




Journal of Applicable Chemistry

2023, 12 (4): 345-389
(International Peer Reviewed Journal)

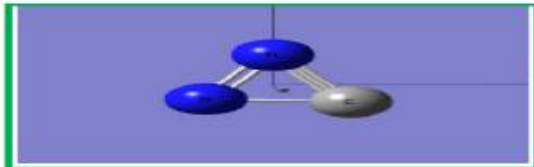


New Chemistry News

N=C=N



New News of Chem (NNC)



ChemNewsNew (CNN)

CNN – 51eXplainable AI

Part 2^s.xAI.Medicine (xAIM).Ref

Information Source	sciencedirect.com;	
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 R. Sambasiva Rao, Artificial Intelligence:Part III→eXplainable AI (xAI), Part 1: Medical diagnosis, J Applicable Chemistry, 2020, 9 (3): 466-495

Conspectus:

The revolutionary mega venture of rule based (If-Then-Else-Endif) expert systems (Mycin) in Medical diagnosis and clinical practice dates back to 1970s. The knowledge base, inference engine and user (I/O) interface were developed as separate modules. This was a major break-through from algorithmic software-program popular at that time. Mycin, expert system (subset of Artificial Intelligence) was used to diagnose blood diseases and prescription of drugs. Later, Meta-mycin/ Neomycin/ Guidon were applied in computer aided instruction (CAI) for medical students (CAIMed).

The algorithmic methods viz.SVM, ADABOOST etc were viewed as Machine Learning approaches with distinct features for classification/regression etc. The fuzzy logic systems, decision-tree-search and so on also output inferences in the form of hierarchical trees.

From 1980s onwards, neural networks (single-layer-perceptron, two-layer-perceptron, Multi-layer (>2) perceptron, Recurrent NN, Kohonen-self-organizing and ARTMAP dominated non-linear transformation in I/O operations. Neocognitron (1990s), Convolution neural nets (CNN) models were start of deep-level architectures and deep-learning in supervised/ weakly-supervised/ self-supervised/ unsupervised modes. It shifted the discipline and brought renaissance in AI evolution. Hinton's contributions including ALEX, brought out automatic feature extraction (from even images) instead of earlier hand-picked-approaches. The latest stint of Hinton (from Google) is capsule-net with dynamic routing ranks higher to CNN surmounting its short-comings. Transformers of Google in 2017 gained popularity to solve sequence-to-sequence input tasks. It is one of state-of-knowledge-methods for natural language processing and also for numerical data. The primary literature grew beyond leaps-and-bounds in science, technology and application domains. In this report, recent typical references in the application of xAI in Medical Science for brief period (2021 to 2023 June) are recorded.

Keywords:

eXplainable AI (xAI); interpretable/ Responsible/ Trustworthy AI; Convolution Neural Nets; Capsule Nets; ALEX; Deep architectures; Attention, self-attention; Learning--Machine Deep; Supervised/unsupervised/ semi-supervised/ Self-supervised data; literature reports;

		LayoutxAI .Med	
<i>References</i>	<i>I</i>	<i>2023 Jan -to June</i>	K(nowledge)Lab rsr.chem1979
	<i>II</i>	<i>2022Jan -to Dec</i>	
	<i>III</i>	<i>2021Jan -to Dec</i>	
<i>Added Ref</i>	<i>IV</i>	<i>2021Jan -to 2023-June</i>	

