



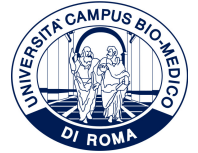
A.N.I.P.L.A.  
ASSOCIAZIONE NAZIONALE  
ITALIANA PER L'AUTOMAZIONE



SAPIENZA  
UNIVERSITÀ DI ROMA



TOR VERGATA  
UNIVERSITÀ DEGLI STUDI DI ROMA



# Industrial Automation

## The role of the Automation Engineer

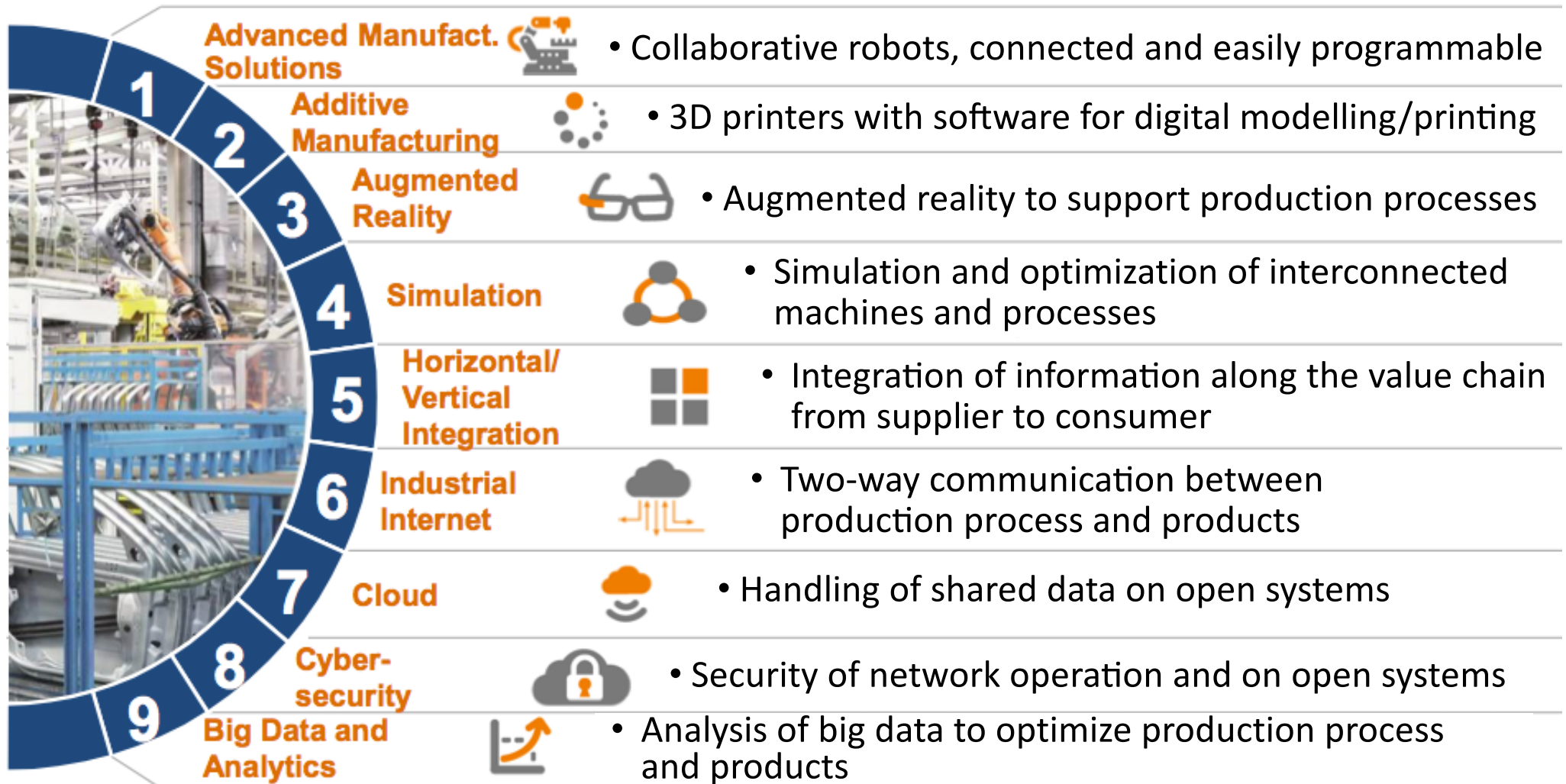
February 15, 2023  
14:00 – 17:00

**FANUC**  
**HUNTERS**  
GROUP

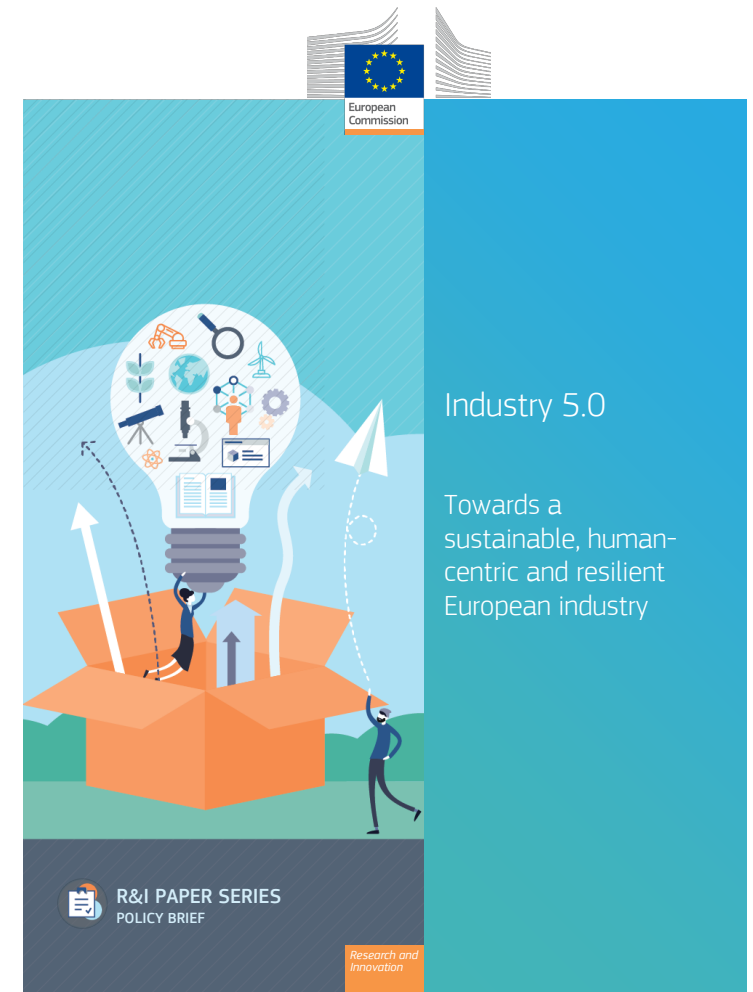
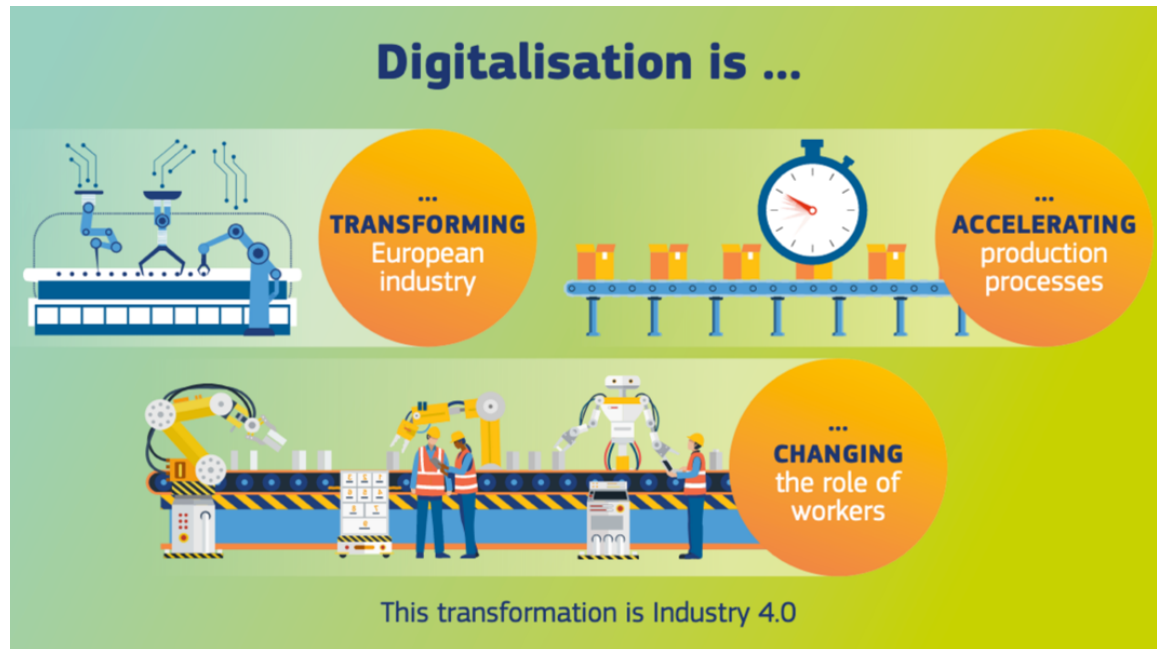


