



Federica Corso

Date of birth: 20/05/1993 | **Nationality:** Italian | **Gender:** Female |
| **Website:**

● ABOUT ME

PhD in Data Analytics and Decision Sciences with a master degree in Bioengineering. Health Data Scientist with long-established experience in clinical and administrative database analysis in oncology. Consolidated co-participant with several healthcare Italian institutions of challenging projects about health analytics. Currently working on pharmaco-epidemiology, health economics and artificial intelligence methods applied to cancer drugs in real-world evidence studies. Big data enthusiast and well-skilled in predictive models including AI, survival analysis, causal inference techniques, meta-analyses, text-mining. Fully experienced in manipulation, analysis and visualization of wide and long-format databases with statistical/ML software (e.g., R, Python, Matlab). Experienced in supportive teaching (statistics and probability) and co-advisor of master degree thesis in mathematical engineering.

● WORK EXPERIENCE

02/2021 – 06/2023 Milan, Italy

UNIVERSITY TEACHING ASSISTANT IN STATISTICS (SSD SECS-S/01) POLITECNICO DI MILANO

University teaching assistant in Statistics for Bachelor Degree in Mathematical Engineering. Assignments renewed for academic years 2021-2022, 2022-2023.

Department Department of Mathematics - MOX Laboratory | **Address** Via Bonardi 9, Edificio "La Nave", Milan, Italy

02/2020 – 01/2023 Milan

TUTOR IN PROBABILITY AND STATISTICS (SSD MAT/06) POLITECNICO DI MILANO

Tutoring activity in Probability and Statistics. Assignment renewed for academic years 2020-2021, 2021-2022 e 2022-2023.

Department Department of Mathematics - MOX Laboratory | **Address** Via Bonardi 9, Edificio "La Nave", Milan

01/2019 – 10/2020 Milan, Italy

RESEARCH FELLOW IRCCS ISTITUTO EUROPEO DI ONCOLOGIA

Post-graduated fellowship in health data analysis of multi-omics data and image-based data throughout biostatistics and AI techniques of mono and multicentric studies. During this research period, I have contributed to the development of statistical methods for the investigation of the interaction between Vitamin D, serum biomarkers and gut microbiota in colorectal cancer risk. I have also conducted statistical analysis on gene expression in association with different cancer prognosis and meta-analyses about epidemiological risk factors. Finally, I have participated to projects of image-based data analysis, such as radiomics, for the prediction of cancer prognosis and eventually its correlation with genetic alterations. First author of a radiomic project about AI methods and lung cancer prediction published on the peer-reviewed medical journal Cancer.

Department Department of Experimental Oncology | **Address** Via Adamello 16, Via Ripamonti 435, Milan, Italy

● EDUCATION AND TRAINING

01/01/2020 – 31/10/2023

PHD IN DATA ANALYTICS AND DECISION SCIENCES Politecnico di Milano, Fondazione Human Technopole

Thesis title: A real-world data statistical approach to support decision-making in clinical and health policy.

This project aims to evaluate the impact of precision medicine therapies in oncology applied to real world evidence observational studies. In fact, a new challenge for the NHS sustainability is defining the actual value brought by innovative therapies for cancer treatment through the generation of evidence coming from Real-World in addition to traditional clinical research. New areas explored in this project include: the collection of data on efficacy and safety to evaluate clinical effectiveness; the collection of data to quantify the economic impact on the healthcare system of the overall costs generated by cancer patients. Therefore, it results strategic implementing a novel integrated tool of Health Analytics based on the integration of for administrative data and data from clinical practice collected by hospitals data warehouses. This project support the adoption of "data driven" and "value-based" approaches in pharmaceutical and health policy decisions. These approaches include statistical models, economic evaluations, artificial intelligence algorithms for outcome prediction and text-mining.

Field of study Health Analytics

02/2019 Padova, Italy

ESAME DI STATO PER ABILITAZIONE ALLA PROFESSIONE DI INGEGNERE INDUSTRIALE
Università degli Studi di Padova

Esame di Stato sezione A.

10/2015 – 04/2018 Milan, Italy

MASTER DEGREE IN BIOENGINEERING Università degli Studi di Padova

Thesis title: Comparison of methods for the preprocessing and the identification of cell subpopulations in single cell RNA sequencing.