**Select Ref. xAI.Medicine
I. 2023 jan -to June**

xAI.Med.	Pregnancycare	2023-001
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Machine learning-based clinical decision support systems for pregnancy care: A systematic review	Ti
International Journal of Medical Informatics, 173 (2023) 105040 doi.org/10.1016/j.ijmedinf.2023.105040	Jo
Yuhan Du and Catherine McNestry and Lan Wei and Anna Markella Antoniadi, Fionnuala M. McAuliffe and Catherine Mooney	Au

xAI.Med.		2023-002
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Explainable deep learning-based clinical decision support engine for MRI-based automated diagnosis of temporomandibular joint anterior disk displacement	Ti
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Computer Methods and Programs in Biomedicine, 233(2023)107465 https://doi.org/10.1016/j.cmpb.2023.107465	Jo
Kyubaek Yoon and Jae-Young Kim and Sun-Jong Kim and Jong-Ki Huh and Jin-Woo Kim and Jongeun Choi	Au

xAI.Med.		2023-003
Keywords	Medical imaging, Radiology, Black-Box, Explainability, Interpretability	

Explainable AI in medical imaging: An overview for clinical practitioners– Beyond saliency-based XAI approaches	Ti
European Journal of Radiology, 162(2023)110786 https://doi.org/10.1016/j.ejrad.2023.110786	Jo
Katarzyna Borys and Yasmin Alyssa Schmitt and Meike Nauta and Christin Seifert and Nicole Krämer and Christoph M. Friedrich and Felix Nensa	Au

xAI.Med.		2023-004
Keywords	Quantum machine learning, Quantum computing, K-means algorithm, LIME	

Explainable quantum clustering method to model medical data	Ti
Knowledge-Based Systems, 267(2023)110413 https://doi.org/10.1016/j.knosys.2023.110413	Jo
Shradha Deshmukh and Bikash K. Behera and Preeti Mulay and Emad A. Ahmed and Saif Al-Kuwari and Prayag Tiwari and Ahmed Farouk	Au

xAI.Med.		2023-005
Keywords	Causal diagram, Deep learning, Electronic health records, Prelabor rupture of membranes	

Human-guided deep learning with ante-hoc explainability by convolutional network from non-image data for pregnancy prognostication	Ti
Neural Networks, 162(2023)99-116 https://doi.org/10.1016/j.neunet.2023.02.020	Jo
Herdiantri Sufriyana and Yu-Wei Wu and Emily Chia-Yu Su	Au

xAI.Med.		2023-006
Keywords	CNN, Re-training, RemOve-And-Retrain (ROAR), Autism spectrum disorder,	

Evaluation of interpretability for deep learning algorithms in EEG emotion recognition: A case study in autism	Ti
Artificial Intelligence in Medicine, (2023)102545 https://doi.org/10.1016/j.artmed.2023.102545	Jo
Juan Manuel Mayor Torres } and Sara Medina-DeVilliers and Tessa Clarkson and Matthew D. Lerner and Giuseppe Riccardi	Au

xAI.Med.		2023-007
Keywords	Combintorial Fusion	

The classification of stages of epiretinal membrane using convolutional neural network on optical coherence tomography image	Ti
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Methods, 214(2023) 28-34 https://doi.org/10.1016/j.ymeth.2023.04.006	Jo
Che-Lun Hung and Keng-Hung Lin and Yu-Kai Lee and Dariusz Mrozek and Yin-Te Tsai and Chun-Hsien Lin	Au

xAI.Med.		2023-008
Keywords	Fuzzy associative classification, Evolutionary fuzzy systems, Transparency	

Learning positive-negative rule-based fuzzy associative classifiers with a good trade-off between complexity and accuracy	Ti
Fuzzy Sets and Systems, (2023)108511 https://doi.org/10.1016/j.fss.2023.03.014	Jo
Carmen Biedma-Rdquez and María José Gacto and Augusto Anguita-Ruiz and Rafael Alcalá and Concepción María Aguilera and Jesús Alcalá-Fdez	Au

xAI.Med.		2023-009
Keywords	Natural language processing, Unsupervised learning, Cross-modal representation, Data visualization, risk prediction	

Genetic data visualization using literature text-based neural networks: Examples associated with myocardial infarction	Ti
Neural Networks, (2023) https://doi.org/10.1016/j.neunet.2023.05.015	Jo
Jihye Moon and Hugo F. Posada-Quintero and Ki H. Chon	Au

xAI.Med.		2023-010
Keywords	Robot spatial navigation, Spike-time-dependent plasticity, Spiking neurons network	

