Curriculum Vitae

Elena Casiraghi was born in Monza on January, the 4th, 1978.

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Dates:

- **January** 2001: she was hired as a "trainee researcher" by the Multiple Media Department of the VTT Information Technology (Helsinki, Finland).
- **October** 2001: she graduated as a computer scientist from Università degli Studi di Milano, Department of Computer Science, with grade 110/110 cum Laude.
- **January** 2002: she won a scolarship to start her PhD studies at Università degli Studi di Milano, Department of Computer Science.
- **September-December** 2003: she was a visiting researcher at the "Image Science Institute" (ISI), in Utrecht (The Netherlands).
- **January** 2004: she was hired as a temporary researcher at Università degli Studi di Milano, Department of Computer Science.
- **March** 2005 : she got the Phd degree at Università degli Studi di Milano, Department of Computer Science.
- **May** 2006-**5th of March** 2020: she was hired as an Assistant Professor (researcher) at Università degli Studi di Milano, Department of Computer Science "Giovanni degli Antoni".
- **May** 2007 She becomes GRIN associate
- **5th of March** 2020-**Present**: she is an Associate Professor at Università degli Studi di Milano, Department of Computer Science "Giovanni degli Antoni".
- **30th of August** 2020-**Present**: she is Affiliate Researcher at Lawrence Berkeley National Laboratory (Berkeley Lab), Berkeley, USA.
- **November** 2021-**Present**: She leads the AnacletoLab, Department of Computer Science, Università degli Studi di Milano.

Teaching Activities

- "Tutoring activities in the course of Basics of Computer Science" Università degli Studi di Milano, SSFM, Department of Chemistry and Medicine (A.A. 2003/2004).
- "Laboratory of Computer Science and Programming" Università Statale di Milano Bicocca, Department of Economics and Statistics (A.A. 2004/2005).
- "Summer Course of Programming" Università Statale di Milano Bicocca, Department of Economics and Statistics (A.A. 2004/2005).
- "Laboratory of Computer Science: theory and applications" Università degli Studi di Milano, SSFM, Department of Biological Sciences (A.A. 2006/2007-2007/2008).
  website: `http://www.ccdbiol.unimi.it/it/index.html`
- "Computer Science: theory and applications" Università degli Studi di Milano, Department of Medicine (A.A. 2007/2008-2008/2009-2009/2010).
- "Image Processing II': Università degli Studi di Milano, SSFM, Department of Computer Science. (A.A. 2007/2008-2008/2009-2009/2010-2010/2011-2011/2012-2012/2013-2013/2014).
  website: `http://www.ccdinfmi.unimi.it/it/index.html`
- "Processing tecniques in the field of image diagnostics (Tecniche di Elaborazione nella diagnostica per immagini)" Università degli Studi di Milano, SSFM, Department of Fisics. (A.A. 2011/2012-2012/2013-2013/2014-2014/2015-2015/2016).
- "Laboratory of computer programming" Università degli Studi di Milano, SSFM, Department of Computer Science (from A.A. 2009/2010 till 2018-2019).
  website: `http://www.ccdinfmi.unimi.it/it/index.html`
- "Basics of Computer Science" Università degli Studi di Milano, SSFM, Department of Biological Sciences (A.A. 2017/2018 till 2018-2019).
  website: `http://www.ccdbiol.unimi.it/it/index.html`
- "Computer Programming" Università degli Studi di Milano, SSFM, Department of Mathematics (A.A. 2019/2020, 2020/2021).
  website: `http://www.ccdbiol.unimi.it/it/index.html`
- "Scientific Visualization" Università degli Studi di Milano, SSFM, Department of Computer Science (A.A. 2019/2020 - present).
  website: `http://www.ccdbiol.unimi.it/it/index.html`
- "Sensation and Perception" Università degli Studi di Milano, SSFM, Department of Computer Science (A.A. 2020/2021 - present).
  website: `http://www.ccdbiol.unimi.it/it/index.html`
- "Computer Programming" Università degli Studi di Milano, SSFM, Department of Computer Science (A.A. 2021/2022 - present).
  website: `http://www.ccdbiol.unimi.it/it/index.html`
- "Data Visualization - for PhD studies" Università degli Studi di Milano, SSFM, Department of Computer Science (A.A. 2021/2022, 2023/2024).
- "Artificial Intelligence for Network Medicine - for PhD studies" Università degli St udi di Milano, SSFM, Department of Computer Science (A.A. 2021/2022, 2023/2024).

