



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



SAPIENZA  
UNIVERSITÀ DI ROMA

UNDER THE PATRONAGE OF



## 2ND MEETING

### AUTOMATION: PROFESSIONAL OPPORTUNITIES FOR ENGINEERS

February 20th, 2020 2.00 PM

Sapienza Università di Roma  
Department of Computer, Control  
and Management Engineering Antonio Ruberti  
Aula Magna

Via Ariosto 25, Roma

#### PARTICIPANTS

Enel Global Power Generation  
G.I.S.I. Associazione Imprese Italiane di Strumentazione  
Mitsubishi Electric Europe BV  
Schmersal Italia S.r.l.  
Schneider Electric S.p.A.

#### PROGRAMMA

■ 14.00

Registrazione dei partecipanti

■ 14.15

Saluto di benvenuto

Alessandro De Luca

DIAG, Sapienza Università di Roma

■ 14.25

Introduzione all'incontro

Maria Regina Meloni

Presidente ANIPLA Sezione di Milano

■ 14.40

PRESENTAZIONI AZIENDALI

Enel Global Power Generation

*Giulio Davico*

G.I.S.I.

*Massimo Spica*

Mitsubishi Electric Europe BV

*Sarah Massoli*

*Alessandro Munari*

Schmersal Italia S.r.l.

*Giovanni Lucido*

Schneider Electric S.p.A.

*Sandra Kivilomp*

■ 16.30

Q&A



Robotics Automation Automatic  
 Control Industriale Tecnologie  
 Technology ICT Ingegneria  
 Feedback Azionamenti Industry Industria  
 Automazione Industria  
 Engineering Robotica  
 Automatica Sensors  
 Robots



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# Automation and Industrial revolutions

*Digital connection among physical systems, complex analysis of big data, real-time adaptation*

*Industrial robots and computers*

*Mass production and assembly lines*

*Use of machines driven by mechanical energy*



*Utilizzo di macchine azionate da energia meccanica*

Introduzione di potenza vapore per il funzionamento degli stabilimenti produttivi

**End of 18<sup>th</sup> century**

Introduction of steam power in operation of production plants

## 2° Rivoluzione industriale



*Produzione di massa e catena di montaggio*

Introduzione dell'elettricità, dei prodotti chimici e del petrolio

**Beginning of 20<sup>th</sup> century**

Conversion to electrical power, chemical products and oil

## 3° Rivoluzione industriale



*Robot industriali e computer*

Utilizzo dell'elettronica e dell'IT per automatizzare ulteriormente la produzione

**Early 70's**

Use of electronics and IT in massive production automation

## 4° Rivoluzione industriale



*Connessione tra sistemi fisici e digitali, analisi complesse attraverso Big Data e adattamenti real-time*

