PERSONAL INFORMATION

Federico Mento

POSITION

Postdoctoral Researcher (Research fellowship holder) at ULTRa (Ultrasound Lab Trento), University of Trento

STUDIES APPLIED FOR

Ph.D. in Information and Communication Technology

PERSONAL STATEMENT

I received my B.S. degree in Telecommunications and Electronic Engineering, the M.S. degree in Information and Communication Engineering (summa cum laude), and my PhD (summa cum laude) from the University of Trento, Italy, in 2017, 2019 and 2022, respectively.
My main research interest includes ultrasound imaging, signal processing and quantitative ultrasound. I am mainly working on lung ultrasound (LUS) imaging, including clinical, experimental, and simulation studies.

WORK EXPERIENCE

November 2022 – Present

Postdoctoral Researcher (Research fellowship holder) at ULTRa (Ultrasound Lab Trento), University of Trento

Department of Information Engineering and Computer Science – DISI, University of Trento, Trento, Italy

- Project on "*Development of quantitative methods for lung ultrasound data analysis*"
  - Starting date - Ending date: 17th November 2022 – 16th January 2023
- Project on "*Model and AI-based solutions for the automatic analysis of clinical ultrasound images*"
  - Starting date - Ending date: 17th January 2023 – 16th January 2024
  - Funded by the PNRR Project iNEST - Interconnected Nord-Est Innovation Ecosystem (iNEST ECS00000043 – CUP E63C22001030007)
- Project on "*Fabrication and analysis of advanced phantoms for lung ultrasound research*"
  - Starting date - Ending date: 17th January 2024 – 16th May 2025
  - Funded by the MUR PNRR POC ULTRASONIC-CAP Project (CUP E63C22003260001)
- Project on *"Development and validation of novel methods for lung ultrasound data acquisition and processing for the phenotyping and personalized management of neonatal lung disease*"
  - Starting date - Ending date: 17th May 2025 – N/A
  - Funded by the PNRR-POC-2023-12377827 Project (CUP E63C24000660007)
- International conferences and publications are listed in the "ADDITIONAL INFORMATION" section

September 2021 – September 2024

Teaching Assistant in Digital Signal Processing – Master of Science in Information and Communication Engineering [ING-INF/03]

Department of Information Engineering and Computer Science – DISI, University of Trento, Trento, Italy

September 2021 – September 2022

Teaching Assistant in Medical Imaging Diagnostic - Master of Science in Artificial Intelligence Systems [ING-INF/05]

Department of Information Engineering and Computer Science – DISI, University of Trento, Trento, Italy

September 2021 – September 2023

Teaching Assistant in Ultrasound Technologies for Medical Applications - Master of Science in Artificial Intelligence Systems [ING-INF/05]

Department of Information Engineering and Computer Science – DISI, University of Trento, Trento, Italy

February 2024 – Present

Teaching Assistant in Fundamentals of Bioengineering - Master of Science in Information Engineering [ING-INF/06]

Department of Information Engineering and Computer Science – DISI, University of Trento, Trento, Italy

February 2024 – Present

Teaching Assistant in Biomedical Signal Processing - Master of Science in Information Engineering [ING-INF/03]

Department of Information Engineering and Computer Science – DISI, University of Trento, Trento, Italy

November 2019 – October 2022

PhD student in *Information and Communication Technology* at University of Trento

Department of Information Engineering and Computer Science – DISI, University of Trento, Trento, Italy

1) IECS Doctoral School Courses:
   a. Academic Writing for the Sciences and Engineerings (2020)
   b. Research Methodology (2020)
   c. Deep Learning for Image Processing (2020)
   d. Deep Learning for Advanced Vision Systems (2020)
2) DISI attended seminars:
   a. Selling your high risk-high gain project: A testimony from acquiring ERC and FET-Open funding (2021)
   b. ERC Consolidator Grant 2020 ARTIST: Automated Reasoning with Theories and Induction for Software Technologies (2021)
   c. Interdisciplinary approaches to the Scheduling of Event-triggered Networked Control System (2021)
   d. AI and Robotics for Extreme Environments (2021)
3) International conferences and publications are listed in the "ADDITIONAL INFORMATION" section
4) **PhD Thesis Title: Development of Lung Ultrasound Quantitative Approaches and Automatic Semi-Quantitative Strategies*: In Silico, In Vitro, and Clinical Studies***

January 2017 – October 2019

Main projects related to my study plan (Master of Science in Information and Communication Engineering)

Department of Information Engineering and Computer Science – DISI, University of Trento, Trento, Italy

- Preliminary study for the automatic update of agricultural thematic maps with Sentinel 2 multitemporal satellite data (bachelor's degree thesis; developed with QGIS, ENVI and MATLAB)
- Multimedia Image forensics: Digital tampering detection ("Multimedia data security" master's degree course linked to an Euregio challenge with University of Innsbruck, 22-23/03/2018; developed with MATLAB)
- Analysis of Jovian emissions with JUNO Waves experimental data ("Radar and Radiolocalization" master's degree course; developed with MATLAB)
- Efficient colour blending in sport footages ("Computer Vision and multimedia analysis" master's degree course; developed in C++ programming language with the Open-Source Computer Vision Library)
- Multitemporal analysis of Mars surface by using the reprojection technique with MARSIS experimental data ("Advanced Remote Sensing Systems" master's degree course; developed with MATLAB)
- Quantitative Lung Ultrasound Imaging: a preliminary phantom study (master's degree thesis; data manually acquired with ULA-OP programmable platform; data processing performed with MATLAB)

EDUCATION AND TRAINING

November 2019 – November 2022

Information and Communication Technology Ph.D. (summa cum laude)

EQF level 8

Department of Information Engineering and Computer Science – DISI, University of Trento, Trento, Italy