**SCHMERSAL**  
THE DNA OF SAFETY

# Automation and Industry 4.0



# ... and beyond!



## January 2021: launch of

- Next Generation EU (in Italy ⇒ PNRR)
- Horizon Europe (research program)

# Automation and Industry 5.0



- **industry** as sustainable and resilient factor for the entire society
- reaching social objectives, even beyond creating jobs and economic growth



# Dipartimento di Ingegneria Informatica, Automatica e Gestionale Antonio Ruberti

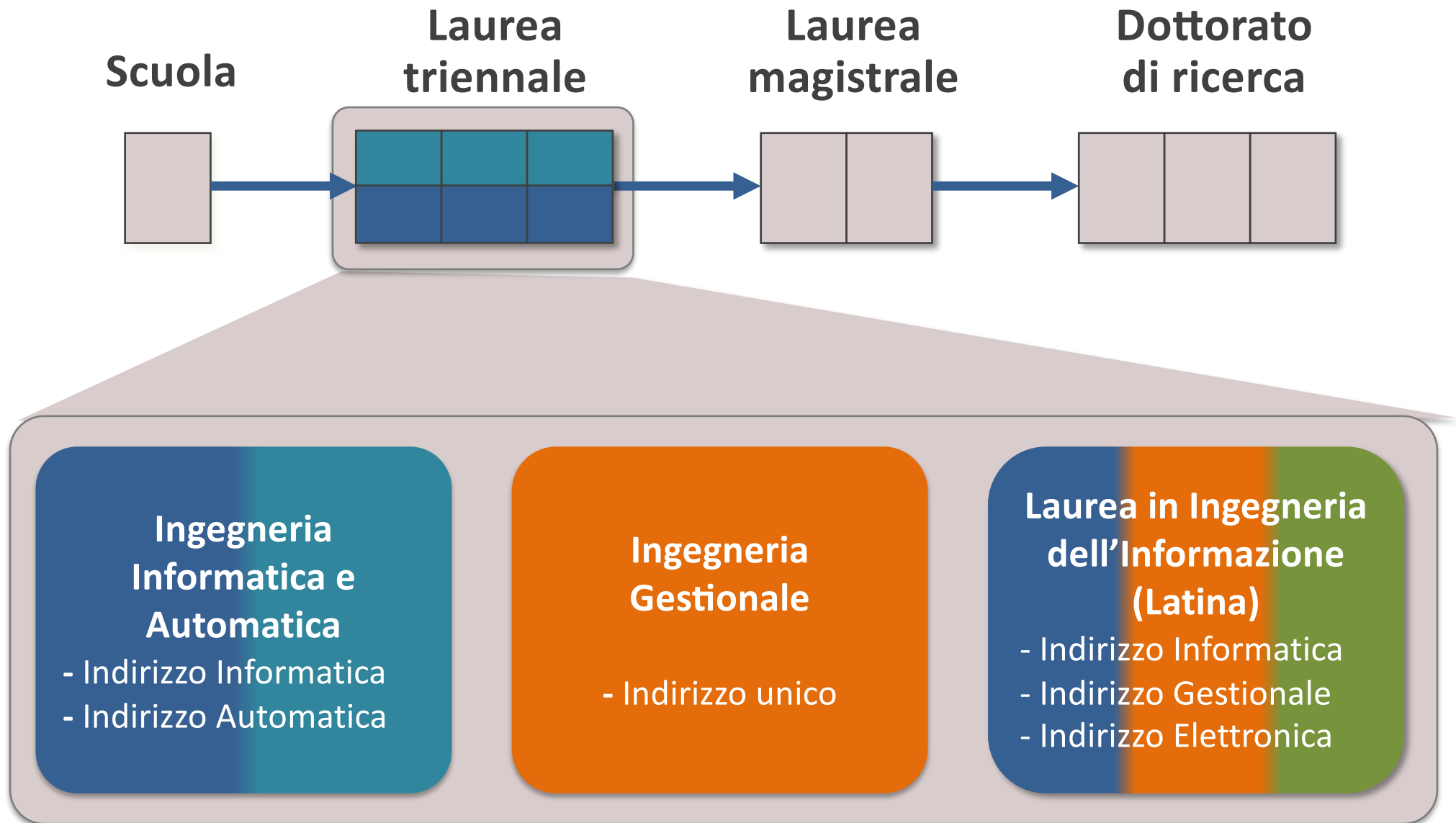
[www.diag.uniroma1.it](http://www.diag.uniroma1.it)



