CHIARA LENA

BIOMEDICAL ENGINEER

🔽 chiara.lena@polimi.it

EXPERIENCE

PhD Student

Politecnico di Milano - Dept of Electronics, Information and Bioengineering

🛗 November 2022 – Present

🕈 Milan, Italy

The topic is 'Novel endoscopes for real-time diagnostics'. The research is focused on deep learning and computer vision applications for smart endoscopic techniques in advanced colonoscopy imaging.

Extracurricular Internship

Politecnico di Milano

🛗 September 2022 – October 2022 💦 🍳 Milan, Italy

The internship focused on computer vision applications for colonoscopy imaging techniques.

Touristic Guide

Target Turismo Cremona

🛗 April 2018 – October 2022

• Casteldidone, Italy

Touristic guide at Castello Mina della Scala, Casteldidone (CR).

EDUCATION

Master's Degree in Biomedical Engineering (BIF-Information Bioengineering) Mark 110/110

Politecnico di Milano

🛗 April 2022

9 Milan, Italy

Bachelor Degree in Computer Science Engineering Mark 94/110

Politecnico di Milano sede di Cremona

🛗 September 2019

• Cremona, Italy

PUBLICATIONS

Casella, **Lena**, **C**., Moccia, S., Paladini, D., De Momi, E., Mattos, L. S., **Toward a** *navigation framework for fetoscopy*, 2023, *International Journal of Computer Assisted Radiology and Surgery (IJCARS)*, 1-8.

Bano, S., Casella, A., Vasconcelos, F., Qayyum, A., Benzinou, A., Mazher, M., Meriaudeauk, F., **Lena, C.**, ..., Stoyanov, D., *Placental vessel segmentation and registration in fetoscopy: Literature review and MICCAI FetReg2021 challenge findings*, 2024, DOI: 10.48550, Medical Image Analysis, 92, 103066, 1361-8415.

Eisenmann, M., Reinke, A., Weru, V., Tizabi, M. D., Isensee, F., Adler, T. J., Lena, C., ..., Filipiak, P., *Biomedical image analysis competitions: The state of current participation practice*, *arXiv preprint arXiv:2212.08568*

Lena, C., Milesi, D., Casella, A., Norton, J., Martin, J., Scaglioni, B., Obstein, K., Valdastri, P., De Momi, E., *Enhanced Monocular Depth Estimation from Motion in Colonoscopy*, 2024, *Gastrointestinal Endoscopy*, 99(6), AB3

SPECIALIZATION

Artificial Intelligence		e Computer Vision	
Imaging	Machine Learning		
Deep learning N		eural Networks	

PROGRAMMING

Programming Languages Python, Java, MATLAB

IDE and Tools Pycharm, Intellij, GitHub, Eclipse

Libraries

Pytorch, Kornia, Numpy, Opencv, Pandas, Matplotlib, Scikit-learn, Keras

LANGUAGES

Italian

English

- PET in 2011
- FCE in 2013
- TOEIC in 2019 (mark 980/990)

SOFT SKILLS

Communication Mentorship Teamwork Adaptability Scientific Research

VOLUNTARY ACTIVITIES

- Protezione Civile Nazionale, 2013-Present
- Voluntary activities with children and teenagers 2010-2017

INTERESTS

Photography Trav	vels		
Science and Technology			
Film and TV Series	Reading		

Carlini, L., **Lena, C.**, Sbrolli, C., Spadaccini, M., Hassan, C., De Momi, E., **Enhancing Colonoscopy Interpretation with AI-Based Captioning**, Conference on New Technologies for Computer and Robot Assisted Surgery (CRAS) 2024

Zeinoddin, M. S., Lena, C., Qu, J., Carlini, L., Magro, M., Kim, S., De Momi, E., Bano, S., Grech-Sollars, M., Mazomenos, E., Alexander, D. C., Stoyanov, D., Clarkson, M. J., Islam, M., DARES: Depth Anything in Robotic Endoscopic Surgery with Self-supervised Vector-LoRA of the Foundation Model, arXiv preprint arXiv:2408.17433

HONORS AND AWARDS

Best Poster. Novel Endoscopes for real-time diagnostics: Computer Vision applications for Smart Colonoscopy

Labex Primes, Université de Lyon

🛗 April 18th 2023

Lyon, France

Switch2Product 2023 winner project with INSIGHT. INSIGHT proposes a novel sensorized add-on mounted on the tip of the endoscope and two artificial intelligent modules for 3D reconstruction and lesion virtual biopsy.

🛗 December 2023

♥ Politecnico di Milano, Milan

Best Project Award for the UCL Medical Image Computing Summer School (MedICSS) 2024

University College London

Q London, United Kingdom

ACADEMIC ACTIVITIES

Teaching Assistant

Politecnico di Milano - Dept of Electronics, Information and Bioengineering

♥ Milan, Italy

🛗 November 2022 – Present

- Modules: Medical Robotics and Computer Aided Surgery, Clinical Technology Assessment
- Activities: Teaching Assistant, Project Tutor, Supervision of 5 MSc thesis

International Journal and Conference Reviewer

Movember 2022 – Present

- Medical & Biological Engineering & Computing (Springer)
- International Conference on Information Processing in Computer-Assisted Interventions (IPCAI)
- International Conference on Intelligent Robots and Systems (IROS) (IEEE/RSJ)
- International Journal of Computer Assisted Radiology and Surgery (Springer)

Doctoral Summer School Tutoring

First Doctoral Summer School on Robotics and Intelligent Machines – DRIMS2 a.y. 2022/2023

September 2023

The activity was focused on tutoring the participants in Computer Vision topics and for the summer school projects.

Doctoral Summer School Tutoring

Second Doctoral Summer School on Robotics and Intelligent Machines – DRIMS2 a.y. 2023/2024

🛗 September 2024

The activity was focused on tutoring the participants in Computer Vision topics and for the summer school projects.

Deep learning for medical imaging school

Labex Primes, Université de Lyon

🛗 April 17th-21st 2023

♥ Lyon, France

PROJECTS

INSIGHT, Intelligent Navigation System for Endoscopic Imaging and Guidance Technology

Innovative product idea proposed during Bocconi4Innovation competition (2024 Edition)

INSIGHT, Intelligent Navigation System for Endoscopic Imaging and Guidance Technology

Innovative product idea proposed during Switch2Product competition (2023 Edition)

Towards Learning based SLAM Framework for Occlusion Recovery and Mosaicking in Fetoscopy, Advisor: Professor Elena De Momi

Master Thesis

FETREG: Placental Vessel Segmentation and Registration in Fetoscopy Challenge, MICCAI 2021

Challenge

In-vivo Evaluation of Deep Sequential Mosaicking in Fetoscopy, Course of *Medical Robotics and Computer-Aided Surgery Laboratory*

Project

Image Super Resolution for Gaussian Noise Removal, Course of *Neuroengineering*

Project