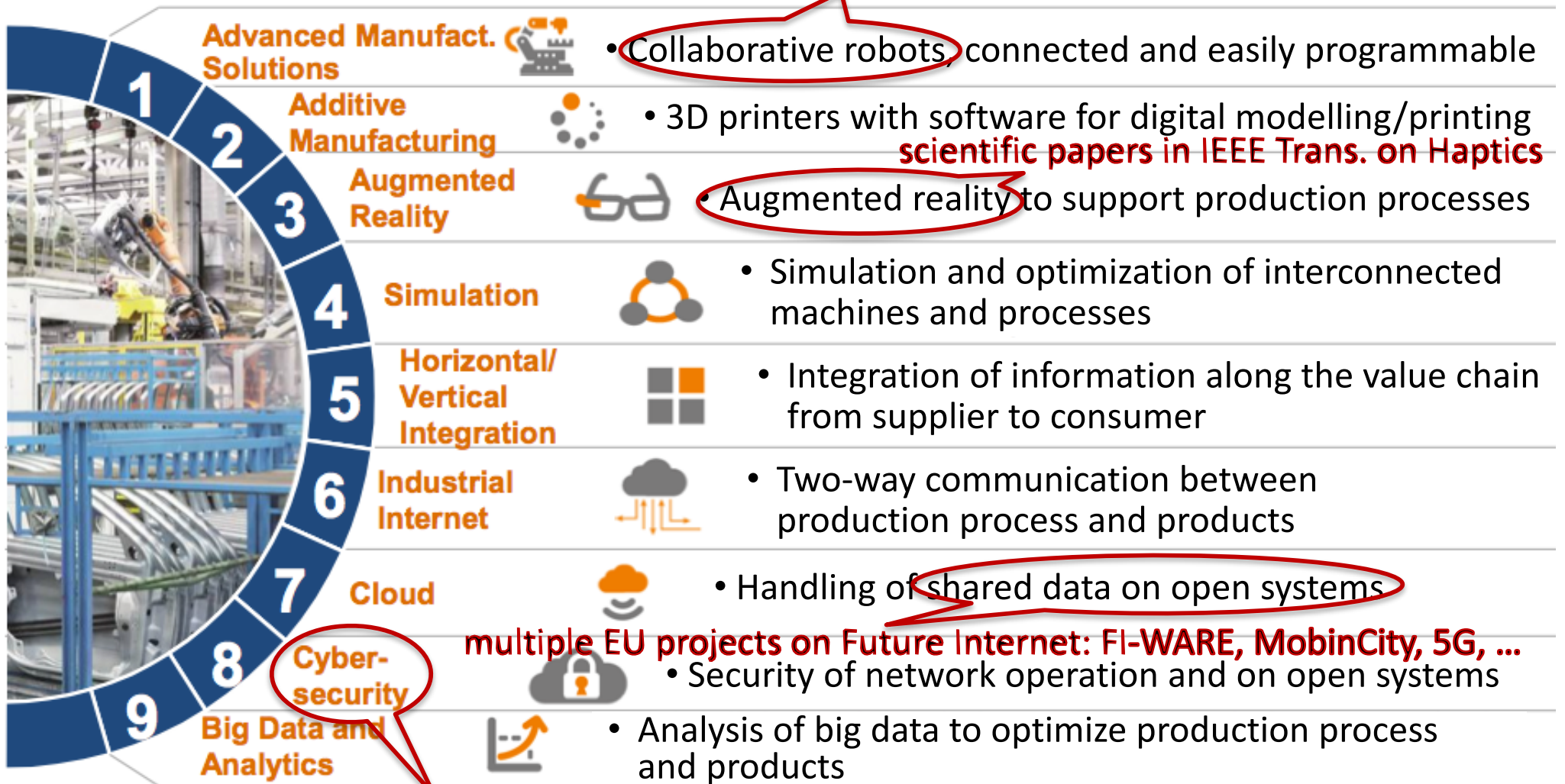
Utilizzo di macchine intelligenti, interconnesse e collegate ad internet

**Today – next future**

Use of a network of intelligent machines connected to internet

# Automation and Industry 4.0

e.g. coordinator of SAPHARI EU project (+H2020 Symplexity, Comanoid, ...)