September 2017 – October 2019

Information and Communication Engineering master's degree (summa cum laude)

EQF level 7

Department of Information Engineering and Computer Science – DISI, University of Trento, Trento, Italy

September 2013 – September 2017

Electronics and Telecommunications Engineering bachelor's degree

EQF level 6

Department of Information Engineering and Computer Science – DISI, University of Trento, Trento, Italy

September 2008 – July 2013

Scientific High School Diploma

EQF level 4

Scientific lyceum Leonardo Da Vinci, Trento, Italy

PERSONAL SKILLS

Mother tongue: Italian

Other languages

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
English	B2	B2	B2	B2	B2
	Technical English certification (level B2) issued by University of Trento and Academic Writing for the Sciences and Engineerings course provided by the Information Engineering and Computer Science (IECS) Doctoral School (University of Trento)				
Spanish	B2	B2	B2	B1	B2
	No official certification				

Levels: A1/A2: Basic user - B1/B2: Independent user - C1/C2 Proficient user
Common European Framework of Reference for Languages

Communication skills

- Good communication skills related to projects' presentation gained through my University experience
- Good communication skills gained through my experience as teaching assistant
- Good communication skills gained through my experience in presenting research projects in International conferences

Organisational / managerial skills

- Good collaboration and comparison in group work (acquired during my experience in developing University projects, during my PhD and PostDoc)
- Good supervision skills (acquired when supervising Master's students during my PhD and PostDoc)

Job-related skills

- Excellent active listening skills (acquired during my University's courses, PhD and PostDoc career)
- Maintenance of good relationships with my own superior (acquired during the development of University projects, during my PhD and PostDoc)

Digital skills

SELF-ASSESSMENT				
Information processing	Communication	Content creation	Safety	Problem solving
Proficient user	Proficient user	Proficient user	Proficient user	Proficient user

Levels: Basic user - Independent user - Proficient user
Digital competences - Self-assessment grid

No official ICT-certificate

- Good command of office suite (word processor, spread sheet, presentation software)
- Knowledge of different programming languages (C, C++, MATLAB)
- Knowledge of the Open-Source Computer Vision Library (OpenCV)
- Knowledge of different technical programs (ENVI, QGIS)
- Knowledge of many functionalities of ULA-OP programmable platform (acquired during my master's thesis development and during the University course of "Ultrasound technologies for medical applications", during my PhD and PostDoc)
- Knowledge of the k-Wave acoustics toolbox for MATLAB (acquired during the University course of "Ultrasound technologies for medical applications", during my PhD and PostDoc)
- Knowledge of the Signal Processing toolbox for MATLAB (acquired during my University experience, during my PhD and PostDoc)

Driving licence B

ADDITIONAL INFORMATION

Publications' metrics

SCOPUS: h-index = 20; citations = 2078 (https://www.scopus.com/authid/detail.uri?authorId=57216341247)

Google Scholar: h-index = 20; citations = 2923 (https://scholar.google.com/citations?view_op=list_works&hl=it&authuser=1&user=R17KOv0AAAAJ#)

Publications in International refereed journals (total = 28)

[9 as first author]