An explainable artificial intelligence approach to spatial navigation based on hippocampal circuitry	Ti
Neural Networks, 163(2023)97-107 https://doi.org/10.1016/j.neunet.2023.03.030	Jo
Simone Coppolino and Michele Migliore	Au

xAI.Med.		2023-011
Keywords	Explainability, Artificial intelligence, Medical decision support, Thyroid cancer	

A new xAI framework with feature explainability for tumors decision-making in Ultrasound data: comparing with Grad-CAM	Ti
Computer Methods and Programs in Biomedicine, 235(2023)107527 https://doi.org/10.1016/j.cmpb.2023.107527	Jo
Di Song and Jincao Yao and Yitao Jiang and Siyuan Shi and Chen Cui and Liping Wang and Lijing Wang and Huaiyu Wu and Hongtian Tian and Xiuqin Ye and Di Ou and Wei Li and Na	Au

Feng and Weiyun Pan and Mei Song and Jinfeng Xu and Dong Xu and Linghu Wu and Fajin Dong	
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xAI.Med.		2023-012
Keywords	fMRI, Affective computing, Feature importance, Counterfactual explanation	

From local counterfactuals to global feature importance: efficient, robust, and model-agnostic explanations for brain connectivity networks	Ti
Computer Methods and Programs in Biomedicine, 236(2023)107550 https://doi.org/10.1016/j.cmpb.2023.107550	Jo
Antonio Luca Alfeo and Antonio G. Zippo and Vincenzo Catrambone and Mario G.C.A. Cimino and Nicola Toschi and Gaetano Valenza	Au

xAI.Med.		2023-013
Keywords	Cancer screening, Supervised machine learning, Medical informatics, Evaluation study as topic	

Explainable discovery of disease biomarkers: The case of ovarian cancer to illustrate the best practice in machine learning and Shapley analysis	Ti
Journal of Biomedical Informatics, 141(2023)104365 https://doi.org/10.1016/j.jbi.2023.104365	Jo
Weitong Huang and Hanna Suominen and Tommy Liu and Gregory Rice and Carlos Salomon and Amanda S. Barnard	Au

xAI.Med.		2023-014
Keywords	Interpretable AI, Blackbox, Features, Supervised learning, Predictive models, Diagnostic imaging, Backpropagation	

Survey of explainable artificial intelligence techniques for biomedical imaging with deep neural networks	Ti
Computers in Biology and Medicine, 156(2023)106668 https://doi.org/10.1016/j.compbimed.2023.106668	Jo
Sajid Nazir and Diane M. Dickson and Muhammad Usman Akram	Au

xAI.Med.		2023-015
Keywords	Trustworthiness, Explainability, Artificial intelligence, Healthcare, Information fusion	

A systematic review of trustworthy and explainable artificial intelligence in healthcare: Assessment of quality, bias risk, and data fusion	Ti
Information Fusion, 96(2023) 156-191 https://doi.org/10.1016/j.inffus.2023.03.008	Jo
A.S. Albahri and Ali M. Duhaim and Mohammed A. Fadhel and Alhamzah Alnoor and Noor S. Baqer and Laith Alzubaidi and O.S. Albahri and A.H. Alamoodi and Jinshuai Bai and Asma Salhi and Jose Santamaría and Chun Ouyang and Ashish Gupta and Yuantong Gu and Muhammet Deveci	Au

xAI.Med.		2023-016
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Keywords	creatine kinase,
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CVD22: Explainable artificial intelligence determination of the relationship of troponin to D-Dimer, mortality, and CK-MB in COVID-19 patients	Ti
Computer Methods and Programs in Biomedicine, 233(2023)107492 https://doi.org/10.1016/j.cmpb.2023.107492	Jo
Kevser Kübra Kırboğa and Ecir Uğur Küçüksille and Muhammet Emin Naldan and Mesut Işık and Oktay Gülcü and Emrah Aksakal	Au

xAI.Med.		2023-017
Keywords	Data balancing, Random Forest Shapley Additive Explanations	

