

# SILVIA COLABIANCHI

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## SHORT SUMMARY

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Silvia Colabianchi is a PhD Student in Industrial and Management Engineering at Sapienza University of Rome. She graduated Magna Cum Laude in July 2019, developing for her Master Thesis a predictive model able to pre-notify students at risk of leaving university. In November 2019 she won a three-years full time fellowship for PhD research focused on cybersecurity. The project underlines humans' role in cybersecurity socio-technical systems, investigating in which part humans are a threat or an opportunity for industrial cybersecurity.

Her background experience in data analysis and coding using Python and C languages and programs such as Microsoft PowerBI and Azure Machine Learning allowed her to take part in several challenging research projects which involved developing machine learning models, data analysis dashboards and tools.

Her recent projects involve computer vision techniques, conversational agents, and virtual reality to improve industrial production in the smart factory context. In 2020 she developed a tool to automatically compare images of similar products and measure their similarity. In September 2021 she trained a model for the automatic detection of PPE using DNN techniques. In 2022 she has worked on a vision-based automated quality inspection tool to detect defects on plastic surfaces using a line scan camera. She is currently working on incorporating enabling technologies for Industry 4.0 from a positive human-machine collaboration perspective. Specifically she is implementing a conversation agent for operational and safety training in the smart factory.

## EDUCATION

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11/2019 – Ongoing	<b>PhD Student in “Industrial and Management Engineering, Sapienza University of Rome - three-years full time fellowship</b> “Reasoning about a human-in-the-loop organizational cybersecurity”. This PhD research investigates human’s role in cybersecurity socio-technical systems. The research aims to investigate in which part humans are a threat or an opportunity for organizational cybersecurity.
01/2021 – 07/2021	<b>Advanced Training Course in Project Program Portfolio Management Sapienza University of Rome &amp; Project Management Institute Italy</b>
2017 - 2019	<b>MSc in Management Engineering, University of Rome La Sapienza, Italy</b> Focus on <b>Management of Industrial and Production Systems</b> Final grade: 110/110 Cum Lode Final Work: “Predicting student dropout using a machine learning approach”.
01/2018 – 07/2018	<b>Erasmus+ programme, Technische Universiteit Delft – TUDelft, Netherlands</b>
2014 - 2017	<b>BSc in Management Engineering, University of Rome La Sapienza, Italy</b> Final Grade: 104/110
2008 - 2013	<b>High school Diploma, Liceo Scientifico PNI Farnesina Rome, Italy</b>
2011	World Exchange Program, Northern Bay College, Geelong, Australia

## RESEARCH ACTIVITIES AND PROFESSIONAL EXPERIENCE

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03/2022 - Ongoing	<b>Conversational Agents in manufacturing</b> Research on architectures and characteristics of conversational agents in manufacturing. Development of a voice bot to assist operators in the learning phase.
01/2022 - Ongoing	<b>ABB: Predictive maintenance for rotary machines</b> Analysis of the failures and development of a machine learning model to predict the deterioration of the rotary machines.

05/2021 -05/2022	<b>ABB: Automatic visual inspection of surface defects</b> Development of a tool that automatically identify surface defects on objects in a production line through a line scan camera.
02/2021 – 12/2021	<b>CONAD: Preliminary analysis for the realization of an automatic warehouse of a logistic network.</b> The aim of the project was to propose and evaluate, from a technical-economic point of view, alternative technological solutions for the introduction of automatic storage, picking and handling systems in a large-scale distribution warehouse.
01/2021 – 04/2021	<b>Artificial Intelligence for culture heritage</b> Development of a system that allows to compare images and identify any damage, changes in color and surface condition aimed at restoration.
11/2019 - 03/2020	<b>IOM – International Organization for Migration: PowerBi dashboard</b> Development of a tool that automatically identify diaspora associations by cross-referencing data publicly available on the Internet through a practice of social media listening and data analysis through machine learning techniques. All data collected and processed have been reported developing a PowerBI dashboard.
01/2020 – 02/2020	<b>Support in the development of a tool to automatically compare images and measure their similarity.</b> Development of a tool able to detect and compute key points on multiple images, compare them, extract matching features, and quantify the degree of similarity between two images.
02/2017 – 07/2017	<b>Internship at Technis Blu –Infodata Group, Rome, Italy</b> <i>SAP junior consultant –MM – Material Management</i>

## TEACHING ACTIVITIES

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12/2020 – Ongoing	<b>Tutor Gestione Aziendale, Sapienza University of Rome</b> Tutoring grant for teaching and tutoring activities for Business Management Course (12CFU)
01/2022	<b>Lecturer, Advanced Training Course, Istituto Nazionale per l'Assicurazione contro gli Infortuni sul Lavoro (INAIL)</b> Lecturer at the Advanced Training Course "Technologies, Organizations, individuals and behaviors in the fourth industrial revolution for the purposes of health and safety at work"
01/2022	<b>Lecturer, Second Level Master Degree, Sapienza University of Rome &amp; Istituto Nazionale per l'Assicurazione contro gli Infortuni sul Lavoro (INAIL)</b> Lecturer at the Second Level Master Degree "Integrated Health and Safety Management in the Evolving World of Work"

## RESEARCH AWARDS

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2021	<b>BonsAPPs Open Call for AI talents EU-funded H2020 project</b> Winner of the call dedicated to 30 European AI Talents. Name of the project: AROMA - App for zeRO defects in Manufacturing
2021	<b>Outstanding Student Leadership Award, The Fourth European Conference on Industrial Engineering and Operations Management, Sapienza University Of Rome</b>
2020	<b>Academic grant "Avvio alla ricerca 2020", awarded to the best PhD research projects at Sapienza University of Rome.</b> Name of the project: "a simulation-based analysis of the impact of a cyber disruption in a supply chain system." (€ 1000).

