

SARA POCE

PhD Student

After studying biomedical engineering at Politecnico di Milano, I won a PhD scholarship at the University of Molise on Artificial Intelligence applied to patents. These were two fields completely new to me, so I have been spending the last one and a half year studying them from scratch, becoming more and more curious and fascinated by deep learning.

My current research focuses on the usage of XAI (explainability) techniques for the patent classification task, allowing a more interpretable model's decision process, and building trust in the users.

In the near future, I would like to extend this work beyond pure text, including images, and, finally, develop a semantic-based patent search system, reducing the effort made by IP (industrial property) stakeholders.

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EDUCATION

[Nov 2024 – Present \(expected completion: Oct 2027\)](#)

PHD – TECHNOLOGIES AND INNOVATION IN MEDICINE

University of Molise, Italy

- Research Area: Artificial Intelligence for patent analysis, management and retrieval in the life sciences domain. Currently, patent classification by means of Transformer-based models and explainable AI (XAI) techniques.

[Mar 2021 – Dec 2023](#)

MASTER'S DEGREE – BIOMEDICAL ENGINEERING (BIOMECHANICS AND BIOMATERIALS)

Politecnico di Milano, Italy

- Final grade: 107/110
- Thesis: development of an innovative device for the end-to-end vascular anastomosis (in collaboration with IRCCS Humanitas); parametric solid mechanics and fluid dynamics simulations on COMSOL Multiphysics; prototyping with SolidWorks; SLA 3D printing.

[Sep 2017 – Mar 2021](#)

BACHELOR'S DEGREE – BIOMEDICAL ENGINEERING

Politecnico di Milano, Italy

- Final grade: 89/110
- Thesis: characterisation of the obese subject's foot by means of a baropodometric platform; statistical analysis in MATLAB.

[Jul 2017](#)

SCIENTIFIC HIGH SCHOOL DIPLOMA

Liceo Scientifico A. Romita, Italy

JOURNAL ARTICLES

[Published](#)

- **Poce, S., & Cerro, G. (2026). A survey on automated and AI-based tools for patent retrieval with a special focus on the life sciences domain.** World Patent Information, 85, 102439. <https://doi.org/10.1016/j.wpi.2026.102439>

CONFERENCE PAPERS

Accepted

- **Poce, S.**, Mercaldo, F., Varriano, G., Martinelli, F., & Santone, A. (2026). **A Method for Explainable Automated Patent Classification by means of Transformer Models.** In Explainable AI for Neural and Symbolic Methods (EXPLAINS 2026), Communications in Computer and Information Science. Springer. Angers, France, October 2026.

In press

- **Poce, S.**, Carissimo, C., Varriano, G., Cerro, G., Santone, A., & Mercaldo, F. (2026). **Device-Free Worker Health Monitoring through Wi-Fi: Experimental Analysis on the NTU-Fi HAR Dataset.** In 2026 IEEE International Symposium on Measurement in Networking and Communications (MNC) (pp. 1–6). IEEE.

Published

- D’Ermo, A., Rodio, A., Abbatecola, A. M., Carissimo, C., **Poce, S.**, Cerro, G., ... & Di Libero, T. (2025). **The Gaze-Gait Connection: Assessing Alzheimer's Severity Through Gaze Behaviors.** In 2025 IEEE Medical Measurements & Applications (MeMeA) (pp. 1–6). IEEE.
- Carissimo, C., Cerro, G., **Poce, S.**, de Alteriis, G., Gargiulo, F., Moriello, R. S. L., ... & Gallo, V. (2025). **On the recognition of tremor severity in Parkinson's disease by means of inertial measurements-based ML algorithm.** In 2025 IEEE Sensors Applications Symposium (SAS) (pp. 1–6). IEEE.
- **Poce, S.**, Carissimo, C., Cerro, G., Di Libero, T., D’Ermo, A., & Rodio, A. (2025). **On the effect of visual stimulation in tapping test through a synchronized IMU-based measurement procedure.** In 2025 IEEE Medical Measurements & Applications (MeMeA) (pp. 1–6). IEEE.

PROFESSIONAL EXPERIENCE

Jun 2025 – Present

EXTERNAL COLLABORATOR

EosMedTech

- Support to R&D activities on AI applied to clinical data gathered from OptiGest Cloud, a management platform for ophthalmologists.
- Oral presentation at the Talentis GI Start-Up Program.
- Contribution to company presentation and technology valorization activities.

Mar 2024 – Oct 2024

GUIDED SURGERY SPECIALIST

IDI Evolution

- Technical evaluation of implant-prosthetic treatment plans
- 3D design of grids for regenerating tissue, surgical guides and prosthetic components with PlastyCAD and Materialise Magics.
- Management of 3D production flow; customer training and support on the Real Guide platform.

TEACHING AND ACADEMIC SERVICE

2025/2026

EXAMINATION COMMITTEE MEMBER AND SUBJECT MATTER EXPERT (“CULTORE DELLA MATERIA”)

University of Molise

- *Computer Science for Data Processing* — BSc in “Scienze e Tecniche Psicologiche” (SSD INF/01)
- *Artificial Intelligence and Data Analytics* — BSc in “Diritto, Nuove Tecnologie e Sicurezza” (SSD INF/01)

CONFERENCES AND SEMINARS

16 Jul 2026

INVITED SPEAKER - WEBINAR "ARTIFICIAL INTELLIGENCE FOR PATENTS: FROM FUNDAMENTALS TO RESEARCH"

Italian Association of Patent Information Professionals (AIDB)

28 – 30 May 2025

ORAL PRESENTATION - "ON THE EFFECT OF VISUAL STIMULATION IN TAPPING TEST THROUGH A SYNCHRONIZED IMU-BASED MEASUREMENT PROCEDURE"

IEEE International Conference on Medical Measurements & Applications
(MeMeA) 2025

TECHNICAL SKILLS PROGRAMMING LANGUAGES

C++, MATLAB, R, Python – Basic

CAD & 3D MODELLING

SolidWorks, PlastyCAD, Materialise Magics - Proficient

SIMULATION

COMSOL Multiphysics - Proficient

OTHER ACTIVITIES

8 – 12 Sep 2025

SUMMER SCHOOL ON ARTIFICIAL INTELLIGENCE IN HEALTH AND LIFE SCIENCES

Campus Bio-Medico di Roma, Italy

11 – 18 Mar 2023

ATHENS PROGRAMME — MUSCULOSKELETAL & OSTEOARTICULAR BIOMECHANICS

Arts et Métiers ParisTech, France

- During my MSc degree, I was selected among the participants of the Athens program, which consisted of an intensive one-week course on the functional anatomy of the spine, shoulder, hip, and knee. The analysis of clinical issues, osteoarticular implants, joint kinematics and dynamics were treated.

2025

MACHINE LEARNING A-Z: AI, PYTHON & R

Udemy online course

LICENSES AND AFFILIATIONS

Feb 2025

LICENSED INDUSTRIAL ENGINEER — SECTION A

Politecnico di Milano, Italy

Jul 2026 – Present

MEMBER

Italian Association of Patent Information Professionals (AIDB)

LANGUAGES

English — B2 (TOEIC Score= 830/990)