A machine learning and explainable artificial intelligence triage-prediction system for COVID-19	Ti
Decision Analytics Journal, 7(2023)100246 https://doi.org/10.1016/j.dajour.2023.100246	Jo
Varada Vivek Khanna and Krishnaraj Chadaga and Niranjana Sampathila and Srikanth Prabhu and Rajagopala Chadaga P.	Au

xAI.Med.		2023-018
Keywords	Respiratory sound, ECA-Net Grad-CAM	

Interpretation of lung disease classification with light attention connected module	Ti
Biomedical Signal Processing and Control, 84(2023)104695 https://doi.org/10.1016/j.bspc.2023.104695	Jo
Youngjin Choi and Hongchul Lee	Au

xAI.Med.		2023-019
Keywords	Multimorbidity, Prediction	

Prediction of disease comorbidity using explainable artificial intelligence and machine learning techniques: A systematic review	Ti
International Journal of Medical Informatics, 175(2023) 105088 https://doi.org/10.1016/j.ijmedinf.2023.105088	Jo
Mohanad M. Alsaleh and Freya Allery and Jung Won Choi and Tuankasfee Hama and Andrew McQuillin and Honghan Wu and Johan H. Thygesen	Au

xAI.Med.		2023-020
Keywords	CNV, Biomarker, Deep learning, Gradient	

XAI-CNVMarker: Explainable AI-based copy number variant biomarker discovery for breast cancer subtypes	Ti
Biomedical Signal Processing and Control, 84(2023)104979 https://doi.org/10.1016/j.bspc.2023.104979	Jo
Sheetal Rajpal and Ankit Rajpal and Manoj Agarwal and Virendra Kumar and Ajith Abraham and Divya Khanna and Naveen Kumar	Au

xAI.Med.		2023-021
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Keywords	Deep learning, Panoramic radiograph, Third molar, Inferior alveolar nerve, Cone-beam computed tomography
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Positional assessment of lower third molar and mandibular canal using explainable artificial intelligence	Ti
Journal of Dentistry, 133(2022) 104519 https://doi.org/10.1016/j.jdent.2023.104519	Jo
Steven Kempers and Pieter van Lierop } and Tzu-Ming Harry Hsu and David Anssari Moin and Stefaan Bergé and Hossein Ghaeminia and Tong Xi and Shankeeth Vinayahalingam	Au

xAI.Med.		2023-022
Keywords	Radiology, Black-Box, Interpretability	

Explainable AI in medical imaging: An overview for clinical practitioners – Saliency-based XAI approaches	Ti
European Journal of Radiology, 162(2023)110787 https://doi.org/10.1016/j.ejrad.2023.110787	Jo
Katarzyna Borys and Yasmin Alyssa Schmitt and Meike Nauta and Christin Seifert and Nicole Krämer and Christoph M. Friedrich and Felix Nensa	Au

xAI.Med.		2023-023
Keywords	Symbolic knowledge extraction, Recommendation systems, Neural networks	

Symbolic knowledge extraction for explainable nutritional recommenders	Ti
Computer Methods and Programs in Biomedicine, 235(2023)107536 https://doi.org/10.1016/j.cmpb.2023.107536	Jo
Matteo Magnini and Giovanni Ciatto and Furkan Cantürk and Reyhan Aydoğan and Andrea Omicini	Au

xAI.Med.		2023-024
Keywords	Deep Learning, Natural Language Processing, Medical Entity Normalization	