The thesis aims to provide a wider knowledge on the main features of single cell RNA seq data and evaluate the impact of different pre-processing strategies on the identification of cell subpopulations. We benchmarked the existing pre-processing methods, by combining classical descriptive analyses of scRNA seq data with new several computational approaches. Preliminary analyses on two dataset were performed in order to study the main statistical characteristics of single cell data sets, in particular the dropout. Four pre-processing pipelines, consisting of a combination of two normalization and two zero imputation methods, were tested. We evaluated the performances by applying both qualitative criteria and quantitative metrics. The results of the comparison allowed to identify the best performing pipeline and provided some useful guidelines for the definition of robust pre-processing strategies.

Field of study Omic Data analysis | **Final grade** 106/110

10/2011 – 03/2015 Padova, Italy

BACHELOR DEGREE IN BIOMEDICAL ENGINEERING Università degli Studi di Padova - Department of Information Engineering

Field of study Bioimaging | **Final grade** 96/110 | **Thesis** Advanced ultrasound imaging techniques

09/2006 – 06/2011 Foggia, Italy

HIGH SCHOOL DIPLOMA Liceo Scientifico Alessandro Volta

Final grade 94/100

● LANGUAGE SKILLS

Mother tongue(s): **ITALIAN**

Other language(s):

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken production	Spoken interaction	
ENGLISH	B2	B2	B2	B2	B2
FRENCH	A2	A2	A2	A2	A2

Levels: A1 and A2: Basic user; B1 and B2: Independent user; C1 and C2: Proficient user

● ADDITIONAL INFORMATION

PUBLICATIONS

The Challenge of Choosing the Best Classification Method in Radiomic Analyses: Recommendations and Applications to Lung Cancer CT Images.

Corso F, Tini G, Lo Presti G, Garau N, De Angelis SP, Bellerba F, Rinaldi L, Botta F, Rizzo S, Origgi D, Paganelli C, Cremonesi M, Rampinelli C, Bellomi M, Mazzarella L, Pelicci PG, Gandini S, Raimondi S.

Cancers (Basel). 2021 Jun 21;13(12):3088. doi: 10.3390/cancers13123088.

Compartmental tongue surgery for intermediate-advanced squamous cell carcinoma: A multicentric study

Calabrese L, Tagliabue M, Grammatica A, De Berardinis R, **Corso F***, Gazzini L, Abousiam M, Fazio E, Mattavelli D, Fontanella W, Giannini L, Bresciani L, Bruschini R, Gandini S, Piazza C, Ansarin M.

***Corso F** is corresponding author for this manuscript.

Head & Neck.2023;45:2862–287, doi.org/10.1002/hed.27517

Geographical Distribution of E-cadherin Germline Mutations in the Context of Diffuse Gastric Cancer: A Systematic Review.

Corso G, **Corso F**, Bellerba F, Carneiro P, Seixas S, Cioffi A, La Vecchia C, Magnoni F, Bonanni B, Veronesi P, Gandini S, Figueiredo J.

Cancers (Basel). 2021 Mar 12;13(6):1269. doi: 10.3390/cancers13061269.

Meta-analysis of diagnostic performance of serological tests for SARS-CoV-2 antibodies up to 25 April 2020 and public health implications

Caini S., Bellerba F., **Corso F.**, Díaz-Basabe A., Natoli G., Paget J., Facciotti F., De Angelis S P., Raimondi R., Palli D, Mazzarella L., Pelicci P.G., Vineis P., Gandini S.

Euro Surveill. 2020 Jun;25(23):2000980. doi: 10.2807/1560-7917.ES.2020.25.23.2000980.

Survival outcomes in oral tongue cancer: a mono-institutional experience focusing on age

Mohssen A., De Berardinis R., **Corso F.**, Giugliano G., Bruschini R., De Benedetto L., Zorzi S., Maffini F., Sovardi F., Pigni C., Scaglione D., Alterio D., Cossu Rocca M., Chiocca S., Gandini S., Tagliabue M.

Front Oncol. 2021 Apr 12;11:616653. doi: 10.3389/fonc.2021.616653

Exogenous sex hormones, menstrual and reproductive history, and risk of non-melanoma skin cancer among women: a systematic literature review and meta-analysis.