1. **Mento, F**., Soldati, G., Prediletto, R., Demi, M., and Demi, L. "Quantitative Lung Ultrasound Spectroscopy Applied to the Diagnosis of Pulmonary Fibrosis: The First Clinical Study," IEEE Trans. Ultrason. Ferroelectr. Freq. Control (2023 IF 3.0; **Q1 in Acoustics**), 67(11), 2265–2273. (2020). doi: https://doi.org/10.1109/TUFFC.2020.3012289
2. **Mento, F.**, and Demi, L. "On the Influence of Imaging Parameters on Lung Ultrasound B-line Artifacts, in vitro study," J. Acoust. Soc. Am. (2023 IF 2.1), 148(2), 975–983. (2020). doi: https://doi.org/10.1121/10.0001797
3. **Mento, F.**, Perrone, T., Macioce, V. N., Tursi, F., Buonsenso, D., Torri, E., Smargiassi, A., Inchingolo, R., Soldati, G., and Demi, L. "On the Impact of Different Lung Ultrasound Imaging Protocols in the Evaluation of Patients Affected by Coronavirus Disease 2019," J. Ultrasound Med. (2023 IF 2.1), 40(10), 2235-2238. (2021). doi: https://doi.org/10.1002/jum.15580
4. Soldati, G., Smargiassi, A., Inchingolo, R., Buonsenso, D., Perrone, T., Briganti, D. F., Perlini, S., Torri, E., Mariani, A., Mossolani, E. E., Tursi, F., **Mento, F.**, and Demi, L. "On Lung Ultrasound Patterns Specificity in the Management of COVID-19 Patients," J. Ultrasound Med. (2023 IF 2.1), 39(11), 2283-2284. (2020). doi: https://doi.org/10.1002/jum.15326
5. Smargiassi, A., Soldati, G., Torri, E., **Mento, F.**, Milardi, D., Giacomo, P. Del, De Matteis, G., Burzo, M. L., Larici, A. R., Pompili, M., Demi, L., and Inchingolo, R. "Lung Ultrasound for COVID-19 Patchy Pneumonia: Extended or Limited Evaluations?," J. Ultrasound Med. (2023 IF 2.1), 40(3), 521–528. (2021). doi: https://doi.org/10.1002/jum.15428
6. Carrer, L., Donini, E., Marinelli, D., Zanetti, M., **Mento, F.**, Torri, E., Smargiassi, A., Inchingolo, R., Soldati, G., Demi, L., Bovolo, F., and Bruzzone, L. "Automatic Pleural Line Extraction and COVID-19 Scoring from Lung Ultrasound Data," IEEE Trans. Ultrason. Ferroelectr. Freq. Control (2023 IF 3.0; **Q1 in Acoustics**), 67(11), 2207–2217. (2020). doi: https://doi.org/10.1109/TUFFC.2020.3005512
7. Roy, S., Menapace, W., Oei, S., Luijten, B., Fini, E., Saltori, C., Huijben, I., Chennakeshava, N., **Mento, F.**, Sentelli, A., Peschiera, E., Trevisan, R., Maschietto, G., Torri, E., Inchingolo, R., Smargiassi, A., Soldati, G., Rota, P., Passerini, A., et al. "Deep learning for classification and localization of COVID-19 markers in point-of-care lung ultrasound," IEEE Trans. Med. Imaging (2023 IF 8.9; **Q1 in Computer Science, Interdisciplinary applications, in Engineering, Biomedical, in Engineering, Electrical & Electronic, In Imaging Science & Photographic Technology and in Radiology, Nuclear Medicine & Medical Imaging**), 39(8), 2676–2687. (2020). doi: https://doi.org/10.1109/TMI.2020.2994459
8. Soldati, G., Smargiassi, A., Inchingolo, R., Buonsenso, D., Perrone, T., Briganti, D. F., Perlini, S., Torri, E., Mariani, A., Mossolani, E. E., Tursi, F., **Mento, F.**, and Demi, L. "Time for a new international evidence-based recommendations for point-of-care lung ultrasound," J. Ultrasound Med. (2023 IF 2.1), 40(2), 433-434. (2021). doi: https://doi.org/10.1002/jum.15412
9. Soldati, G., Smargiassi, A., Inchingolo, R., Buonsenso, D., Perrone, T., Briganti, D. F., Perlini, S., Torri, E., Mariani, A., Mossolani, E. E., Tursi, F., **Mento, F.**, and Demi, L. "Proposal for International Standardization of the Use of Lung Ultrasound for Patients With COVID-19," J. Ultrasound Med. (2023 IF 2.1), 39(7), 1413–1419. (2020). doi: https://doi.org/10.1002/jum.15285 **[Last three years MOST CITED article in Journal of Ultrasound in Medicine]**
10. Soldati, G., Smargiassi, A., Inchingolo, R., Buonsenso, D., Perrone, T., Briganti, D. F., Perlini, S., Torri, E., Mariani, A., Mossolani, E. E., Tursi, F., **Mento, F.**, and Demi, L. "Is There a Role for Lung Ultrasound During the COVID-19 Pandemic?," J. Ultrasound Med. (2023 IF 2.1), 39(7), 1459–1462. (2020). doi: https://doi.org/10.1002/jum.15284 **[Last three years THIRD MOST CITED article in Journal of Ultrasound in Medicine]**
11. Peschiera, E., **Mento, F.**, and Demi, L. "Numerical study on lung ultrasound B-line formation as a function of imaging frequency and alveolar geometries," J. Acoust. Soc. Am. (2023 IF 2.1), 149(4), 2304–2311. (2021). doi: https://doi.org/10.1121/10.0003930
12. Soldati, G., Smargiassi, A., Perrone, T., Torri, E., **Mento, F.**, Demi, L., and Inchingolo, R. "LUS for COVID-19 Pneumonia: Flexible or Reproducible Approach?," J. Ultrasound Med. (2023 IF 2.1), 41(2), 525-526. (2022). doi: https://doi.org/10.1002/jum.15726
13. **Mento, F.**, Perrone, T., Fiengo, A., Tursi, F., Macioce, V. N., Smargiassi, A., Inchingolo, R., and Demi, L. "Limiting the areas inspected by lung ultrasound leads to an underestimation of COVID-19 patients' condition," Intensive Care Med. (2023 IF 29.6; **Q1 in Critical Care Medicine**), 47, 811–812 (2021). doi: https://doi.org/10.1007/s00134-021-06407-0
14. Soldati, G., Smargiassi, A., Perrone, T., Torri, E., **Mento, F.**, Demi, L., and Inchingolo, R. "There is a Validated Acquisition Protocol for Lung Ultrasonography in COVID-19 Pneumonia," J. Ultrasound Med. (2023 IF 2.1), 40(12), 2783-2783. (2021) doi: https://doi.org/10.1002/jum.15649