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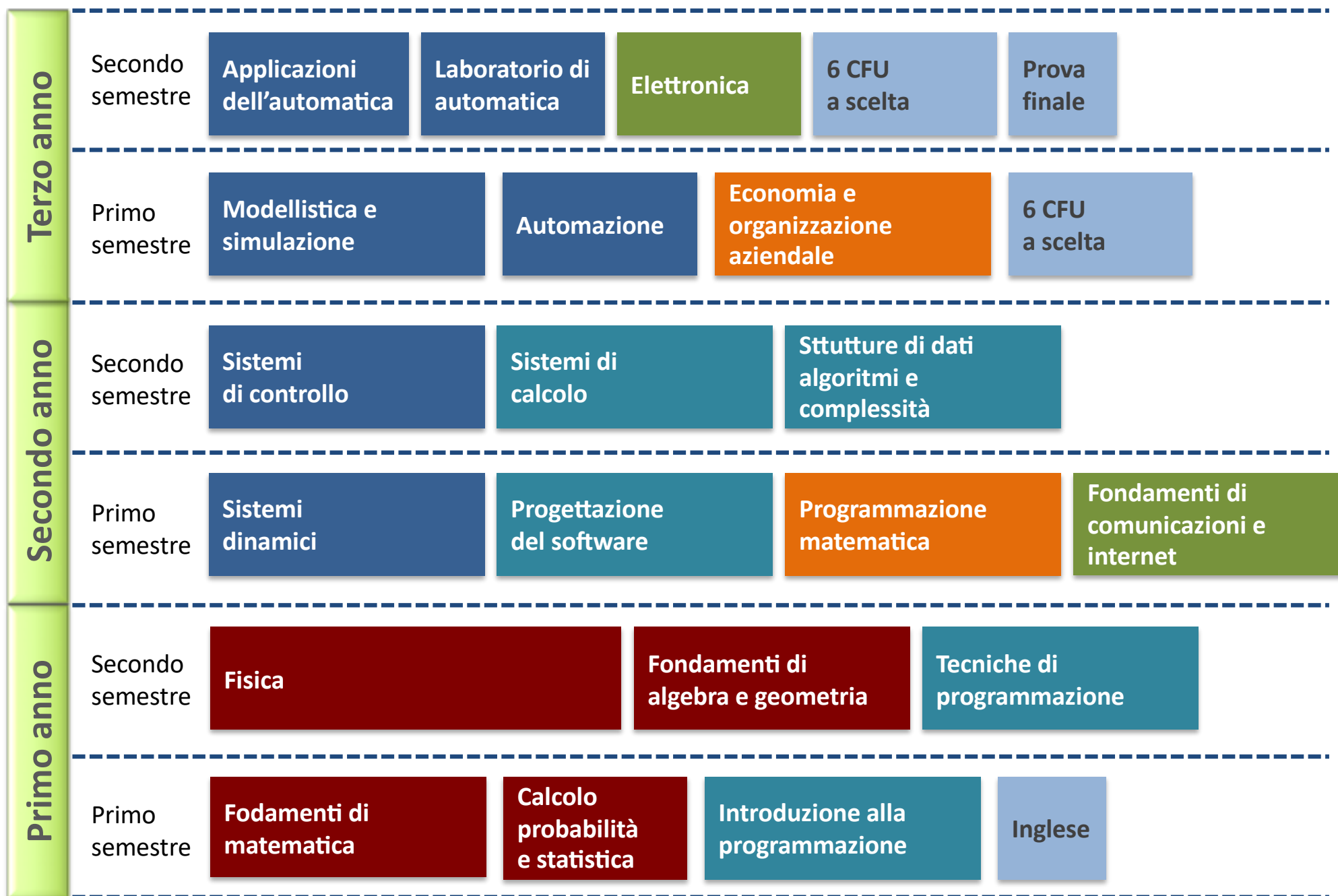
Facoltà di Ingegneria  
dell'Informazione,  
Informatica e Statistica