Explainable clinical coding with in-domain adapted transformers	Ti
Journal of Biomedical Informatics, 139(2023) 104323 https://doi.org/10.1016/j.jbi.2023.104323	Jo
Guillermo López-García and José M. Jerez and Nuria Ribelles and Emilio Alba and Francisco J. Veredas	Au

xAI.Med.		2023-025
Keywords	Deep learning	

XAI-MethylMarker: Explainable AI approach for biomarker discovery for breast cancer subtype classification using methylation data	Ti
Expert Systems with Applications, 225(2023)120130 https://doi.org/10.1016/j.eswa.2023.120130	Jo
Sheetal Rajpal and Ankit Rajpal and Arpita Saggar and Ashok K. Vaid and Virendra Kumar and Manoj Agarwal and Naveen Kumar	Au

xAI.Med.		2023-026
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Keywords	Reduced-lead ECG classification, 1D-CNNs, Attention, Model Compression
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LightX3ECG: A Lightweight and eXplainable Deep Learning System for 3-lead Electrocardiogram Classification	Ti
Biomedical Signal Processing and Control, 85(2023)104963 https://doi.org/10.1016/j.bspc.2023.104963	Jo
Khiem H. Le and Hieu H. Pham and Thao B.T. Nguyen and Tu A. Nguyen and Tien N. Thanh and Cuong D. Do	Au

xAI.Med.		2023-027
Keywords	machine learning, mitral valve intervention, phenogrouping, primary mitral regurgitation, risk stratification	

Integrating Echocardiography Parameters With Explainable Artificial Intelligence for Data-Driven Clustering of Primary Mitral Regurgitation Phenotypes	Ti
JACC: Cardiovascular Imaging(2023) https://doi.org/10.1016/j.jcmg.2023.02.016	Jo
Jérémy Bernard and Naveena Yanamala and Rohan Shah and Karthik Seetharam and Alexandre Altes and Marlène Dupuis and Oumhani Toubal and Haifa Mahjoub and Héléne Dumortier and Jean Tartar and Erwan Salaun and Kim O'Connor and Mathieu Bernier and Jonathan Beaudoin and Nancy Côté and André Vincentelli and Florent LeVen and Sylvestre Maréchaux and Philippe Pibarot and Partho P. Sengupta	Au

xAI.Med.		2023-028
Keywords	Interpretable artificial intelligence, Essential properties of XAI, Evaluation of explanation effectiveness	

Essential properties and explanation effectiveness of explainable artificial intelligence in healthcare: A systematic review	Ti
Heliyon, 9(2023)e16110 https://doi.org/10.1016/j.heliyon.2023.e16110	Jo
Jinsun Jung and Hyungbok Lee and Hyunggu Jung and Hyeoneui Kim	Au

xAI.Med.		2023-029
Keywords	COVID-19, Genomics, Machine learning, Systematic review	

A systematic review of artificial intelligence-based COVID-19 modeling on multimodal genetic information	Ti
Progress in Biophysics and Molecular Biology, 179(2023) 1-9 https://doi.org/10.1016/j.pbiomolbio.2023.02.003	Jo
Karthik Sekaran and R. Gnanasambandan and Ramkumar Thirunavukarasu and Ramya Iyyadurai and G. Karthik and C. George Priya Doss	Au

xAI.Med.		2023-030
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An XAI approach for COVID-19 detection using transfer learning with X-ray images	Ti
Heliyon, 9(2023)e15137 https://doi.org/10.1016/j.heliyon.2023.e15137	Jo
Salih Sarp and Ferhat Ozgur Catak and Murat Kuzlu and Umit Cali and Huseyin Kusetogullari and Yanxiao Zhao and Gungor Ates and Ozgur Guler	Au

xAI.Med.		2023-031
Keywords	XGBoost,	

Peripheral blood mononuclear cell derived biomarker detection using eXplainable Artificial Intelligence (XAI) provides better diagnosis of breast cancer	Ti
Computational Biology and Chemistry, 104(2023)107867 https://doi.org/10.1016/j.compbiolchem.2023.107867	Jo
Sunil Kumar and Asmita Das	Au

xAI.Med.		2023-032
Keywords	Artificial Intelligence, Machine learning, Deep learning, Explanation, HealthCare	