15. **Mento, F.**, Perrone, T., Fiengo, A., Smargiassi, A., Inchingolo, R., Soldati, G., and Demi, L. "Deep learning applied to lung ultrasound videos for scoring COVID-19 patients: A multicenter study," J. Acoust. Soc. Am. (2023 IF 2.1), 149(5), 3626–3634. (2021). doi: https://doi.org/10.1121/10.0004855 **[FEATURED ARTICLE: Technical Area Pick for Biomedical Acoustics]**
16. Frank, O., Schipper, N., Vaturi, M., Soldati, G., Smargiassi, A., Inchingolo, R., Torri, E., Perrone, T., **Mento, F.**, Demi, L., Galun, M., Eldar, Y. C., and Bagon, S. "Integrating Domain Knowledge into Deep Networks for Lung Ultrasound with Applications to COVID-19," IEEE Trans. Med. Imaging (2023 IF 8.9; **Q1 in Computer Science, Interdisciplinary applications, in Engineering, Biomedical, in Engineering, Electrical & Electronic, In Imaging Science & Photographic Technology and in Radiology, Nuclear Medicine & Medical Imaging**), 41(3), 571-581. (2022). doi: https://doi.org/10.1109/TMI.2021.3117246
17. Demi, L., **Mento, F.,** Di Sabatino, A., Fiengo, A., Sabatini, U., Macioce, V. N., Robol, M., et al. "Lung Ultrasound in COVID-19 and Post-COVID-19 Patients, an Evidence-Based Approach," J. Ultrasound Med. (2023 IF 2.1), 41(9), 2203-2215. (2022). doi: https://doi.org/10.1002/jum.15902
18. **Mento, F.**, and Demi, L. "Dependence of lung ultrasound vertical artifacts on frequency, bandwidth, focus and angle of incidence: An in vitro study," J. Acoust. Soc. Am. (2023 IF 2.1), 150(6), 4075–4082. (2021). doi: https://doi.org/10.1121/10.0007482
19. Roshankhah, R., Karbalaeisadegh, Y., Hastings, G., **Mento, F.**, Soldati, G., Smargiassi, A., Inchingolo, R., Torri, E., Perrone, T., Aylward, S., Demi, L., and Muller, M. "Investigating training-test data splitting strategies for automated segmentation and scoring of COVID-19 lung ultrasound images," J. Acoust. Soc. Am. (2023 IF 2.1), 150(6), 4118–4127. (2021). doi: https://doi.org/10.1121/10.0007272 **[FEATURED ARTICLE]**
20. Khan, U., **Mento, F.**, Giacomaz, L. N., Trevisan, R., Smargiassi, A., Inchingolo, R., Perrone, T., and Demi, L., "Deep learning-based classification of reduced lung ultrasound data from COVID-19 patients," in IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control (2023 IF 3.0; **Q1 in Acoustics**), 69(5), 1661-1669. (2022). doi: https://doi.org/10.1109/TUFFC.2022.3161716
21. Fatima, N., **Mento, F.**, Zanforlin, A., Smargiassi, A., Torri, E., Perrone, T., and Demi, L., "Human to AI Interrater Agreement for Lung Ultrasound Scoring in COVID-19 Patients," J. Ultrasound Med. (2023 IF 2.1), 42(4), 843-851. (2023). doi: https://doi.org/10.1002/jum.16052
22. **Mento, F.**, Khan, U., Faita, F., Smargiassi, A., Inchingolo, R., Perrone, T., and Demi, L., "State of The Art in Lung Ultrasound, Shifting From Qualitative To Quantitative Analyses," in Ultrasound in Medicine and Biology (2023 IF 2.4), 48(12), 2398-2416. (2022). doi: https://doi.org/10.1016/j.ultrasmedbio.2022.07.007
23. Custode, L. L., **Mento, F.**, Tursi, F., Smargiassi, A., Inchingolo, R., Perrone, T., Demi, L., and Iacca, G., "Multi-objective automatic analysis of lung ultrasound data from COVID-19 patients by means of deep learning and decision trees," in Applied Soft Computing (2023 IF 7.2; **Q1 in Computer Science, Artificial Intelligence and in Computer Science, Interdisciplinary applications**), 133, 109926. (2023). doi: https://doi.org/10.1016/j.asoc.2022.109926
24. Khan, U., Afrakhteh, S., **Mento, F.**, et al. "Benchmark methodological approach for the application of artificial intelligence to lung ultrasound data from COVID-19 patients: From frame to prognostic-level," in (2023 IF 3.8; **Q1 in Acoustics and in Radiology, Nuclear Medicine & Medical Imaging**), 132, 106994. (2023). doi: https://doi.org/10.1016/j.ultras.2023.106994
25. **Mento, F.**, Perini, M., Malacarne, C., and Demi, L. "Ultrasound multifrequency strategy to estimate the lung surface roughness, in silico and in vitro results," in Ultrasonics (2023 IF 3.8; **Q1 in Acoustics and in Radiology, Nuclear Medicine & Medical Imaging**), 135, 107143. (2023). doi: https://doi.org/10.1016/j.ultras.2023.107143
26. Khan, U., Afrakhteh, S., **Mento, F.**, Mert, G., Smargiassi, A., Inchingolo, R., Tursi, F., et al. "Low-complexity lung ultrasound video scoring by means of intensity projection-based video compression," Comput. Biol. Med. (2023 IF 7.0; **Q1 in Biology and in Computer Science, Interdisciplinary applications, and in Engineering, Biomedical, and in Mathematical & Computational Biology**), 169, 107885. (2024). doi: https://doi.org/10.1016/j.compbiomed.2023.107885
27. **Mento, F.**, Perpenti, M., Barcellona, G., Perrone, and Demi, L., "Lung Ultrasound Spectroscopy Applied to the Differential Diagnosis of Pulmonary Diseases: An In Vivo Multicenter Clinical Study," IEEE Trans. Ultrason. Ferroelectr. Freq. Control (2023 IF 3.0; **Q1 in Acoustics**), 71(10), 1217–1232. (2024). doi: https://doi.org/10.1109/TUFFC.2024.3454956
28. Fatima, N., **Mento, F.**, Afrakhteh, S., Perrone, T., Smargiassi, A., Inchingolo, R., Demi, L., "Synthetic Lung Ultrasound Data Generation Using Autoencoder with Generative Adversarial Network," IEEE Trans. Ultrason. Ferroelectr. Freq. Control (2023 IF 3.0; **Q1 in Acoustics**), (2025). doi: https://doi.org/10.1109/TUFFC.2025.3555447

Publications in International conference proceedings (total = 20)

[11 as first author]