Caini S, De Angelis SP, **Corso F**, Fantini C, Raimondi S, Pala L, Stanganelli I, de Giorgi V, Gandini S.

Sci Rep. 2021 Apr 19;11(1):8524. doi: 10.1038/s41598-021-88077-y.

The Impact of Segmentation Method and Target Lesion Selection on Radiomic Analysis of 18F-FDG PET Images in Diffuse Large B-Cell Lymphoma

Botta F., Ferrari M., Raimondi S., **Corso F.**, Lo Presti G., Mazzara S., Airò Farulla L.S., Radice T., Vanazzi A., Derenzini E., Travaini L. L., Ceci F.

Appl. Sci. 2022, 12(19), 9678; https://doi.org/10.3390/app12199678

E-cadherin deregulation in breast cancer

Corso G., Figueiredo J., De Angelis S.P., **Corso F.**, Girardi A., Pereira J., Seruca R., Bonanni B., Carneiro P., Pravettoni G., Guerini Rocco E., Veronesi P., Montagna G., Sacchini V., Gandini S.

Cell Mol Med. 2020 Jun;24(11):5930-5936. doi: 10.1111/jcmm.15140

Inter-tumor genomic heterogeneity of breast cancers: comprehensive genomic profile of primary early breast cancers and relapses

Fumagalli C., Rnaghiero A., Gandini S., **Corso F.**, Taormina S., De Camilli E., Rappa A, Vacirca D., Viale G, Guerini-Rocco E., Barberis M.

Breast Cancer Res. 2020 Oct 15;22(1):107. doi: 10.1186/s13058-020-01345-z.

The association between pesticide use and cutaneous melanoma: a systematic review and meta-analysis

Stanganelli I., De Felici M.B., Mandel V.D., Caini S., **Corso F.**, Bellerba F., Quaglino P., Sanlorenzo M., Medri M., Farnetani F., Feliciani C., Pellacani G., Gandini S.

J Eur Acad Dermatol Venereol. 2020 Apr;34(4):691-708. doi: 10.1111/jdv.15964.

Association of a CT-Based Clinical and Radiomics Score of Non-Small Cell Lung Cancer (NSCLC) with Lymph Node Status and Overall

Botta F., Raimondi S., Rinaldi L., Bellerba F., **Corso F.**, Bagnardi V., Origgi D., Minelli R., Pitoni G., Petrella F., Spaggiari L., Morganti A.G., Del Grande F., Bellomi M., Rizzo S.

Cancers (Basel). 2020 May 31;12(6):1432. doi: 10.3390/cancers12061432.

Semantic and geographical analysis of Covid-19 trials reveals a fragmented clinical research landscape likely to impair informativeness

Mazzarella L., Tini G., Duso B.A., Bellerba F., **Corso F.**, Gandini S., Minucci S., Pelicci P.G.

Front Med (Lausanne). 2020 Jun 29;7:367. doi: 10.3389/fmed.2020.00367.

A role for the immune system in advanced laryngeal cancer

Tagliabue M., Maffini F., Fumagalli C., Gandini S., Lepanto D., **Corso F.**, Ciaccola S., Ranghiero A., Rappa A., Vacirca D., Cossu Rocca M., Alterio D., Guerini Rocco E., Cattaneo A., Chu F., Zorzi S., Curigliano G., Chiocca S., Barberis M., Viale G., Mohssen Ansarin.

Sci Rep. 2020 Oct 27;10(1):18327. doi: 10.1038/s41598-020-73747-0.

Radiomics of MRI for the Prediction of the Pathological Response to Neoadjuvant Chemotherapy in Breast Cancer Patients: A Single Referral Centre Analysis.

Pesapane F, Rotili A, Botta F, Raimondi S, Bianchini L, **Corso F**, Ferrari F, Penco S, Nicosia L, Bozzini A, Pizzamiglio M, Origgi D, Cremonesi M, Cassano E.

Cancers (Basel). 2021 Aug 25; 13(17):4271. doi: 10.3390/cancers13174271

Salvage stereotactic body radiotherapy (SBRT) for intraprostatic relapse after prostate cancer radiotherapy: An ESTRO ACROP Delphi consensus.