2019 **Three-year full time fellowship for the PhD in “Industrial and Management Engineering”, Sapienza University of Rome.**

## PERSONAL SKILLS

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Languages **Italian** (mother tongue)  
**English** fluent (**IELTS** - Score 7.0 Level C1 - February 2017 and **CAE** - March 2012)

Computer skills **AMPL: A Mathematical Programming Language** **IBM SPSS Statistics 25**  
**Anylogistix** **Microsoft Office Pack**  
**Azure Machine Learning Studio** **Microsoft PowerBI**  
**C** **Python**

Course **Certified Associate in Project Management (CAPM)** - Project Management Institute

## PUBLICATIONS

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### *International Journal*

- 2022 Quatrini, E., Colabianchi, S., Costantino, F., & Tronci, M. (2022). **Clustering application for condition-based maintenance in time-varying processes: A review using latent Dirichlet allocation.** *Applied Sciences (Switzerland)*, 12(2) doi:10.3390/app12020814
- 2021 Colabianchi, S., Costantino, F., Di Gravio, G., Nonino, F., & Patriarca, R. (2021). **Discussing resilience in the context of cyber physical systems.** *Computers & Industrial Engineering*, 160 doi:10.1016/j.cie.2021.107534

### *Conference proceedings*

- 2022 Bernabei M., Colabianchi S., Costantino F., (2022). **Chatbot for training and assisting operators in inspecting containers in seaports**, Transportation Research Procedia 64C (2022) pp. 6-13
- 2022 Bernabei M., Colabianchi S., Costantino F., (2022). **Natural Language Processing applications in manufacturing: a systematic literature review**, Paper presented at the Proceedings of the Summer School Francesco Turco
- 2022 Bernabei M., Colabianchi S., Costantino F., Falegnami A, (2022). **Warehouse resilience framework for the Covid-19 disruption**, Paper presented at the International Working Seminar on Production Economics 2022
- 2021 Bernabei M., Colabianchi S., Costantino F., Patriarca R. (2021). **Using Natural Language Processing to uncover main topics in defect recognition literature**, Paper presented at the Proceedings of the Summer School Francesco Turco
- 2021 Annarelli A., Colabianchi S., Nonino F., Palombi G. (2022) **The Effectiveness of Outsourcing Cybersecurity Practices: A Study of the Italian Context.** In: Arai K. (eds) Proceedings of the Future Technologies Conference (FTC) 2021, Volume 3. FTC 2021. Lecture Notes in Networks and Systems, vol 360. Springer, Cham. [https://doi.org/10.1007/978-3-030-89912-7\\_2](https://doi.org/10.1007/978-3-030-89912-7_2)
- 2020 Colabianchi, S., Costantino, F., Genito, C., Iannucci, M., & Quatrini, E. (2020). **A predictive maintenance model for an industrial fan in a cement plant.** Paper presented at the Proceedings of the Summer School Francesco Turco
- 2020 Quatrini, E., Colabianchi, S., Costantino, F., & Tronci, M. (2020). **Machine learning models to predict components decay in a naval propulsion system.** Paper presented at the Proceedings of the Summer School Francesco Turco

### *Conference Chair*

- 07/2022 **Conference chair** for the 5<sup>th</sup> European Conference on Industrial Engineering & Operations Management – IEOM Society

**Panel chair** for the “Women In Industry and Academia Panel”  
Rome, Italy, July 26-28 2022

*Conference Track Organizer*

Ongoing **Conference track organizer** for the XXXIII AiIG Scientific Meeting: **Redesigning networks and supply chains in times of transition** – Track title: Organizations in times of digital transformation: from digitalization capabilities to resilience  
Rome, Italy, October 20-21 2022

*Reviewer*

Ongoing **Cogent Engineering** (Taylor & Francis Group)

**EXTRA CURRICULAR ACTIVITIES**

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- 2015 - Ongoing **AGESCI – Association of Italian Catholic Guides and Scouts - Scout Leader**  
*For the last three years in charge of a group of 20 young people of the ages of 16 to 19. In fulfilling the role, planned weekly and summertime activities for young people, maintaining relations with families and local institutions (schools, social services, municipal government).*
- 2010-2015 **MUN – Model United Nation Simulation of UN operations**  
*Served as ambassador of the school in UN simulations in Rome, Shanghai, Lubeck, and Philadelphia.*
- 2010 - Ongoing **Various volunteering experiences**  
*Took part in many volunteering activities such as Mensa Caritas, Banco Alimentare, Sant’ Egidio, Italian Association of Individuals with Down’s Syndrome*

*I hereby authorize the use of my personal data in accordance to the GDPR 679/16 - Silvia Colabianchi*