# Offerta didattica del DIAG

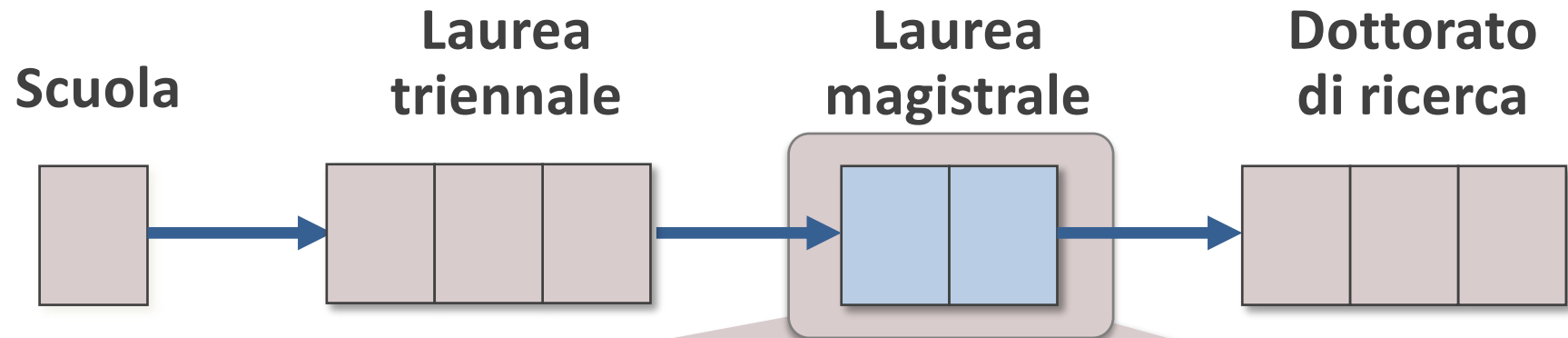


**these bachelor courses are offered only in Italian**

# Indirizzo automatica nella laurea triennale



# Master courses from DIAG



**Engineering in Computer Science  
(Ingegneria Informatica)**

**Control Engineering  
(Ingegneria Automatica)**

**Ingegneria Gestionale  
(Management Engineering)**

**Artificial Intelligence and Robotics  
(Intelligenza Artificiale e Robotica)**

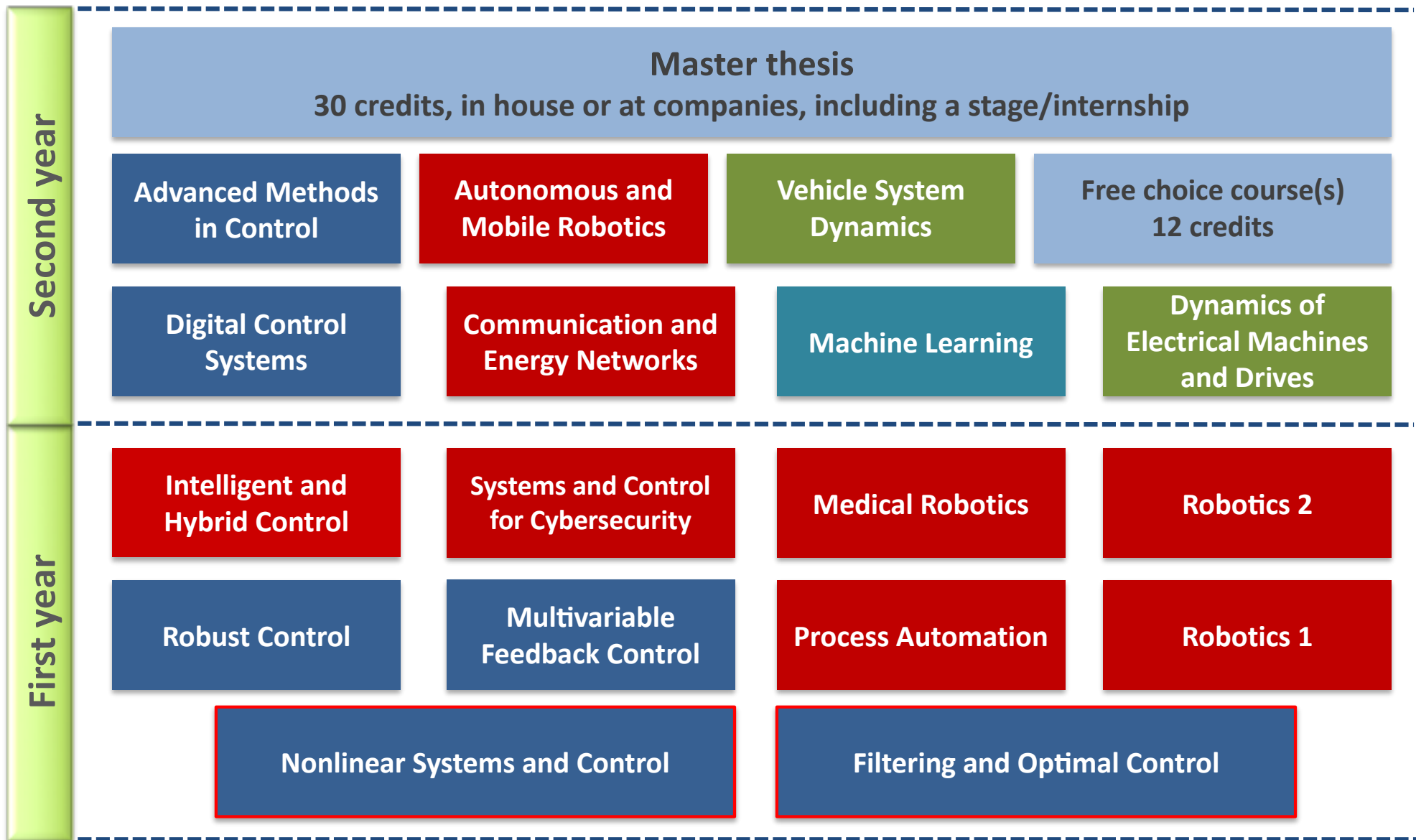
**Data Science**

**Cybersecurity**





# Control Engineering master/laurea magistrale



2 mandatory courses (24 credits)

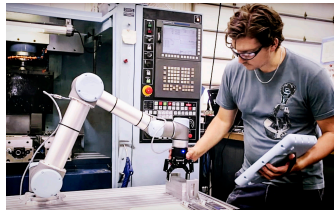
+ 10-11 exams (each 6 credits) + thesis ⇒