Member of teaching board of the PhD in computer Science at the Computer Science Department, University of Milan (A.A. 2017/2018-Present).

Member of Erasmus board at the Computer Science Department, University of Milan (A.A. 2019/2020-Present).

The 9th of June 2022 she was invited to be part of the PhD evaluator commission for the PhD program: "Tecnologie biomediche innovative in medicina clinica", Università di Roma (la Sapienza)

PhD and Master thesis supervision:

During her professorship, she supervised more than 40 master theses.

She was also supervisor of the following PhD candidates

1. Stefano Arca (A.A. 2005/2006). PhD in Computer Science, Università degli Studi di Milano. Face Recognition by 3D and 2D features. PhD Computer Science.
2. Stella Pratissoli (A.A. 2007/2008). PhD in Computer Science, Università degli Studi di Milano. A Fully Automatic Liver Segmentation System Using Fast Marching Methods. PhD Mathematics and Statistics.
3. Gabriele Lombardi (A.A. 2008/2009). PhD in Applied Mathematics, Università degli Studi di Milano. The Tensor Votign Framework: Extensions and Applications. PhD Mathematics and Statistics.
4. Alessandro Rozza (A.A. 2009/2010). PhD in Computer Science, Università degli Studi di Milano. Classifiers based on a New Approach to Estimate the Fisher Subspace and Their Applications. PhD Computer Science.
5. Claudio Ceruti (A.A. 2013/2014). PhD in Computer Science, Università degli Studi di Milano. Novel Techniques for Intrinsic Dimension Estimation. PhD Mathematics and Statistics.
6. Luca Cappelletti (A.A. 2022/2023). PhD in Computer Science, Università degli Studi di Milano. PhD in Computer Science.
7. Jessica Gliozzo (A.A. 2023/2024). PhD candidate in Computer Science, Università degli Studi di Milano.
8. Luca Lalli. PhD candidate in Translational Bioinformatics. Open University. Supervised and Unsupervised Pattern Recognition Analysis of Immunological Parameters in Clinical Setting.
9. Ali Pashaeibarough. PhD candidate in Computer Science.
10. Ekaterina Eisenkova. PhD candidate in Translational Biomedicine (Mainz Research School of Translational Biomedicine, University Medical center, Mainz).

Member of evaluating commissions

- June 2022 Member of the PhD evaluator Commission for the PhD school "Tecnologie Bioinformatiche per la Medicina", Università la Sapienza, Roma
- March 2022, March 2023 As a member of the Erasmus Board, she is part of the Erasmus selection examinators.
- March 2020 Member of evaluator commission for the selection of a Post-Doc researcher in Bioinformatics.
- November 2023 Member of evaluator commission for the selection of an administration manager at Fondazione Regionale per la Ricerca Biomedica (FRRB) - Lombardia
- December 2023 Member of the ELLIS-PI evaluator Commission for PhD programs under Ellis Society, Università degli studi di Milano

- January 2024 Member of evaluator commission for the selection of a Master researcher in Bioinformatics.
- January 2024 Member of evaluator commission for the selection of a Post-Doc researcher in Bioinformatics.
- February 2024 Member of the PhD evaluator Commission for the PhD program in Computer Science, Università degli studi di Milano-Bicocca

Fundings and cooperations with industries

- 08 **December** 2006 **-** 31 **December** 2007: She worked in cooperation with VIDIEMME CONSULTING S.r.l. to develop an automatic software for the identification of lung nodules at early stages from Postero Anterior chest radiographs [55]. The aforementioned research activity was funded by a contract with VIDIEMME CONSULTING S.r.l..
- 09 **April** 2009**-**08 **April** 2010: She actively worked and supervised the work of researchers in the ex-LAIV Laboratory (Università degli Studi di Milano, Department of Computer Science) during a cooperation with BioDigitalValley S.r.l.. The aim of the one-year contract was the development of novel techniques for medical image processing, and two main projects were delivered. The first one is a software system for the automatic segmentation of anatomical parts of interest from digital mouse images [19]. The second one is a software system for the automatic analysis and alignment of Gel2D images [2]. The aforementioned projects were funded by a contract with BioDigitalValley S.r.l..
- 28 **October** 2009**-**31 **December** 2012: She actively worked and supervised the work of research colleagues in the ex-LAIV Laboratory (Università degli Studi di Milano, Department of Computer Science) during a one-year cooperation with Luxottica S.r.l. to develop an automatized system for the industrial control during the process of eyeglasses preparation. The aforementioned project was funded by a contract with Luxottica S.r.l..
- 01 **December** 2011**-**31 **November** 2012: She got funding from "Bando Dote Ricerca Applicata" and she was the Scientific Referee during a one-year cooperation with MOX Consulting SRL. During this year she supervised a researcher developing an application for the industrail control during preparation of spray cans.
- **Years** 2016**-**2017**-**2018: She got funding from "Bando sostegno alla Ricerca - Linea A - Young researchers" to carry out three projects entitled:
  - 2016 Development of an automatic system for blood and lymph vessels localization and quantification from microscopic images of carotid artery sections [43].
  - 2017 Development of an automatic system for localization and quantification of biological structures of interest from immunohistochemical images [42].
  - 2018 Nuclei segmentation from histological images [41].