1. **Mento, F.**, Soldati, G., Prediletto, R., Demi, M., and Demi, L. “Differentiation of Pulmonary Fibrosis by Means of Quantitative Lung Ultrasound Spectroscopy, First Clinical Study in Humans,” 2020 IEEE Int. Ultrason. Symp., 1–4. (2020). doi: https://doi.org/10.1109/IUS46767.2020.9251740
2. **Mento, F.**, and Demi, L. “Effect of Imaging Parameters on the Visualization of Lung Ultrasound B-line Artifacts,” 2020 IEEE Int. Ultrason. Symp., 1–4. (2020). doi: https://doi.org/10.1109/IUS46767.2020.9251818
3. Yaron, D., Keidar, D., Goldstein, E., Shachar, Y., Blass, A., Frank, O., Schipper, N., Shabshin, N., Grubstein, A., Suhami, D., Bogot, N. R., Weiss, C. S., Sela, E., Dror, A. A., Vaturi, M., **Mento, F.**, Torri, E., Inchingolo, R., Smargiassi, A., et al. “Point of Care Image Analysis for COVID-19,” ICASSP 2021 - 2021 IEEE Int. Conf. Acoust. Speech Signal Process., 8153–8157. (2021). doi: https://doi.org/10.1109/ICASSP39728.2021.9413687
4. **Mento, F.**, Perrone, T., Fiengo, A., Macioce, V. N., Tursi, F., Smargiassi, A., Inchingolo, R., and Demi, L. “A Multicenter Study Assessing Artificial Intelligence Capability in Scoring Lung Ultrasound Videos of COVID-19 Patients,” 2021 IEEE Int. Ultrason. Symp., 1–3. (2021). doi: https://doi.org/10.1109/IUS52206.2021.9593821
5. **Mento, F.**, and Demi, L. “Impact of Frequency, Bandwidth, Focus, and Angle of Incidence on Lung Ultrasound Vertical Artifacts’ Intensity, in-vitro Study,” 2021 IEEE Int. Ultrason. Symp., 1–3. (2021). doi: https://doi.org/10.1109/IUS52206.2021.9593448
6. Khan, U., **Mento, F.**, Giacomaz, L. N., Trevisan, R., Smargiassi, A., Inchingolo, R., Perrone, T., and Demi, L., “Impact of pixel, intensity, and temporal resolution on automatic scoring of LUS from Coronavirus disease 2019 patients,” in Proceedings of Meetings on Acoustics, vol. 46, no. 1, 020003. (2022). doi: https://doi.org/10.1121/2.0001612
7. Custode, L. L., **Mento, F.**, Afrakhteh, S., Tursi, F., Smargiassi, A., Inchingolo, R., Perrone, T., Iacca, G., and Demi, L., “Neuro-symbolic interpretable AI for automatic COVID-19 patient-stratification based on standardised lung ultrasound data,” Proceedings of Meetings on Acoustics, vol. 46, no. 1, 020002. (2022). doi: https://doi.org/10.1121/2.0001600
8. **Mento, F.,** Gasperotti, M., Demi., L. “Iterative Deconvolution Approach for Automatic Segmentation of Lung Ultrasound Vertical Artifacts,” 2022 IEEE Int. Ultrason. Symp. (2022). doi: https://doi.org/10.1109/IUS54386.2022.9957536
9. **Mento, F.,** and Demi., L. “Multi-Frequency Approach to Estimate the Roughness of Lung Surface, In Silico Study,” 2022 IEEE Int. Ultrason. Symp. (2022). doi: https://doi.org/10.1109/IUS54386.2022.9957410
10. **Mento, F.**, Di Sabatino, A., Fiengo, A., Sabatini, U., Macioce, V. N., Tursi, F., et al. “Automatically Scoring Lung Ultrasound Videos of COVID-19 and Post-COVID-19 Patients,” 2022 IEEE Int. Ultrason. Symp. (2022). doi: https://doi.org/10.1109/IUS54386.2022.9958500
11. Afrakhteh, S., **Mento, F.**, Khan, U., De Rosa, L., Fatima, N., Azam, Z., et al. “Automatic Scoring of COVID-19 LUS Videos Using Cross-Correlation-Based Features Aggregated from Frame-Level Confidence Levels Obtained by a Pre-Trained Deep Neural Network,“ 2022 IEEE Int. Ultrason. Symp. (2022). doi: https://doi.org/10.1109/IUS54386.2022.9957194
12. **Mento, F.**, Perini, M., Malacarne, C., and Demi, L. “Estimation of Lung Surface Roughness by Means of an Ultrasound Multifrequency Approach, in silico and in vitro results,” 2023 IEEE Int. Ultrason. Symp. (2023). doi: https://doi.org/10.1109/IUS51837.2023.10306777
13. **Mento, F.**, Perpenti, M., Barcellona, G., Perrone, and Demi, L., “Differential Diagnosis of Lung Disease through Quantitative Lung Ultrasound Spectroscopy, an in vivo clinical study over 114 patients,” 2023 IEEE Int. Ultrason. Symp. (2023). doi: https://doi.org/10.1109/IUS51837.2023.10308226
14. Fatima, N., **Mento, F.**, and Demi, L., “Oversample minority classes in Lung Ultrasound using Generative Adversarial Network,” 2023 IEEE Int. Ultrason. Symp. (2023). doi: https://doi.org/10.1109/IUS51837.2023.10308323
15. Khan, U., Afrakhteh, S., **Mento, F.**, et al., “Lung ultrasound patterns analysis at video and prognostic level in a resource-constrained setting,” 2023 IEEE Int. Ultrason. Symp. (2023). doi: https://doi.org/10.1109/IUS51837.2023.10306694
16. **Mento, F.**, et al., “Quantitative Lung Ultrasound Spectroscopy Classification Performance in Differentiating CPE, Pneumonia, and PF, a Comparative Classifiers’ Analysis,” 2024 IEEE UFFC-JS (2024). doi: https://doi.org/10.1109/UFFC-JS60046.2024.10793564
17. **Mento, F.**, et al., “Alveolar Geometry Estimation Through Quantitative Lung Ultrasound Spectroscopy, Phantom Study with Monodisperse Vs Polydisperse Microbubble Populations,” 2024 IEEE UFFC-JS (2024). doi: https://doi.org/10.1109/UFFC-JS60046.2024.10793730
18. Perpenti, M., **Mento, F.,** et al., “A Novel Empirical Wavelet Transform Approach for Classification of Radiofrequency Lung Ultrasound Signals Applied to Diagnosis of Lung Diseases,” 2024 IEEE UFFC-JS (2024). doi: https://doi.org/10.1109/UFFC-JS60046.2024.10793884
19. Perpenti, M., **Mento, F.,** et al., “Novel Quantitative Lung Ultrasound Spectroscopy Approach for Diseases Classification,” 2024 IEEE UFFC-JS (2024). doi: https://doi.org/10.1109/UFFC-JS60046.2024.10793543
20. Afrakhteh, S., **Mento, F.,** Demi, L., Application of Tensor Completion for Reducing the Beamforming Time in Ultrafast Ultrasound Imaging: A Doppler Ultrasound Assessment,” 2024 IEEE UFFC-JS (2024). doi: https://doi.org/10.1109/UFFC-JS60046.2024.10793941