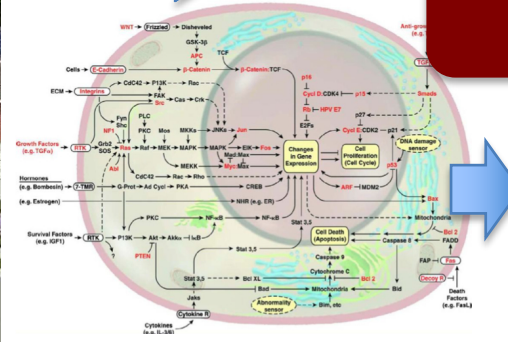
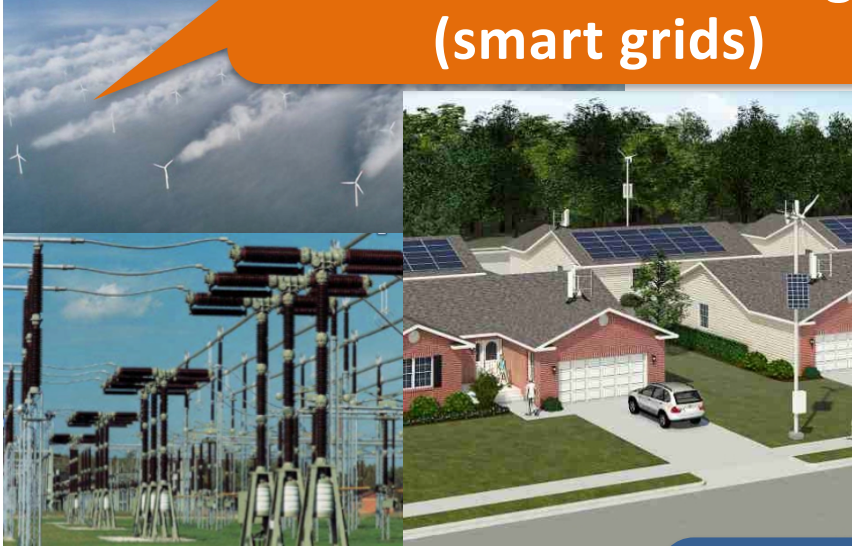
DIAG is one of the 180 Departments of Excellence in Italy

# Control Engineering/Ingegneria Automatica

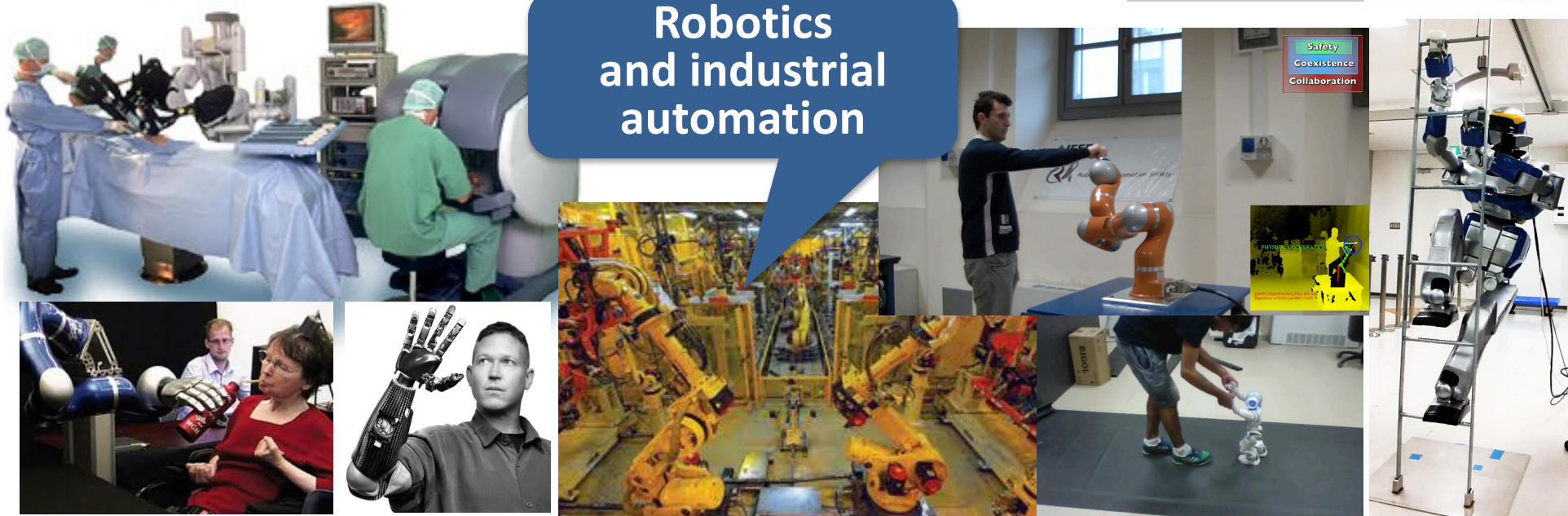
Generation and distribution of energy (smart grids)

Modeling in system biology

Regulation of glucose levels, blood pressure, ...



