 2016/2017 Un Algoritmo Per La Modellazione In PDDL Di Problemi Di Pianificazione DDL Antonio Furchi'. (Laurea Triennale D.M. 509/99). Relatore Prof.ssa Marta Cialdea Mayer;
- A.A. 2016/2017 Robust Execution Strategies For Flexible Timeline-Based Plans Giorgia Marini. (Laurea Magistrale D.M. 509/99). Relatore Prof.ssa Marta Cialdea Mayer;
- A.A. 2016/2017 Un sistema di Esecuzione di piani temporali in ROS Carlo La Viola. (Laurea Magistrale D.M. 509/99). Relatore Prof.ssa Marta Cialdea Mayer;
- A.A. 2016/2017 Un sistema di Knowledge Engineering per Timeline-based Planning Giulio Bernardi. (Laurea Magistrale D.M. 509/99). Relatore Prof.ssa Marta Cialdea Mayer;
- A.A. 2014/2015 MyGiraff: sistema di interazione uomo-robot tramite gesti e voce Alessandra Sorrentino. (Laurea Triennale D.M.509/99) Relatore Prof.ssa Marta Cialdea Mayer;
- A.A. 2013/14 Gestione e controllo di un robot su piattaforma ROS Manuel Martinelli (Laurea Triennale D.M.509/99) Relatore Prof. Giovanni Ulivi;
- A.A. 2012/13 Kinect: Esercizi per prevenzione cadute Michele D'Antimi (Laurea Triennale D.M.509/99) Relatore Prof.ssa Carla Limongelli;
- A.A. 2012/13 Utilizzo del sensore kinect per analisi di postura ed equilibrio su una piattaforma robotica Andrea Olivieri (Laurea Triennale D.M.509/99) Relatore Prof.ssa Carla Limongelli;
- A.A. 2012/13 Modello CSP per l'allocazione di risorse su progetti pluriennali Alessandro Toli (Laurea Triennale D.M.509/99) Relatore Prof Dario Pacciarelli;

- A.A. 2011/12 EPSL: una libreria per lo sviluppo di sistemi di planning e scheduling basati su timeline Alessandro Umbrico (Laurea Magistrale D.M.509/99) Relatore Prof.ssa Carla Limongelli;
- A.A. 2011/12 Studio sull'utilizzo di dispositivi dotati di motion sensing per il controllo di robot Fabio Basile (Laurea Triennale D.M.509/99) Relatore Prof.ssa Carla Limongelli;
- A.A. 2011/12 Scheduling Dinamico in ambito Manifatturiero Fernando Marinò (Laurea Magistrale D.M.509/99) Relatore Prof. Dario Pacciarelli;
- A.A. 2011/12 Studio su Sistemi di Controllo Autonomi per Piattaforme Robotiche Marco Suriano (Laurea Magistrale D.M.509/99) Relatore Prof.ssa Carla Limongelli;
- A.A. 2010/11 Studio di Sistemi di Pianificazione con Timelines Mauro Meffe (Laurea Magistrale D.M.509/99) Relatore Prof.ssa Carla Limongelli;
- A.A. 2008/09 Studio e comparazione di approcci al problema dello SLAM Giovanni Archetti (Laurea Triennale D.M.509/99) Relatore Prof.ssa Carla Limongelli;
- A.A. 2008/09 Studio e comparazione di tecniche per il path planning Federico Ardito Cosimo (Laurea Triennale D.M.509/99) Relatore Prof.ssa Carla Limongelli;
- A.A. 2007/08 Linguaggio di controllo di sistemi con applicazione alla robotica di salvataggio Andrea Ruocco (Laurea Magistrale D.M.509/99) Relatore Prof.ssa Marta Cialdea;
- A.A. 2006/07 Studio di diagnosi in sistemi complessi mediante l'utilizzo della LTL Fabrizio Papacchini (Laurea Triennale D.M.509/99) Relatore Prof.ssa Marta Cialdea;
- A.A. 2006/07 Analisi e Sviluppo della Logica del Movimento Maria Daniele (Laurea Triennale D.M.509/99) Relatore Prof.ssa Carla Limongelli;
- A.A. 2005/06 Progettazione e implementazione di una interfaccia grafica per sistemi di controllo in scenari di emergenza. Fabrizio Mosconi (L. 341/90) Relatore Prof.ssa Carla Limongelli;
- A.A. 2004/05 Estensione delle funzionalità a di un sistema di controllo ad iniziativa mista per rescue robot. Fabrizio Smith (Laurea Triennale D.M.509/99) Relatore Prof.ssa Carla Limongelli;
- A.A. 2004/05 Sistema di controllo per Robot con iniziativa mista Valentina Ventriglia (Laurea Triennale D.M.509/99) Relatore Prof.ssa Carla Limongelli;

Andrea is member (on a regular basis) of thesis evaluation commissions for both bachelor and master thesis at Dipartimento di Ingegneria dell'Università degli Studi ROMA TRE since 2004.

Since 2022, Andrea is acting as “Esperto Tecnico Scientifico“ evaluating several proposals presented for the MISE call “Fondo per la Crescita Sostenibile”. Since 2021 Andrea is also evaluating for Sviluppumbria SpA proposals presented for Piano di Sviluppo e Coesione FSC at Regione Umbria.

Some Selected Recent Publications:

- M. Faroni, A. Umbrico, M. Beschi, A. Orlandini, A. Cesta and N. Pedrocchi, "Optimal Task and Motion Planning and Execution for Multiagent Systems in Dynamic Environments," in IEEE Transactions on Cybernetics, doi: 10.1109/TCYB.2023.3263380.
- Umbrico, A., De Benedictis, R., Fracasso, F. Cesta, A., Orlandini, A., Cortellessa, G. A Mind-inspired Architecture for Adaptive HRI. Int J of Soc Robotics (2022). <https://doi.org/10.1007/s12369-022-00897-8>
- Sorrentino A, Fiorini L, Mancioppi G, Cavallo F, Umbrico A, Cesta A and Orlandini A (2022) Personalizing Care Through Robotic Assistance and Clinical Supervision. Front. Robot. AI 9:883814. doi: 10.3389/frobt.2022.883814
- Cortellessa, Gabriella, De Benedictis, Riccardo, Fracasso, Francesca, Orlandini, Andrea, Umbrico, Alessandro and Cesta, Amedeo. "AI and robotics to help older adults: Revisiting projects in search of lessons learned" Paladyn, Journal of

Behavioral Robotics, vol. 12, no. 1, 2021, pp. 356-378. <https://doi.org/10.1515/pjbr-2021-0025>

- Umbrico, A., Cesta, A., Cortellessa, G. Orlandini, A. A Holistic Approach to Behavior Adaptation for Socially Assistive Robots. Int J of Soc Robotics 12, 617–637 (2020). <https://doi.org/10.1007/s12369-019-00617-9>
- Cesta, Amedeo; Cortellessa, Gabriella; Fracasso, Francesca; Orlandini, Andrea; Turno, Marcello. 'User Needs and Preferences on AAL Systems That Support Older Adults and Their Carers'. Journal of Ambient Intelligence and Smart Environments, vol. 10, no. 1, pp. 49-70, 2018.

A complete list of publications can be found here:

<https://scholar.google.com/citations?user=cxDasZQAAAAAJ>

<https://www.scopus.com/authid/detail.uri?authorId=7005587537>

According to law 679/2016 of the Regulation of the European Parliament of 27th April 2016, I hereby express my consent to process and use my data provided in this CV.

Rome, 5th of September 2023
ANDREA ORLANDINI