Publications in International conference abstracts (total = 15)

[6 as first author]

1. **Mento, F.**, Soldati, G., Prediletto, R., Demi, M., and Demi, L. "The impact of B-lines' frequency characterization on lung ultrasound imaging, in vitro- and in vivo study," J. Acoust. Soc. Am., 148, 2692. (2020). doi: https://doi.org/10.1121/1.5147454
2. Roshankhah, R., Karbalaeisadegh, Y., Greer, H., **Mento, F.**, Soldati, G., Smargiassi, A., Inchingolo, R., Torri, E., Aylward, S., Demi, L., and Muller, M. "Automated segmentation and scoring of lung ultrasound images of COVID-19 patients," J. Acoust. Soc. Am., 148, 2735. (2020). doi: https://doi.org/10.1121/1.5147599
3. Smargiassi, A., Soldati, G., Perrone, T., Torri, E., **Mento, F.**, Milardi, D., Del Giacomo, P., De Matteis, G., Burzo, M. L., Larici, A. R., Pompili, M., Demi, L., and Inchingolo, R. "Lung ultrasound and high-resolution CT-scan of the chest for COVID-19 pneumonia," J. Acoust. Soc. Am., 148, 2691. (2020). doi: https://doi.org/10.1121/1.5147452
4. Bagon, S., Galun, M., Frank, O., Schipper, N., Vaturi, M., Zalcberg, G., Soldati, G., Smargiassi, A., Inchingolo, R., Torri, E., Perrone, T., **Mento, F.**, Demi, L., and Eldar, Y. "Assessment of COVID-19 in lung ultrasound by combining anatomy and sonographic artifacts using deep learning," J. Acoust. Soc. Am., 148, 2736. (2020). doi: https://doi.org/10.1121/1.5147600
5. Peschiera, E., Rigolin, T., **Mento, F.**, and Demi, L. "Ultrasound waves propagation in aerated inhomogeneous media," J. Acoust. Soc. Am., 148, 2737. (2020). doi: https://doi.org/10.1121/1.5147604
6. Demi, L., **Mento, F.**, Perrone, T., Fiengo, A., Smargiassi, A., Inchingolo, R., and Soldati, G. "Agreement between expert sonographers and artificial intelligence in the evaluation of lung ultrasound data acquired from COVID-19 patients," ERJ Open Res., 7, 61. (2021). doi: https://doi.org/10.1183/23120541.LSC-2021.61
7. **Mento, F.**, and Demi, L., "Investigating the link between intensity of lung ultrasound vertical artifacts and penetration depth of ultrasound waves, in silico study," J. Acoust. Soc. Am., 151, 4, A76. (2022). doi: https://doi.org/10.1121/10.0010706
8. Demi, L., **Mento, F.**, Di Sabatino, A., Fiengo, A., Sabatini, U., Macioce, V. N., Robol, M., Tursi, F., Sofia, C., Di Cienzo, C., Smargiassi, A., Inchingolo, R., and Perrone, T., "A standardised and evidenced-based lung ultrasound acquisition protocol and scoring system for the monitoring and stratification of COVID-19 and post-COVID-19 patients," J. Acoust. Soc. Am., 151, 4, A112. (2022). doi: https://doi.org/10.1121/10.0010818
9. Khan, U., **Mento, F.**, Nicolussi Giacomaz, L., Trevisan, R., Smargiassi, A., Inchingolo, R., Perrone, T., and Demi, L., "On the impact of pixel resolution on automated scoring of lung ultrasound images from coronavirus disease 2019 patients," J. Acoust. Soc. Am., 151, 4, A112. (2022). doi: https://doi.org/10.1121/10.0010819
10. Custode, L. L., **Mento, F.**, Afrakhteh, S., Tursi, F., Smargiassi, A., Inchingolo, R., Perrone, T., Demi, L., and Iacca, G., "Neuro-symbolic interpretable AI for automatic COVID-19 patient-stratification based on standardised lung ultrasound data," J. Acoust. Soc. Am., 151, 4, A112. (2022). doi: https://doi.org/10.1121/10.0010820
11. **Mento, F.**, Demi, L., Di Sabatino, A., Fiengo, A., Sabatini, U., Macioce, V. N., Robol, M., Tursi, F., Sofia, C., Di Cienzo, C., Smargiassi, A., Inchingolo, R., and Perrone, T., "Multicenter Study on Lung Ultrasound COVID-19 and Post-COVID-19 Patients," in Journal of Ultrasound in Medicine, vol. 41, no. S1, pp. S129. (2022). doi: https://doi.org/10.1002/jum.16028
12. **Mento, F.**, Khan, U., Nicolussi Giacomaz, L., Trevisan, R., Smargiassi, A., Inchingolo, R., Perrone, T., and Demi, L., "On the Impact of Pixel Resolution on Automated Scoring of Lung Ultrasound Images From COVID-19 Patients," in Journal of Ultrasound in Medicine, vol. 41, no. S1, pp. S130. (2022). doi: https://doi.org/10.1002/jum.16028
13. **Mento, F.**, Perpenti, M., Barcellona, G., Torri, E., Perrone, and Demi, L., "Quantitative lung ultrasound spectroscopy, an in vivo clinical study conducted over 101 patients," J. Acoust. Soc. Am., 153, 3, A189. (2023). doi: https://doi.org/10.1121/10.0018615
14. **Mento, F.**, Perini, M., Malacarne, C., and Demi, L., "Ultrasound multifrequency strategy applied to the estimation of lung surface roughness," J. Acoust. Soc. Am., 153, 3, A189. (2023). doi: https://doi.org/10.1121/10.0018612
15. Khan, U., Afrakhteh, S., **Mento, F.**, Smargiassi, A., Inchingolo, R., Tursi, F., Macioce, V. N., Perrone, T., Iacca, G., and Demi, L., "Coronavirus disease 2019 patients prognostic stratification based on low complex lung ultrasound video compression," J. Acoust. Soc. Am., 153, 3, A189. (2023). doi: https://doi.org/10.1121/10.0018617