  These projects were carried on in cooperation with Consorzio M.I.A. (Università degli Studi di Milano-Bicocca,`http://www.consorziomia.org/`) and the Department of Experimental Oncology and Molecular Medicine (Fondazione IRCCS Istituto Nazionale dei Tumori).
- 2019: she works in the research group that got the fundings from "Bando sostegno alla Ricerca - Linea B". The project is entitled: "Graph-based Modelling and Optimisation".
- 2020: she works in the research group that got the fundings from "Bando sostegno alla Ricerca - Linea B". The project is entitled: "Human aspects for video, images, and graphics in multimedia systems".
- 2021: she works in the research group that got the fundings from "Bando sostegno alla Ricerca - Linea B". The project is entitled: "Perception, interaction and communication in scientific visualization".
- April 2023-January 2024: PI of the project "MULTI-ONE: MULTI-modal Data IntegratiON: dEvelopment and validation" presented at the CINECA supercomputing grants. The project wins 22500 computing hours on CINECA supercomputer and 1TB of storage.

- June 2023-June 2024: PI of the project "MULTI-ONE: MULTI-modal Data IntegratiON for Explainable and Translational results" presented at the Indaco supercomputing grants organized by Università degli Studi di Milano. The project wins 22500 computing hours on CINECA supercomputer and 1TB of storage.

European Projects, AIRC Fundings, Projects with International Groups

- $2000 - 2001$: She is in the FINNET Team, working in the European Project EURESCOM (Project ID P925-PF): "Internet Middleware (for Custom Service Bundling)".
- $2015 - 2017$, $2017 - \textit{Present}$: She works with researchers of Istituto Tumori in Milan in the project funded by AIRC (Project ID 12162): "Innovative Tools for Cancer Risk Assessment and early Diagnosis".
- $2016 - 2019$: She works with researchers of Istituto Tumori in Milan in the European project PRECIOUS (Union's Horizon 2020 research and innovation programme, grant agreement No 686089): "Scaling-Up Biodegradable Nanomedicines for Multimodal Precision Cancer ImmunoTherapy".
- *September* $2019 - 2022$: She works with researchers of Gruppo italiano dei sarcomi, grupo español de investigación de sarcomas, Groupe sarcomes français, in the clinical human randomized trial (ClinicalTrials.gov Identifier: NCT01710176): "Localized High-Risk Soft Tissue Sarcomas of the Extremities and Trunk Wall in Adults: an Integrating Approach Comprising Standard vs Histotype-Tailored Neoadjuvant Chemotherapy (ISG-STS 10-01)".
- $May\ 2023 - January2024$: PI of the project "MULTI-ONE: MULTI-modal Data IntegratiON: dEvelopment and validation" presented at the CINECA-European supercomputing grants (type B.). The project wins 20000 computing hours on CINECA supercomputer and 1TB of storage.
- $2023 - 2027$: She is a coollaborator of Istituto Tumori in Milan in the project funded by AIRC (Project ID IG_2022): "Persisting myeloid dysfunctions after curative surgery: effect on cancer recurrence and impact of dietary intervention".

Activity as part of editorial boards, as guest editor, or reviewer

She is part of the editorial board of the following international journals:

- Journal of Imaging (ISSN 2313-433X, `https://www.mdpi.com/journal/jimaging`).
- Frontiers in Digital Health (ISSN 2673-253X, `https://www.frontiersin.org/journals/digital-health/editors`).