Jereczek-Fossa BA, Marvaso G, Zafraroni M, Gugliandolo SG, Zerini D, **Corso F**, Gandini S, Alongi F, Bossi A, Cornford P, De Bari B, Fonteyne V, Hoskin P, Pieters BR, Tree AC, Arcangeli S, Fuller DB, Franzese C, Hannoun-Levi JM, Janoray G, Kerkmeijer L, Kwok Y, Livi L, Loi M, Miralbell R, Pasquier D, Pinkawa M, Scher N, Scorsetti M, Shelan M, Toledano A, van As N, Vavassori A, Zilli T, Pepa M, Ost P; on the behalf of the European Society for Radiotherapy, Oncology Advisory Committee on Radiation Oncology Practice (ESTRO ACROP).

Cancer Treat Rev. 2021 Jul;98:102206. doi: 10.1016/j.ctrv.2021.102206.

Oligo metastatic renal cell carcinoma: stereotactic body radiation therapy, if, when and how?

Marvaso G, Corrao G, Oneta O, Pepa M, Zafraroni M, **Corso F**, Gandini S, Cecconi A, Zerini D, Mazzola GC, Augugliaro M, Cossu Rocca M, Verri E, Cattani F, La Fauci F, Bergamaschi L, Luzzago S, Mistretta AF, Musi G, Nolè F, De Cobelli O, Orecchia R, Jereczek-Fossa BA.

Clin Transl Oncol. 2021 Aug;23(8):1717-1726. doi: 10.1007/s12094-021-02574-0.

Colorectal cancer, Vitamin D and microbiota: A double-blind Phase II randomized trial (ColoVID) in colorectal cancer patients

Bellerba F., Serrano D., Johansson H., Pozzi C.; Segata N.; NabiNejad A., Piperni E., Gnagnarella P.; Macis D., Aristarco V.; Accornero C.A., Manghi P.; Guerrieri-Gonzaga A., Biffi R.; Bottiglieri L., Trovato C.; Zampino M.G.; **Corso F.**, Bellocco R., Raimondi S.; Rescigno M., Gandini S.

Neoplasia (2022) 34, 100842, <https://doi.org/10.1016/j.neo.2022.100842>

Laryngeal dysplasia: Oncological outcomes in a large cohort of patients treated in a tertiary comprehensive cancer centre

Chu F., De Santi S., Tagliabue M., De Benedetto L., Zorzi S., Pietrobon G., Herman I., Maffini F., Chiocca S., **Corso F.**, Gandini S., Mohssen A.

Am J Otolaryngol. 2021 Jan 4;42(2):102861. doi: 10.1016/j.amjoto.2020.102861.

Ethnicity as modifier of risk for Vitamin D receptors polymorphisms: Comprehensive meta-analysis of all cancer sites

Gnagnarella P., Raimondi S., Aristarco V., Johansson H., Bellerba F., **Corso F.**, De Angelis S.P., Belloni P., Caini S., Gandini S.

Crit Rev Oncol Hematol. 2021 Feb;158:103202. doi: 10.1016/j.critrevonc.2020.103202.

Microbiome as Mediator of Diet on Colorectal Cancer Risk: The Role of Vitamin D, Markers of Inflammation and Adipokines

Serrano D, Pozzi C, Guglietta S, Fosso B, Suppa M, Gnagnarella P, **Corso F**, Bellerba F, Macis D, Aristarco V, Manghi P, Segata N, Trovato C, Zampino MG, Marzano M, Bonanni B, Rescigno M, Gandini S.

Nutrients. 2021 Jan 25;13(2):363. doi: 10.3390/nu13020363.

TERT promoter mutations and melanoma survival: a comprehensive literature review and meta-analysis

Gandini S, Zanna I, De Angelis S, Palli D, Raimondi S, Ribero S, Masala G, Suppa M, Bellerba F, **Corso F**, Nezi L, Nagore E, Caini S.

Crit Rev Oncol Hematol. 2021 Apr;160:103288. doi: 10.1016/j.critrevonc.2021.103288.

Stereotactic or conventional radiotherapy for macroscopic prostate bed recurrence: a propensity score analysis.

Francolini, G., Jereczek-Fossa, B.A., Di Cataldo, V., Simontacchi G., Marvaso G., Gandini S., **Corso F.**, Ciccone LP, Zerella MA, Gentile P., Bianciardi F., Allegretta S., Detti B., Desideri I., D'Angelillo R, Masi L., Ingrosso G., Di Staso M., Mazzeo E., Trippa F., Lohr F., Bruni A., Vivi L.