120 credits

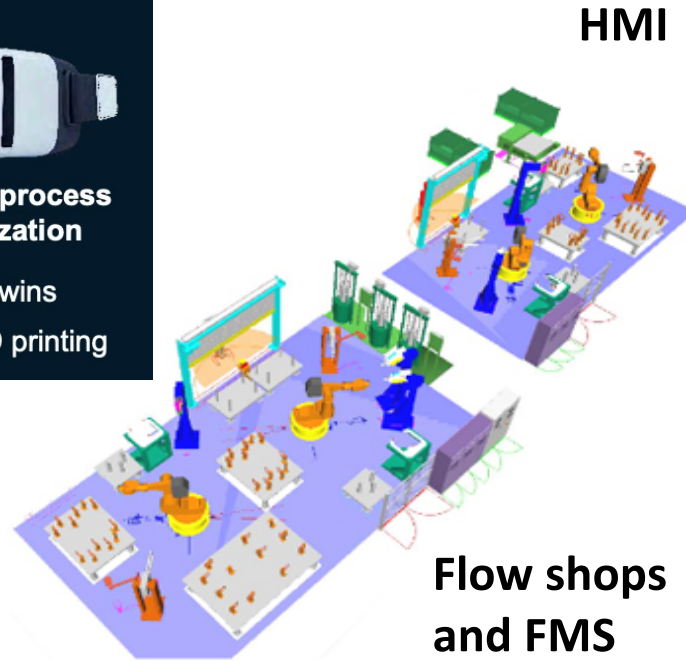
# Control engineers in Automation

**1** Next-level process automation...  
Industrial IoT<sup>1</sup>  
Robots/cobots<sup>2</sup>/RPA<sup>3</sup>

... and process virtualization  
Digital twins  
3-D/4-D printing

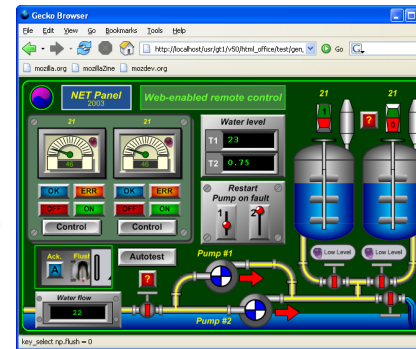


Cobots



Flow shops and FMS

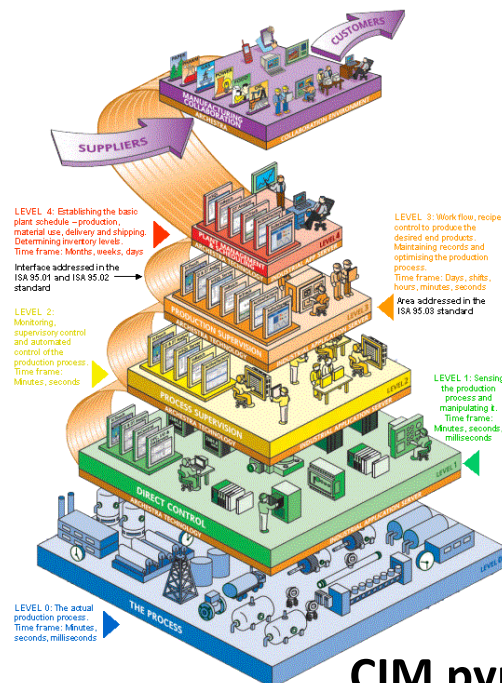
HMI



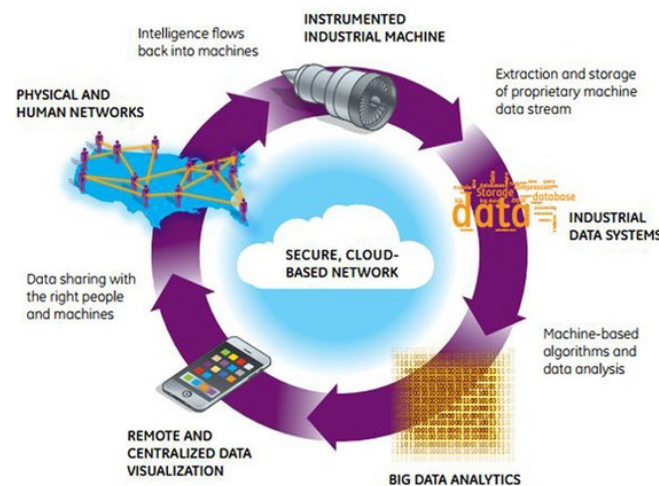
Process control



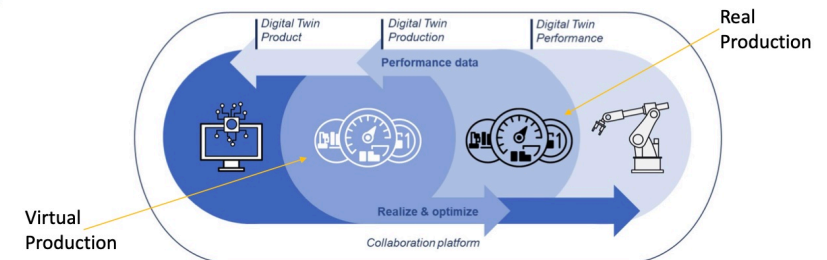
Robotics



CIM pyramid



Cloud Automation



Digital Twins