She is guest editor of the following Collections and Special Sessions:

- Collection: "Computational Intelligence and Bioinformatics (CIB)", part of the following international MDPI journals: Applied Sciences, Genes, BioMedInformatics, BioTech, Computation (`https://www.mdpi.com/topics/Computational_Intelligence_Bioinformatics`)
- Special Session "Methods and Applications for Imaging, Simulation, and Modelling in Biology and Medicine: Artificial Intelligence, Current Research, New Trends", which is part of Computers Journal, MDPI (ISSN 2073-431X, `https://www.mdpi.com/journal/computers/special_issues/SIM_BS`).
- Special Session "Bio-Medical Multimodal Methods for Diagnosis, Prognosis, and Outcome Prediction", which is part of the Journal of Imaging, MDPI (ISSN 2313-433X, `https://www.mdpi.com/journal/jimaging/special_issues/biomedical_multimodal`).

She is reviewer of several journals such as:
Applied Sciences,
Artificial Intelligence in Medicine,
Biomedical Signal Processing and Control,
BMC Bioinformatics,
Computers in Biology and Medicine,
Computer Methods and Programs in Biomedicine,
Informatics,
International Journal of Image Processing,
IEEE Journals,
Journal of Clinical Medicine,
MDPI journals,
Journal of Heathcare Engineering,
Image Analysis & Stereology Machine Learning and Knowledge Extraction,
Neurocomputing Pattern Recognition,
Pattern Recognition Letters,
Scientific Reports,
SPIE Digital Library,

She is reviewer of several international annual conferences: CIBB, CBMS, ICIAP, ICPR, IAPR, ICTAI, ACVIS, AIA, MLIS, and others.

Activity as a member of Program Committees of Conferences and Workshops

- She is member of the Technical Program Committee of the 25th International Conference on Pattern Recognition (ICPR2020).

- She is member of the Technical Program Committee of the 2nd International Conference on Machine Learning and Intelligent Systems (MLIS 2019).

- She is member of the Technical Program Committee of the 7th International Symposium on End-User Development (IS-EUD 2019).

- She is organizer of the workshop: "EUD4HWID: Tools and Sociotechnical Frameworks", which is part of the the 7th International Symposium on End-User Development (IS-EUD 2019).

Research Activities

Elena Casiraghi's interest in the information technology research field date to the year 2000, when she was hired as a "trainee researcher" in VTT (Valtion Teknillinen Tutkimuskeskus), Department of Information Technology. During the year spent at VTT, she started to work in the European project "Internet Middleware for Customized Service Bundling" to develop mathematical methods for the automatic insertion of digital photographs into a 3D virtual world; this problem required a continuous adaptation of the image according to the user movements into the 3D world. Her work was highly judged and treated as an important issue during the international reporting of the project. After the end of the project, she worked in a research project studying computational methods for observing early signs of deterioration of CD-ROM discs; after presenting a detailed analysis of the problem, the developed recovering system was considered as efficient and effective.

Since she began to work in Università degli Studi di Milano, Elena Casiraghi's research interests have been mainly focused in the field of artificial intelligence, to develop automatic systems for image processing and pattern recognition.

Specifically, she began her researches with investigations in the field of image processing, to develop automatic applications for face localization, identification, and recognition. These problems allowed her to study and apply supervised and unsupervised learning algorithms.

Subsequently, she focused on the medical and biomedical image processing fields, where she studied and developed computer aided diagnosis (CAD) systems [33, 31, 32, 5, 3, 3, 30, 56, 55, 2, 6, 5, 27, 26, 25, 24, 54, 22, 53, 51]. In detail, she started working on digital chest radiographs, to detect subtle lung nodules at their early stages; the developed CAD system can be successfully applied to aid radiologists during their decision making process, thus increasing their nodule identification performance.
After these researches she focused on the problem of living donor liver transplantation and developed an automatic system for the 3D reconstructions of abdominal organs (e.g. liver, spleen, and kidney) from computed tomography (CT) images, with the final aim of measuring their volume.
Both these systems required the development of applications being able to cope with data of high dimensionality. Furthermore, her investigations lead her to the development of learning systems treating highly unbalanced learning datasets of high cardinality.

Other minor researches in the medical field were aimed at 3D volume reconstruction and biometric analysis of fetal brain from MR images.

In the bio-medical field, she developed an automatic system for the segmentation of mice images produced with molecular imaging. The system identifies anatomical organs of interest where it computes specific measurements; the precision of the obtained measures has been considered particularly helpful by pharmacologists that needed to evaluate and compare the pharmacological effect produced by different drugs, that is drugs produced according to different biochemical interactions.