Robotics and industrial automation

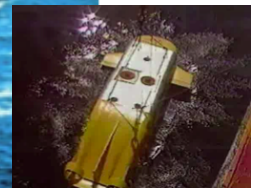
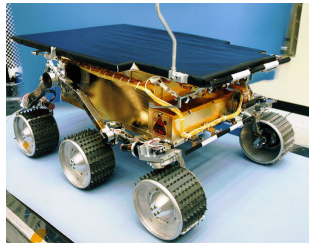


# Control Engineering/Ingegneria Automatica

Automotive  
(ABS, ESP, automatic parking)



Navigation  
(automatic pilot, fly-by-wire)



Astronautics (optimal control,  
satellite attitude, space robotics)

...a hidden, but enabling technology!



# Courses of study at Sapienza

## Laurea triennale in Ingegneria Informatica e Automatica – Curriculum: Automatica

Applicazioni dell'automatica

Automazione

Controlli automatici

Laboratorio di automatica

Modellistica e simulazione

Teoria dei sistemi

42 credits (out of 180 in total)  
+ 3 credits of bachelor thesis

## Dottorato in Automatica, Bioingegneria e Ricerca Operativa/ PhD in Automatic Control, Bioengineering and Operations Research (ABRO)

3 different curricula

## Laurea magistrale in Ingegneria Automatica / Master in Control Engineering

Advanced methods in control

Autonomous and mobile robotics

Computer and network security

Control of autonomous multi-agent systems

Control of communication and energy networks

Control problems in robotics

Digital control systems

Dynamics of electrical machines and drives

Machine learning

Multivariable feedback control

Neuroengineering

Nonlinear systems and control

Process automation

Robotics I

Robotics II

Robust control

System identification and optimal control

Vehicle system dynamics

90 credits + 30 credits of master thesis

# 2<sup>nd</sup> meeting ANIPLA-DIAG Sapienza

- 1<sup>st</sup> meeting was in February 2018 (materials and pictures are online)



On **February 21, 2018**, between 13:30 and 17:00, a meeting took place in the Aula Magna of **DIAG**, Sapienza University of Rome, between leading international companies in Automation and students of Sapienza who have interests in the field. This was the first meeting organized by our DIAG department in cooperation with **ANIPLA** (Associazione Nazionale Italiana per l'Automazione).

The event was advertised in the Sapienza [e-news](#), in the [web news](#) of the [Master of Science in Control Engineering](#), and with a joint [press release](#) (in Italian).

Participation was free. Information material and gadgets were distributed to the attendees. All students were invited to fill in and return a [questionnaire](#). A total of 60 completed questionnaires were collected at the end (the half of which from the Master in Control Engineering (MCER), one fourth from the Bachelor in Computer and Control Engineering (BIAR)), and forwarded to the companies. Students who just graduated or were close to complete their bachelor or master studies were invited to hand-out their CV. An open discussion with Q&As by the students concluded the session.

PDF versions of all presentation slides are available below. You can also download the [poster](#) (in English) and the [leaflet](#) (in Italian) with the program of the event.

We thank all the speakers for their kind participation, and Mrs. Porto of ANIPLA for her organizational support.



## Presentations



**BECKHOFF**



**WITTENSTEIN**



# Program

- **ANIPLA** (Maria Regina Meloni)
- **Enel Global Power Generation** (Giulio Davico)
- **G.I.S.I.** (Massimo Spica)
- **Mitsubishi Electric Europe** (Sarah Massoli, Alessandro Munari)
- **Schmersal Italia** (Giovanni Lucido)
- **Schneider Electric** (Sandra Kivilomp)
- **Questions & Answers**