Conferences

1. IEEE International Ultrasonics Symposium 2020, Virtual Symposium, September 6-11, 2020.
2. Acoustics Virtually Everywhere, 179th meeting of the Acoustical Society of America, Virtual Conference, December 7-11, 2020.
3. 4th Accademia di Ecografia Toracica (AdET) National Conference, Napoli (Italy), September 10-11, 2021.
4. IEEE International Ultrasonics Symposium 2021, Virtual Symposium, September 12-16, 2021.
5. Annual Integrative Annual Meeting (AIUM) 2022, San Diego (US), March 12-16, 2022.
6. IEEE International Ultrasonics Symposium 2022, Venice (Italy), October 10-13, 2022.
7. 184th meeting of the Acoustical Society of America, Chicago (US), May 8-12, 2023.
8. International Lung Ultrasound Symposium, Trento (Italy), July 10-12, 2023.
9. IEEE International Ultrasonics Symposium 2023, Montreal (Canada), September 3-8, 2023.
10. IEEE Ultrasonics, Ferroelectrics, and Frequency Control Joint Symposium 2024, Taipei (Taiwan), September 22-26, 2024.
11. International Lung Ultrasound Symposium 2025, Trento (Italy), June 4-6, 2025.

Presentations

1. Presentation of *"Differentiation of Pulmonary Fibrosis by Means of Quantitative Lung Ultrasound Spectroscopy, First Clinical Study in Humans"* at the IEEE International Ultrasonics Symposium 2020, Virtual Symposium, September 6-11, 2020.
2. Presentation of *"Effect of Imaging Parameters on the Visualization of Lung Ultrasound B-line Artifacts"* at the IEEE International Ultrasonics Symposium 2020, Virtual Symposium, September 6-11, 2020.
3. Presentation of *"The impact of B-lines' frequency characterization on lung ultrasound imaging, in vitro- and in vivo study"* at Acoustics Virtually Everywhere, 179th meeting of the Acoustical Society of America, Virtual Conference, December 7-11, 2020.
4. **Invited presentation** of *"Development of diagnostics with Artificial Intelligence"* at the 4th Accademia di Ecografia Toracica (AdET) National Conference, Napoli (Italy), September 10-11, 2021.
5. Presentation of *"Impact of Frequency, Bandwidth, Focus, and Angle of Incidence on Lung Ultrasound Vertical Artifacts' Intensity, in-vitro Study"* at the IEEE International Ultrasonics Symposium 2021, Virtual Symposium, September 12-16, 2021.
6. Lead author of E-poster "*Multicenter Study on Lung Ultrasound COVID-19 and Post-COVID-19 Patients*" at the Annual Integrative Annual Meeting (AIUM) 2022, San Diego (US), March 12-16, 2022.
7. Lead author of two E-poster "*On the Impact of Pixel Resolution on Automated Scoring of Lung Ultrasound Images From COVID-19 Patients*" at the Annual Integrative Annual Meeting (AIUM) 2022, San Diego (US), March 12-16, 2022.
8. Poster presentation of "*Multi-Frequency Approach to Estimate the Roughness of Lung Surface, in silico Study*" at the IEEE International Ultrasonics Symposium 2022, Venice (Italy), October 10-13, 2022.
9. Poster presentation of "*Iterative Deconvolution Approach for Automatic Segmentation of Lung Ultrasound Vertical Artifacts*" at the IEEE International Ultrasonics Symposium 2022, Venice (Italy), October 10-13, 2022.
10. Presentation of *"Quantitative lung ultrasound spectroscopy, an in vivo clinical study conducted over 101 patients"* at 184th meeting of the Acoustical Society of America, Chicago (US), May 8-12, 2023.
11. Presentation of *"Ultrasound multifrequency strategy applied to the estimation of lung surface roughness"* at 184th meeting of the Acoustical Society of America, Chicago (US), May 8-12, 2023.
12. **Invited presentation** of *"Quantitative lung ultrasound spectroscopy for improved lung ultrasound specificity"* at the International Lung Ultrasound Symposium, Trento (Italy), July 10-12, 2023.
13. Presentation of *"Estimation of Lung Surface Roughness with an Ultrasound Multifrequency Approach, an in silico and in vitro study"* at the International Lung Ultrasound Symposium, Trento (Italy), July 10-12, 2023.
14. Poster presentation of "*Estimation of Lung Surface Roughness by Means of an Ultrasound Multifrequency Approach, in silico and in vitro results*" at the IEEE International Ultrasonics Symposium 2023, Montreal (Canada), September 3-8, 2023.
15. Poster presentations of "*Differential Diagnosis of Lung Disease through Quantitative Lung Ultrasound Spectroscopy, an in vivo clinical study over 114 patients*" at the IEEE International Ultrasonics Symposium 2023, Montreal (Canada), September 3-8, 2023.
16. Poster presentation of "*Quantitative Lung Ultrasound Spectroscopy Classification Performance in Differentiating CPE, Pneumonia, and PF, a Comparative Classifiers' Analysis*" at the IEEE Ultrasonics, Ferroelectrics, and Frequency Control Joint Symposium 2024, Taipei (Taiwan), September 22-26, 2024.
17. Presentation of "*Alveolar Geometry Estimation Through Quantitative Lung Ultrasound Spectroscopy, Phantom Study with Monodisperse Vs Polydisperse Microbubble Populations*" at the IEEE Ultrasonics, Ferroelectrics, and Frequency Control Joint Symposium 2024, Taipei (Taiwan), September 22-26, 2024.
18. Presentation of "*On the Automatic Scanning of Pleural Line through Robot Assisted Lung Ultrasound, An Experimental Study*" at the International Lung Ultrasound Symposium 2025, Trento (Italy), June 4-6, 2025.
19. Poster presentation of "*Quantitative Lung Ultrasound Spectroscopy to Assess Alveolar Spatial Complexity, In Vitro Study with Monodisperse Vs Polydisperse Microbubble Populations*" at the International Lung Ultrasound Symposium 2025, Trento (Italy), June 4-6, 2025.