All the aforementioned researches have been performed in cooperation with experts of the "Policlinico e Regina Margherita (Fondazione IRCCS)" hospital of Milan. At the present, she still keeps researching with them; specifically, exploiting the automatic systems she developed, she processes radiological images, extracts relevant data, and performs statistical analises of the extracted data to answer clinical inquiries of medical experts [27, 26, 25, 24, 54, 22, 53, 51, 38].

After the aforementioned researches, she has successfully investigated and developed learning algorithms dealing with high dimensional data belonging to unbalanced datasets of both high and low cardinality [20, 17, 16, 1, 52, 7, 49, 21, 23, 2, 1, 48, 47, 44].

In the year 2010-2014, she has been investigating in the field of pattern recognition, manifold learning, and intrinsic dimensionality estimation, to develop novel theories and automatic algorithms dealing with high-dimensional datasets characterized by a small cardinality (Small Sample Size Problem). These researches led to the development of methods whose performance has been evaluated both by the comparison with state of the art techniques and by tests on synthetic and real datasets related to problems in the fields of signal processing, image analysis, and bioinformatics [15, 14, 13, 12].
The aforementioned studies are currently exploited to investigate and experiment solutions to reduce one of the main problem of deep learning techniques, which is the huge computational (time and memory) costs. To this aim, researches are aimed at compressing deep neural networks, by reducing their layer size to the intrinsic dimension estimated on the layers' filters. To effectively reduce the filter dimension different techniques are going to be experimented [10, 9].

In 2017 she started her scientific cooperations with researchers from the University of Milan-Bicocca, cardiovalular surgeons from Varese Hospital (AASST Sette Laghi) and the National Instiutute of Tumours to develop automatic systems for microscopic image quantification and analysis.
The initial aim was the investigation of the main factors behind carotid plaques' instability, the latest being the main cause of cerebral stroke. During the study she developed an automatic system which is able to detect and quantify different biological structures of interest (such as vascular structures) which are immunohistochemically

stained in different microscopic images of contiguous carotid sections containing plaques. Once detected and quantified, the marked contiguous sections are registered to allow an objective visual and comparative analysis of the spatial distribution of each marker (markers' relative location). The developed system additionally computes novel measures of markers' co-existence in tissue volumes depending on their density. Since each marker allows to detect a particular biological structure of interest, the accurate analysis and study of the computed densities and co-localization measures is considered by surgeons and biological scientists as a valid help to discover structures whose appearance could be exploited as an early alert of plaque instability, avoiding unnecessary surgical procedures. Discovering factors positively or negatively relate at plaques' instability would have an high impact on cerebral stroke prevention [6, 43, 5].
The promising results obtained by the developed system (called MIAQuant) have motivated its extension and generalization to allow processing images depicting tissue sections belonging to any body structures. Precisely, the novel system (called MIAQuant_Learn) combined image processing and machine learning techniques to extract, quantify and analyze the co-existence of markers characterized by any color and shape and being stained in contiguous sections extracted from any body tissue [1, 42, 41, 40].

The promising results obtained by the MIAQuant_Learn motivate its continuous and extensive usage in the oncological field to quantify and analyze cancerous tissues images produced either by Ospedale San Raffaele (Milano) and by the Department of Experimental Oncology and Molecular Medicine (Fondazione IRCCS Istituto Nazionale dei Tumori).

During the year 2017 she started invenstigating the field of human color constancy and she studied several color correction algorithms based and/or derived from Land's "Retinex Theory". She is currently applying the STRESS algorithm to histological images with the aim of improving the segmentation results obtained by the aforementioned systems. At the present she is improving MIAQuant_Learn to segment and count cell nuclei in images marked with ki67. A precise nuclei detection and count would allow to estimate the so-called ki67 index, a measure of tumour aggressiveness [36].

She is also investigating algorithms aimed at classifying the prognosis of patients with tumors. These classifications are computed based on the similarity between patients, and the similarity is computationally represented by graphs. The results obtained are promising [4, 3, 39, 32, 13].

Since 2020 she is an active member of the cov-irt group (`https://www.cov-irt.org/`) to fight against COVID-19 pandemic. In this context, as the lead of the cov-irt subgroup of "imaging and radiology" she has been developing explainable and interpretable machine learning methods for risk and outcome prediction in adults and pediatric patients [29, 21, 28]. The aforementioned reserach works are also inserted in the context of an active and proficuous cooperation with clinical experts from Fondazione IRCCS Ca' Granda Ospedale Maggiore Policlinico and Humanitas Hospital [25, 19, 23, 18].