Radiol med 127, 449–457 (2022). <https://doi.org/10.1007/s11547-022-01465-w>

The role of radiomics in tongue cancer: A new tool for prognosis prediction

Mossinelli C., Tagliabue M., Ruju F., Cammarata G., Volpe S., Raimondi S., Zaffaroni M., Lars Isaksson J., Garibaldi C., Cremonesi M., **Corso F.**, Gaeta A., Emili I., Zorzi S., Alterio D., Marvaso G., Pepa M., De Fiori E., Maffini F., Preda L., Benazzo M., Jereczek-Fossa B.A., Ansarin M.

Head & Neck. 2023;1–13, <https://doi.org/10.1002/hed.27299>

DRIVING LICENCE

Driving Licence: B

CONFERENCES AND SEMINARS

Conferences and seminars 02/2020: "MicrobiotaMi 2020", Humanitas Research Hospital, Milan (Italy)

06/2020: "e-Rum2020 (European R Users)", Virtual Conference, Milan (Italy)

10/2020: Annual Meeting ACC 2020, Virtual Conference, European Institute of Oncology, Milan (Italy)

06/2022: 51st Scientific Meeting of the Italian Statistical Society, Università degli Studi della Campania Luigi Vanvitelli, Caserta (Italy)

04/2023: Statistics for Data Science and Artificial Intelligence - SDS group, Pavia (Italy)

HONOURS AND AWARDS

Honours and awards Master's degree award 2018 "Laboratorio di Biosegnali, Bioimmagini & Bioinformatica" released by the National Group of Bioengineering

MANAGEMENT AND LEADERSHIP SKILLS

Co-advisor for Master Thesis Role of co-advisor for Master Thesis in Mathematical Engineering. Thesis title: A neural network approach to survival analysis with time-dependent covariates for modeling time to Cardiovascular disease in HIV patients.

ORGANISATIONAL SKILLS

Organisational skills - Well-developed skills in working orderly and efficiently under pressure

- Able to coordinate several tasks simultaneously
- Ability to get with new ideas and integrate them into desired results
- Excellent common sense, judgment, and decision-making abilities
- Good interpersonal and analytical skills
- Proficient in using technology to enhance data and information management

COMMUNICATION AND INTERPERSONAL SKILLS

Communication and interpersonal skills - Excellent written and verbal communication skills

- Confident and professional speaking abilities in public, to groups or via electronic media
- Strong commitment to working group dynamics with the ability to contribute expertise and follow leadership directives
- Enjoy working as a team member as well as independently

JOB-RELATED SKILLS

Job-related skills

- Excellent problem solving abilities
- Well experienced in artificial intelligence methodologies and medical statistics with application to the oncology field
- Excellent programming skills: Matlab, R, Python, Java, SQL
- Excellent knowledge of Microsoft and Linux operating systems
- Well developed skills in Microsoft Office, Latex
- Other job-related skills: clinical data management, biomedical instrumentations operating principles, imaging and signal processing, medical biotechnologies, biomaterials and biomechanics.

CERTIFICATIONS

Certifications

First Certificate in English (FCE B2 level)

COURSES

Courses

04/2019: "Metabarcoding in microbial communities" at Freie universität Berlin, Berlin (Germany)
10/2019: "Statistical Learning and Big Data" at Università degli Studi Milano Bicocca, Milan (Italy)
2020/2021: "Statistical Inference for the Information Age" at Politecnico di Milano (DADS PhD program), Milan (Italy)
2020/2021: "Forecasting and Learning for Dynamic Decision Making" at Politecnico di Milano (DADS PhD program), Milan (Italy)
2020/2021: "Analytics for Society" at Politecnico di Milano (DADS PhD program), Milan (Italy)
2020/2021: "Project Management Basics" at Politecnico di Milano (DADS PhD program), Milan (Italy)
2021/2022: "Advanced Statistical Learning for Complex Data" at Politecnico di Milano (DADS PhD program), Milan (Italy)
2021/2022: "Professional Communication" at Politecnico di Milano (DADS PhD program), Milan (Italy)

I hereby authorize the use of my personal data in accordance to the GDPR 679/16 - "European regulation on the protection of personal data".

Milan , 03/04/2024