A systematic review of Explainable Artificial Intelligence models and applications: Recent developments and future trends	Ti
Decision Analytics Journal, 7(2023) 100230 https://doi.org/10.1016/j.dajour.2023.100230	Jo
Saranya A. and Subhashini R.	Au

xAI.Med.		2023-033
Keywords	Explainability prediction, Fine-grained interaction, Micro behavior, User behavior analysis, Interaction log analysis, Interaction prediction, Node2vec	

Predicting the need for XAI from high-granularity interaction data	Ti
International Journal of Human-Computer Studies, 175(2023)103029 https://doi.org/10.1016/j.ijhcs.2023.103029	Jo
Vagner Figueredo de Santana } and Ana Fucs and Vinícius Segura and Daniel Brugnaro de Moraes } and Renato Cerqueira	Au

xAI.Med.		2023-034
Keywords	Local interpretable model-agnostic explanation,	

A systematic approach to enhance the explainability of artificial intelligence in healthcare with application to diagnosis of diabetes	Ti
Healthcare Analytics, 3(2023) 100183 https://doi.org/10.1016/j.health.2023.100183	Jo

Yu-Cheng Wang and Tin-Chih Toly Chen and Min-Chi Chiu	Au
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xAI.Med.		2023-035
Keywords	Domain ontologies, Knowledge-based systems, PRISMA (Preferred Reporting Items for Systematic reviews and meta-Analyses statement),	

A review of domain ontologies for disability representation	Ti
Expert Systems with Applications,(2023)120467 https://doi.org/10.1016/j.eswa.2023.120467	Jo
Daniele Spoladore and Marco Sacco and Alberto Trombetta	Au

xAI.Med.		2023-036
Keywords	Bone marrow transplant, Cancer, Harris Hawk Optimization, Salp Swarm Optimization	

A machine learning and explainable artificial intelligence approach for predicting the efficacy of hematopoietic stem cell transplant in pediatric patients	Ti
Healthcare Analytics, 3(2023)100170 https://doi.org/10.1016/j.health.2023.100170	Jo
Krishnaraj Chadaga and Srikanth Prabhu and Niranjana Sampathila and Rajagopala Chadaga	Au

xAI.Med.		2023-037
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Quantitative and explainable artificial intelligence (ai)-powered approaches to predict ulcerative colitis disease activity from hematoxylin and eosin (h&e)-stained whole slide images (wsi)	Ti
Gastroenterology, 164(2023)S28-S29 https://doi.org/10.1053/j.gastro.2023.03.059	Jo
Kathleen Sucipto and Archit Khosla and Michael Drage and Yilan Wang and Darren Fahy and Mary Lin and Murray Resnick and Mike Montalto and Andrew Beck and Ilan Wapinski and Stephanie Hennek and Christina Jayson and Fedaa Najdawi}	Au

xAI.Med.		2023-038
Keywords	Interpretable machine learning, Multi-modal medical image, Explainable AI evaluation	

Guidelines and evaluation of clinical explainable AI in medical image analysis	Ti
Medical Image Analysis, 84(2023)102684 https://doi.org/10.1016/j.media.2022.102684	Jo
Weina Jin and Xiaoxiao Li and Mostafa Fatehi and Ghassan Hamarneh	Au

xAI.Med.		2023-039
Keywords	Computer audition, Heart sound, Health, Digital phenotype	