Since April 2021 she is the Scientific Reference for Università degli Studi di Milano in the research cooperation with the N3C Enclave (`https://covid.cd2h.org/`), a research Enclave funded by the NIH. In this context, she cooperates within an international team of experts, among which reserachers from the Jackson Lab and the Berkley Lab, on the development of: (a) statistical models for causal inference and unsupervised clustering in the context of diabetes patients' care [11, **?**], Long-covid research [16, **?**, 8], and (b) on graph representation learning techniques for the analysis of structured phenotypical information, for drug repurposing, and for discovering synthetic letal interations in the context of oncological reserach [17, 22, 12]. Further, considering the large amount of missing information affecting electronic health records, she is developing techniques for comparing multiple strategies for handling missing data [**?**].

Journal Publications

[1] Valentini G, Malchiodi D, Gliozzo J, Mesiti M, Soto-Gomez M, Cabri A, Reese J, Casiraghi E, Robinson PN. The promises of large language models for protein design and modeling. Frontiers in Bioinformatics.;3:1304099. https://doi.org/10.3389/fbinf.2023.1304099

[2] Antony B. et al. (2023). Predictive Models of Long COVID. Predictive models of long COVID. EBioMedicine. 2023:96. https://doi.org/10.1016/j.ebiom.2023.104777

[3] Carnicelli G, Disconzi L, Cerasuolo M, Casiraghi E, Costa G, De Virgilio A, Esposito AA, Ferreli F, Fici F, Lo Casto A, et al. Image-Guided Intraoperative Assessment of Surgical Margins in Oral Cavity Squamous Cell Cancer: A Diagnostic Test Accuracy Review. Diagnostics. 2023; 13(11):1846. https://doi.org/10.3390/diagnostics13111846

[4] Cappelletti L., Fontana T., Casiraghi E., et al. (2023). GRAPE for fast and scalable graph processing and random-walk-based embedding. Nat Comput Sci 3, 552–568 (2023). https://doi.org/10.1038/s43588-023-00465-8

[5] Callahan TJ, et al. . Ontologizing health systems data at scale: making translational discovery a reality. NPJ Digital Medicine. 2023 May 19;6(1):89. https://doi.org/10.1038/s41746-023-00830-x

[6] Casiraghi E, Wong R, et al. (2023). A method for comparing multiple imputation techniques: a case study on the US National COVID Cohort Collaborative. Journal of Biomedical Informatics. 2023 Jan 27:104295.

[7] Cappelletti, L., Petrini, A., Gliozzo, J. et al. (2022). Boosting tissue-specific prediction of active cis-regulatory regions through deep learning and Bayesian optimization techniques. BMC Bioinformatics 23 (Suppl 2), 154. https://doi.org/10.1186/s12859-022-04582-5

[8] Coleman B, Casiraghi E, Callahan TJ, et al. (2022). Manifestations Associated with Post Acute Sequelae of SARS-CoV2 Infection (PASC) Predict Diagnosis of New-Onset Psychiatric Disease: Findings from the NIH N3C and RECOVER Studies. Submitted to World Psychiatry. medRxiv preprint: https://www.medrxiv.org/content/10.1101/2022.07.08.22277388v1

[9] Reese JT, Blau H, Casiraghi E, et al. (2023). Generalisable long COVID subtypes: Findings from the NIH N3C and RECOVER programmes. EBioMedicine. 2023 Jan 1;87.

[10] Chan LE, Casiraghi E, Laraway B, et al. (2022) Metformin is Associated with Reduced COVID-19 Severity in Patients with Prediabetes. Diabetes Research and Clinical Practice, 194. https://doi.org/10.1016/j.diabres.2022.110157.

[11] Wong R., Vaddavalli R., Hall M. A., Patel M. V., et al. (2022). Effect of SARS-CoV-2 Infection and Infection Severity on Longer-Term Glycemic Control and Weight in People With Type 2 Diabetes. Diabetes care, 45(11), 2709–2717. https://doi.org/10.2337/dc22-0730

[12] Reese JT, Coleman B, Chan L, et al. (2022). NSAID use and clinical outcomes in COVID-19 patients: A 38-center retrospective cohort study. Virology Journal, 2022 May 15;19(1):84. 10.1186/s12985-022-01813-2.

