



SHAREWORK TRAINING COURSE

#5 COLLABORATIVE ROBOTICS' INDUSTRIAL IMPLEMENTATION: TOWARDS MORE FLEXIBLE AND INTEGRATED WORKPLACES

INTRODUCTION

Human-Robot Collaboration is a key factor in the field of industrial robotics for the development of the factories of the future and advance towards the Industry 4.0 paradigm.

In this course we introduce some basic concepts of the implementation of Human-Robot Collaborative systems and the advantages of its wide deployment into the industry. In addition, the process of the implementing industrial collaborative robotics in four companies in the transport, capital goods and metal sector are presented as case studies, highlighting the potential of collaborative robotics in operators' ergonomics and wellbeing, as well as the benefits from the production side.

TOPICS

- What is collaborative robotics and its advantages for its implementation to the industry.
- The main safety standards applying in industrial environments' collaborative scenarios.
- Use cases deployment and results of implementing a human-robot collaboration system into assembly and disassembly workplaces.

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TARGETED TO

- Undergraduate, graduate or master students willing to learn about the application and research on Human-Robot Collaborative solutions and approaches in collaborative robotics, computer vision, Industry 4.0 systems, HRI, etc.
- Researchers in Human-Robot Collaboration, motion planning in robotics, computer vision and Human-Robot Interaction, among other topics from Universities, Institutes or Research Centers.
- Professionals from companies in the field of robotics, sensorics or Industry 4.0.





SPEAKERS

FRANCESCA CANALE, PROJECT ENGINEER, STAM

Francesca Canale received her Master Degree in Robotics Engineering at the University of Genoa, Italy, in 2020. During her studies she was involved in several projects where she has acquired a general knowledge of multiple aspects of robotics. She joined the Robotics and Mechatronic team of STAM in 2020 where she is a Project Engineer handling all the technical aspects of research and developments projects in the field of robotics, manufacturing and automation solutions. She mainly contributes to the development of software algorithms related to ROS, computer vision and machine learning and to hardware and software integration activities during the prototyping and demonstration phases.

MIKEL ANASAGASTI, ELECTRONICS ENGINEER, GOIZPER

Mikel Anasagasti Alberdi is native of Basque Country, North of Spain. He is electronics engineer, having completed the engineering bachelor's degree in Sweden and Basque Country. He works at Goizper company, located in Antzuola (Basque Country), in R+D+I department since 2014. He has high experience in software development and Industry 4.0. He has worked during the last 4 years in SHAREWORK, H2020 project, looking for the collaborating solution that could solve actual problems during Goizper's products assembly.

DIONISIS ANDRONAS, RESEARCH ENGINEER, LMS, UNIVERSITY OF PATRAS

Dionisis Andronas holds a Bachelor's and Master's in Mechanical Engineering and Aeronautics from the university of Patras (Greece) in 2018. He works as a research engineer at the "Robots, Automation and Virtual Reality in Manufacturing" group of Laboratory for Manufacturing Systems and Automation (LMS). His research topics involve the design and development of hybrid production systems and cognitive mechatronic devices for reconfigurable manufacturing systems. His involvement in FP7 LIAA and H2020 projects VERSATILE, MERGING and SHAREWORK concerns the designing of collaborative workstations, human system interfaces, model-based deformable object co-manipulation planners, in addition to innovative systems for material handling and assembly.

GERARD GUERRERO, PROJECT ENGINEER, SEAT S.A.

Gerard Guerrero began his career at SEAT S.A. in 2004 as a mechanical and hydraulic systems specialist within the Maintenance Department. Later, in 2016, he specialized in automation, PLC's and process data analytics. In 2021, he became a Maintenance Technician, where he is involved in projects of improvement and renovation of facilities. This year, he joined the Process Engineering Department of SEAT S.A. His participation in this project concerns the integration of this collaborative workstation following all SEAT S.A. standards.

PIERVINCENZO TAVORMINA, INDUSTRIAL AUTOMATION ENGINEER, CEMBRE





Piervincenzo Tavormina received a Master Degree in Industrial Automation Engineering from University of Brescia in 2020. He joined Cembre in 2019 as industrialization engineer; he is in charge of test machinery control technologies and industrial data analysis, as well as study and development of automated control system and robotics.

ANDREA SCALA, TECHNICIAN, CEMBRE

Andrea Scala joined in Cembre in 2014 as a machine operator. From 2016 he is in charge of the managing all the company's industrial robots by programming, and designing new dedicated grippers and devices, as well as training operators.

JAUME ALTESA, R&D ENGINEER, ALSTOM

Jaume Altesa Cabanas is industrial Engineer. He works in Alstom company, in the Santa Perpetua site near Barcelona for 20 years. He works on the manufacturing engineering department in the innovation area. He has experience in VR, 3DPrinting and starting with Sharework project new applications on collaboration robotics.

GIUSEPPE FOGLIAZZA, DIRECTOR OF MCE - DIVISION OF MCM, MCM

Graduated in Pisa in Information Sciences, in June 1986, he started the collaboration with MCM S.p.A., a company located in Piacenza that realizes machining centers and flexible production systems, with the task of developing its supervision software. Since 2014 he has been Director of Machining Centers Engineering S.r.l., a software division of MCM S.p.A., which with a staff of 15 people develops software services to support manufacturing production and factory integration. Since 1994 he has been responsible for MCM for relations with academia, and for the coordination of research activities. In this role he has coordinated the participation of MCM in various national and European research projects. Since 1997 he is a member of the CIRP. He is co-author of some articles in the field of software development for the control and supervision of flexible production systems. Since 2014 he has been a member of the Management and Control Body and of the Scientific Technical Committee of the national technological Cluster Fabbrica Intelligente.

FILIPPO PARMA, MECHANICAL ENGINEER, MCM

He achieved a bachelor's degree in Mechanical Engineer at the Polytechnic of Milan in September 2017. He graduated in Parma, in October 2019, with a Master Degree in Mechanical Engineer, discussing an R&D thesis in collaboration with Sidel, a company member of the Tetra Laval group. The topic of the thesis was the development of a robot gripper for aseptic environment. He started the collaboration with the Technical Dept. of MCM S.p.A in November 2019 as a System Integrator. Since this date he has been working in European projects in which MCM is involved with MCE, the division of MCM that develops software services to support manufacturing production and factory integration. Starting from November 2021, he is working in the development of Customer Projects, and he develops dynamic discrete simulation applications on FMS that are customized to meet the customer's needs.