Exploring interpretable representations for heart sound abnormality detection	Ti
Biomedical Signal Processing and Control, 82(2023)104569 https://doi.org/10.1016/j.bspc.2023.104569	Jo
Zhihua Wang and Kun Qian and Houguang Liu and Bin Hu and Björn W. Schuller and Yoshiharu Yamamoto	Au

xAI.Med.		2023-040
Keywords	Computer-aided diagnosis, Deep learning,	

Trustworthy learning with (un)sure annotation for lung nodule diagnosis with CT	Ti
Medical Image Analysis, 83(2023)102627 https://doi.org/10.1016/j.media.2022.102627	Jo
Hanxiao Zhang and Liang Chen and Xiao Gu and Minghui Zhang and Yulei Qin and Feng Yao and Zhexin Wang and Yun Gu and Guang-Zhong Yang	Au

xAI.Med.		2023-041
Keywords	Radiogenomics, Ultrasonic image, Genomics, Multi-omics	

An omics-to-omics joint knowledge association subtensor model for radiogenomics cross-modal modules from genomics and ultrasonic images of breast cancers	Ti
Computers in Biology and Medicine, 155(2023)106672 https://doi.org/10.1016/j.compbimed.2023.106672	Jo
Jianing Xi and Donghui Sun and Cai Chang and Shichong Zhou and Qinghua Huang	Au

xAI.Med.		2023-042
Keywords	Deep learning, Imbalanced dataset classification	

An explainable attention-based TCN heartbeats classification model for arrhythmia detection	Ti
Biomedical Signal Processing and Control, 80(2023) 104337 https://doi.org/10.1016/j.bspc.2022.104337	Jo
Yuxuan Zhao and Jiadong Ren and Bing Zhang and Jinxiao Wu and Yongqiang Lyu	Au

xAI.Med.		2023-043
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A personalized risk stratification tool for perinatal morbidity and mortality using explainable artificial intelligence (AI)	Ti
American Journal of Obstetrics and Gynecology, 228(2023)S565-S566 https://doi.org/10.1016/j.ajog.2022.11.960	Jo
Raquel M. Zimmerman and Edgar Javier Hernandez and Martin Tristani-Firouzi and Robert M. Silver and Mark Yandell and Nathan R. Blue	Au

xAI.Med.		2023-044
Keywords	Image classification, Image generation, Multiple instance learning, Cardiac pathology, Whole-slide imaging	

Explainable synthetic image generation to improve risk assessment of rare pediatric heart transplant rejection	Ti
Journal of Biomedical Informatics, 139(2023)104303 https://doi.org/10.1016/j.jbi.2023.104303	Jo
Felipe O. Giuste and Ryan Sequeira and Vikranth Keerthipati and Peter Lais and Ali Mirzazadeh and Arshawn Mohseni and Yuanda Zhu and Wenqi Shi and Benoit Marteau and Yishan Zhong and Li Tong and Bibhuti Das and Bahig Shehata and Shriprasad Deshpande and May D. Wang	Au

xAI.Med.		2023-045
Keywords	Relative importance of variables, Time series forecasting	

XAIRE: An ensemble-based methodology for determining the relative importance of variables in regression tasks. Application to a hospital emergency department	Ti
Artificial Intelligence in Medicine, 137(2023)102494 https://doi.org/10.1016/j.artmed.2023.102494	Jo
A.J. Rivera and J. Cobo Muñoz and M.D. Pérez-Goody and B. Sáenz de San Pedro } and F. Charte and D. Elizondo and C. Rodríguez and M.L. Abolafia and A. Perea and M.J. del Jesus	Au

xAI.Med.		2023-046
Keywords	Deep learning, , GBM, Genomics, Machine learning, PyCaret, State of the art, Supervised learning	

Chapter 8 - Toward automated machine learning for genomics : evaluation and comparison of state-of-the-art AutoML approaches	Ti
Data Science for Genomics, (2023)Academic Press, 129-152 https://doi.org/10.1016/B978-0-323-98352-5.00017-3	Jo
Akbar Ali Khan and Prakriti Dwivedi and Sareeta Mugde and S.A. Sajidha and Garima Sharma and Gulshan Soni	Au

xAI.Med.		2023-047
Keywords	XGBoost LIME, SHAP	

Explainable artificial intelligence model for identifying COVID-19 gene biomarkers	Ti
Computers in Biology and Medicine, 154(2023)106619 https://doi.org/10.1016/j.compbiomed.2023.106619	Jo
Fatma Hilal Yagin and İpek Balikci Cicek and Abedalrhman Alkhateeb and Burak Yagin and Cemil Colak and Mohammad Azzeh and Sami Akbulut	Au

xAI.Med.		2023-048
Keywords	Computer-aided diagnosis, Biopsy, Lamina propria, Inflammation	