[13] Gliozzo J, Mesiti M, Notaro M, Petrini A, Patak A, Puertas-Gallardo A, Paccanaro A, Valentini G, Casiraghi E. (2022). Heterogeneous data integration methods for patient similarity networks. Briefings in BioInformatics. 10.1093/bib/bbac207

[14] Paolillo G, Petrini A, Casiraghi E, De Iorio MG, Biffani S, Pagnacco G, Minozzi G, Valentini G. Automated image analysis to assess hygienic behaviour of honeybees. PLoS ONE, 17, art. no. e0263183 (2022). 10.1371/journal.pone.0263183

[15] Giannitto C, Esposito AA, Spriano G, et al. (2022). An approach to evaluate the quality of radiological reports in Head and Neck cancer loco-regional staging: experience of two Academic Hospitals. Radiol med. https://doi.org/10.1007/s11547-022-01464-x

[16] Coleman B, Casiraghi E, Blau H, Chan L, Haendel M, Laraway B, Callahan TJ, Deer RR, Wilkins K, Reese J, Robinson PN. (2022). Risk of new-onset psychiatric sequelae of COVID-19 in the early and late post-acute phase. World Psychiatry. Jun;21(2):319-320. 10.1002/wps.20992.

[17] Valentini G, Casiraghi E, Cappelletti L, Ravanmehr V, Fontana T, Reese J, Robinson P (2021). Het-node2vec: second order random walk sampling for heterogeneous multigraphs embedding. arXiv preprint arXiv:2101.01425.

[18] Giannitto C, Mercante G, Disconzi L, Boroni R, Casiraghi E, Canzano F, Cerasuolo M, Gaino F, De Virgilio A, Fiamengo B, Ferreli F (2021). Frozen section analysis and real-time magnetic resonance imaging of surgical specimen oriented on 3D printed tongue model to assess surgical margins in oral tongue carcinoma: preliminary results. Frontiers in Oncology. 5049. https://doi.org/10.3389/fonc.2021.735002

[19] A Scarabelli, M Zilocchi, E Casiraghi, P Fasani, G Plensich, AA Esposito, E Stellato, A Petrini, JT Reese, PN Robinson, G Valentini, G Carrafiello (2021). Abdominal Computed Tomography Imaging Findings in hospitalized COVID-19 patients: a year-long experience and asso-ciations revealed by explainable artificial Intelligence. J. Imaging, 7(12), 258; https://doi.org/10.3390/jimaging7120258

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Book Chapters

[1] Rozza A., Lombardi G., Re M., Casiraghi E., Valentini G., Campadelli P. (2011). A Novel Ensemble Technique for Protein Subcellular Location Prediction. In: O. Okun, G. Valentini, and M. Re (Eds.). Ensembles in Machine Learning Applications. vol. 373/2011, pp. 151-167, Springer-Verlag Berlin Heidelberg, ISBN: 978-3-642-22909-1, 10.1007/978-3-642-22910-7_9.

[2] Lombardi G., Casiraghi E., Campadelli P. (2010). The Neighbors Voting Algorithm and its Applications. In: O. Okun, G. Valentini. Applications of Supervised and Unsupervised Ensemble Methods. vol. 245/2009, pp. 151-173, Springer-Verlag Berlin Heidelberg, ISBN: 9783642039980, 10.1007/978-3-642-03999-7_9.

Poster Presentations

[1] Casiraghi E., Vergani B., Barricelli B., Liberini S., Leone B.E., Rizzi A. (2019). Automatic quantification of histochemical images of cancerous tissue samples: a method based on a computational model of human color vision. Workshop on Interdisciplinary Aspects of Biomolecular Modelling, University of Milano, 26th June 2019.

[2] Buscarino V., Esposito A. A., Raciti D., Casiraghi E., Forzenigo L. V., Manini M. (2017). Characterisation of liver nodules in patients with chronic liver disease by MRI: comparison between the LI-RADS v2014 and the Likert scale. European Congress of Radiology. 10.1594/ecr2017/C-2579

[3] Gliozzo J., Perlasca P., Mesiti M., Notaro M., Petrini A., Casiraghi E., M. Frasca, Grossi G., Re M., Paccanaro A., Valentini G. (2018). Patients' networks for clinical phenotype/outcome prediction. Grand BIMSB Opening Symposium – 11th Berlin (Late) Summer Meeting, 2018, Berlin, Germany.

[4] Gliozzo J., Notaro M., Petrini A., Perlasca P., Mesiti M., Casiraghi E., Grossi G., Re M., Paccanaro A., Valentini G. (2017). Modeling biomolecular profiles in a graph-structured sample space for clinical outcome prediction with melanoma and ovarian cancer patients. 14th Annual Meeting of the Bioinformatics Italian Society (BITS 2017), July 5-7, 2017, Cagliari, Italy.