Specific roles

1. **Invited speaker** at the 4th Accademia di Ecografia Toracica (AdET) National Conference, Napoli (Italy), September 10-11, 2021.
2. **Interview** at Across Acoustics Podcast (episode title: Lung Ultrasound), February 7, 2022. https://acrossacoustics.buzzsprout.com/1537384/10028464-lung-ultrasound
3. **Cochair** at the 184th meeting of the Acoustical Society of America, Chicago (US), May 8-12, 2023 (session: *General Topics in Biomedical Acoustics: QUS and Beamforming*).
4. **Organizing Committee Member and Invited Speaker** at the 1st International Lung Ultrasound Symposium, Trento (Italy), July 10-12, 2023.
5. **Chair** at the International Lung Ultrasound Symposium, Trento (Italy), July 10-12, 2023 (sessions: *Quantitative LUS 3* and *AI for LUS analysis 2*).
6. **Cochair** at the IEEE International Ultrasonics Symposium 2023, Montreal (Canada), September 3-8, 2023 (session: *MIS: Machine Learning for Image Analysis*).
7. **Lecturer** at "Corso Teorico-Pratico di Alta Formazione in ECOGRAFIA TORACICA" (Theoretical-Practical Advanced Training Course in THORACIC ULTRASOUND), held in Università Cattolica del Sacro Cuore, Facoltà di Medicina e Chirurgia "A. Gemelli", Rome (Italy), November 9, 2023.
8. **Cochair** at the IEEE Ultrasonics, Ferroelectrics, and Frequency Control Joint Symposium 2024, Taipei (Taiwan), September 22-26, 2024 (session: *MIS: Image Formation*).
9. **Chair** at the IEEE Ultrasonics, Ferroelectrics, and Frequency Control Joint Symposium 2024, Taipei (Taiwan), September 22-26, 2024 (session: *MIS: Image Enhancement 2*).
10. **Organizing Committee Member** of the International Lung Ultrasound Symposium 2025, Trento (Italy), July 4-6, 2025.
11. **Chair** at the International Lung Ultrasound Symposium 2025, Trento (Italy), July 10-12, 2023 (sessions: *Quantitative LUS 1* and *LUS Models (experimental, animal, ex vivo)*).

Other roles

1. **Co-supervisor** of 6 master students' thesis at the Department of Information Engineering and Computer Science, University of Trento (https://webapps.unitn.it/du/en/Persona/PER0171669/Tesi)
2. **Reviewer** for International refereed journals, including
   a. Journal of IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control (2023 IF 3.0; **Q1 in Acoustics**),
   b. Computer Methods and Programs in Biomedicine (2023 IF 4.9; **Q1 in Computer Science, Interdisciplinary applications and in Computer Science, Theory & Methods, and in Engineering, Biomedical, and in Medical Informatics**),
   c. Artificial Intelligence In Medicine (2023 IF 6.1; **Q1 in Engineering, Biomedical and in Computer Science, Artificial Intelligence and in Medical Informatics**),
   d. Computers in Biology and Medicine (2023 IF 7.0; **Q1 in Biology and in Computer Science, Interdisciplinary applications, and in Engineering, Biomedical, and in Mathematical & Computational Biology**),
   e. Ultrasound Journal (2023 IF 3.6; **Q1 in Radiology, Nuclear Medicine & Medical Imaging**),
   f. BMJ Open Respiratory Research (2023 IF 3.7; **Q1 in Respiratory System**),
   g. Nature Scientific Reports (2023 IF 3.8; **Q1 in Multidisciplinary Sciences**),
   h. ERJ Open Research (2023 IF 4.3; **Q1 in Respiratory System**),
   i. Journal of the Acoustical Society of America (2023 IF 2.1),
   j. Signal, Image and Video Processing (2023 IF 2.0),
   k. Frontiers in Bioscience-Landmark (2023 IF 3.3).

Prizes/awards

1. **Best PhD in Information and Communication Technology** (A.Y. 2022/23).

Date 09/06/2025