# More job domains for control engineers!



I sistemi automatici operano **in modo autonomo** in base al principio del **feedback**, garantendo

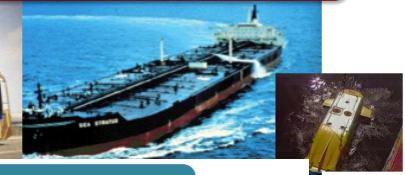
- elevate **prestazioni** (precisione, velocità, comfort, affidabilità)
- **risparmio** energetico e/o di costi e materie prime
- maggiore **sicurezza** e minore **impatto** ambientale

Automotive  
(ABS, ESP, parcheggio automatico)



La tecnologia nascosta

Aeronautica  
(pilota automatico)

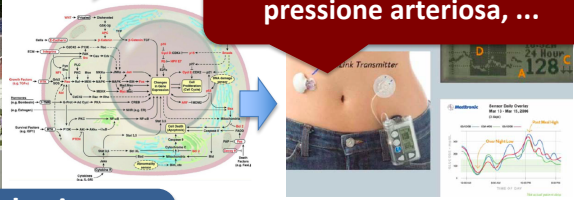


Generazione e distribuzione dell'energia  
(smart grids)



Modelli di sistemi biologici

Regolazione livello glucosio,  
pressione arteriosa, ...