[5] Casiraghi E., Vergani B., Villa A. (2017). An automated method for biological marker segmentation, quantification, and colocalization, from histochemical and immunohistochemical images. 14th Annual Meeting of the Bioinformatics Italian Society (BITS 2017), July 5-7, 2017, Cagliari, Italy.

[6] Casiraghi E., Ferraro S., Franchin M., Villa A., Vergani B., Tozzi M. (2016). Analisi semi automatica nella valutazione della neo-vascolarizzazione della placca carotidea. SICVE 2016, XV Annual Meeting of Società italiana di Chirurgia Vascolare ed Endovascolare, 22-25 Rome, Italy.

[7] Rozza A., Lombardi G., Re M., Casiraghi E., Valentini G., Campadelli P. (2011). A novel ensemble approach for the subcellular localization of proteins. In: BITS 2011: 8th annual meeting of the Bioinformatics Italian Society: June 20-22, 2011, Pisa, Italy: Proceedings. Pisa, 2011, p. 105-106, PISA:ETS, ISBN: 9788846730695.

Talks as Invited Speaker and Awards

[1] The 25th of October 2016 the Abstract/Poster presented at SICVE (entitled: "Analisi semi automatica nella valutazione della neo-vascolarizzazione della placca carotidea.") won the award for being judged the best work presented at the Conference.

[2] The 16th of February, 2005 she an invited speaker at the Workshop: "Digital Image Processing in medicine and biology" (Palermo), organized by "Centro Interdipartimentale Tecnologie della Conoscenza" (CITC, Università degli Studi di Palermo), "Scuola di specializzazione in Anatomia Patologica" (Università degli Studi di Palermo) and the Department of biotechnologies and Legal Medicine (Università degli Studi di Palermo). She presented her research "Computerized lung nodule detection from Postero-Anterior chest radiographs".

[3] The 9th of March, 2007 she was an invited speaker at the Workshop: "Biomedical Imaging Systems for diagnosis" (Palermo), organized by "Centro Interdipartimentale Tecnologie della Conoscenza" (CITC, Università degli Studi di Palermo), "Scuola di specializzazione in Anatomia Patologica" (Università degli Studi di Palermo) and the Department of biotechnologies and Legal Medicine (Università degli Studi di Palermo). She presented her research "Computerized liver segmentation method from Computed Tomography (CT) images".

[4] The 28th-29th of April, 2008 she was an invited speaker at the Workshop: "Shape and Size in Medicine, Biotechnology and Materials Science", organized by the Department of Mathematics, Università degli Studi di Milano. She presented her research "Computer aided diagnosis systems in medical imaging".

[5] The 30th of November 2006 she participated at "Obiettivo ICT" award, presenting her business idea project, together with Prof. Paola Campadelli. The project was selected as one of the best 10 projects.

[6] The 26th of October 2007 she participated at "Start Cup Milano Lombardia" award, presenting her research project, together with Prof. Paola Campadelli. The project won the Special award of CCIAA Milano.

[7] The 21st of September, 2021 she was an invited speaker at the PhD School: "VISMAC (Machine Vision)" (Palermo), organized by "Centro Interdipartimentale Tecnologie della Conoscenza" (CITC, Università degli Studi di Palermo).

[8] The 22nd of November, 2021 she was invited speaker at the Annual meeting of the Neurology Department (Policlinico di Milano Ospedale Maggiore — Fondazione IRCCS Ca' Granda) to present her research work in the context of explainable AI.

[9] The 10th of March, 2022 she was invited speaker at the Department of Engineering, Università Campus Bio-Medico di Roma. She presented her reserach work entitled: "PNet: patients' outcome prediction by a network medicine approach".

[10] The 16th of May, 2022 she was invited speaker at the Department of Engineering, Università Campus Bio-Medico di Roma. She presented her reserach work entitled: "Explain covid-19 Risk: towards explainability in the clinical practice".

Phd Thesis

Elena Casiraghi. A computer aided diagnosis system for lung nodules detection in postero anterior chest radiographs. Phd. Thesis, Unversity of Milan, Computer Science Department, 2004.

Spoken languages

Italian: native language,
English: fluent,
Finnish: basics.

Computer programming languages and operative systems

IDL, MATLAB, C, C++, Java, Go, Python, PASCAL. Windows, UNIX, LINUX.

Milano, February 7, 2024
In fede
Elena Casiraghi