Sapienza ranked 1st in Italy  
in **Automation and Control**  
(2022 Shanghai Global Ranking  
by Academic Subjects GRAS)

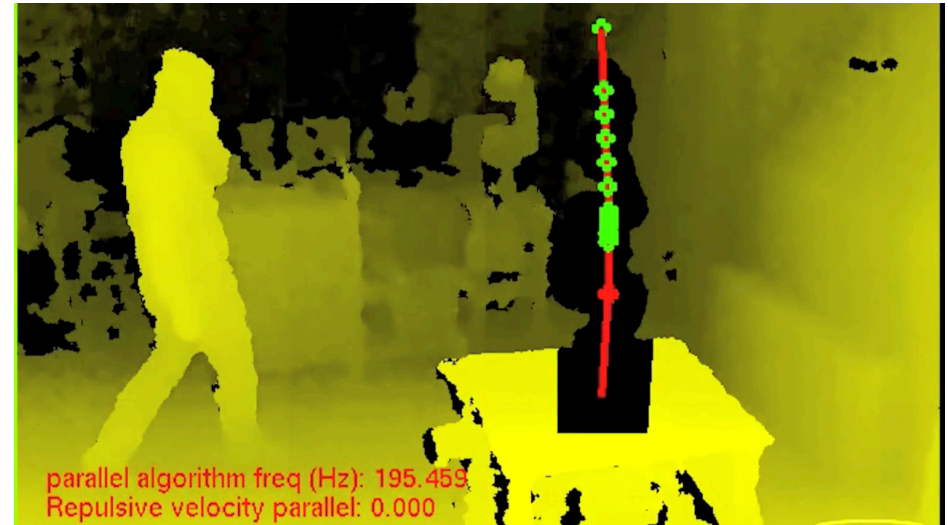
Robotica  
e automazione  
industriale



## physical human-robot interaction control



sensorless contact detection

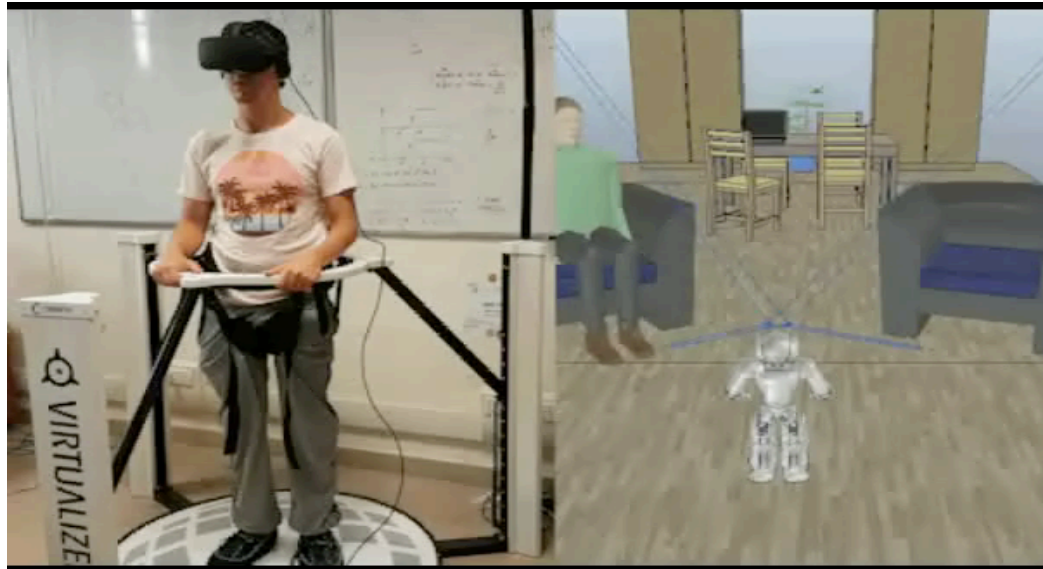


share the workspace & avoid collisions



safe human-robot collaboration

## Telepresence: remote control of robot locomotion and immersion in virtual/augmented reality



virtual navigation  
(V-REP simulation environment)



real navigation (remotely driven)



[www.diag.uniroma1.it/labrob](http://www.diag.uniroma1.it/labrob)

video channel: <https://www.youtube.com/user/RoboticsLabSapienza>

# Program

- **ANIPLA**

Laura Montigelli, Executive Office Manager



- **FANUC**

Fausto Bozzarelli, European Customer Service Support Expert

Mirko Cazzaniga, Education Business Developer



- **HUNTERS GROUP**

Giovanni Policella, Area Manager HG Roma



- **Mitsubishi Electric**

Michele Tomassi, Application Engineer

Sarah Massoli, HR Recruitment & Training



- **Schmersal Italia**

Giovanni Lucido, Managing Director



- **Questions & Answers**