Automated analysis of small intestinal lamina propria to distinguish normal, Celiac Disease, and Non-Celiac Duodenitis biopsy images	Ti
Computer Methods and Programs in Biomedicine, 230(2023)107320 https://doi.org/10.1016/j.cmpb.2022.107320	Jo
Oliver Faust and Simona De Michele} and Joel EW Koh and V Jahmunah and Oh Shu Lih and Aditya P Kamath and Prabal Datta Barua and Edward J. Ciaccio and Suzanne K. Lewis and Peter H. Green and Govind Bhagat and U. Rajendra Acharya	Au

xAI.Med.		2023-049
Keywords	XAI, Black-box, Local-explanation, Interpretable-Explainable, Fidelity, Reliability, Surrogate model	
	Post-hoc, Model agnostic,	

Why did AI get this one wrong? — Tree-based explanations of machine learning model predictions	Ti
Artificial Intelligence in Medicine, 135(2023)102471 https://doi.org/10.1016/j.artmed.2022.102471	Jo
Enea Parimbelli and Tommaso Mario Buonocore and Giovanna Nicora and Wojtek Michalowski and Szymon Wilk and Riccardo Bellazzi	Au

xAI.Med.		2023-050
Keywords	Computer vision, modeling, AI assurance	

3 - An overview of explainable and interpretable AI	Ti
AI Assurance, (2023)Academic Press,55-123 https://doi.org/10.1016/B978-0-32-391919-7.00015-9	Jo
William Franz Lamberti	Au

xAI.Med.		2023-051
Keywords	Deep-learning, Multimodal learning	

Multi-objective optimization determines when, which and how to fuse deep networks: An application to predict COVID-19 outcomes	Ti
Computers in Biology and Medicine, 154(2023)106625 https://doi.org/10.1016/j.compbio.2023.106625	Jo
Valerio Guarrasi and Paolo Soda	Au

xAI.Med.		2023-052
Keywords	Neuroimaging, , Monte Carlo dropout, Monte Carlo batch normalization, Clinical decision support systems	

	Gradient-based explainability methods
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Towards greater neuroimaging classification transparency via the integration of explainability methods and confidence estimation approaches	Ti
Informatics in Medicine Unlocked, 37(2023)101176 https://doi.org/10.1016/j.imu.2023.101176	Jo
Charles A. Ellis and Robyn L. Miller and Vince D. Calhoun	Au

xAI.Med.		2023-053
Keywords	Deep Learning, Digital Transformation, Machine Learning	

AI for life: Trends in artificial intelligence for biotechnology	Ti
New Biotechnology,74(2023)16-24 https://doi.org/10.1016/j.nbt.2023.02.001	Jo
Andreas Holzinger and Katharina Keiblinger and Petr Holub and Kurt Zatloukal and Heimo Müller	Au

xAI.Med.		2023-054
Keywords	Interpretability, Explainability, Symbolic regression (SR), Machine Learning	

Identifying patterns in multiple biomarkers to diagnose diabetic foot using an explainable genetic programming-based approach	Ti
Future Generation Computer Systems, 140(2023)138-150 https://doi.org/10.1016/j.future.2022.10.019	Jo
Gianni D' Angelo and David Della-Morte and Donatella Pastore and Giulia Donadel and Alessandro De Stefano} and Francesco Palmieri	Au

xAI.Med.		2023-055
Keywords	Local Interpretable Model-agnostic Explanations, Deep learning, Genetic algorithm,	

Ensemble-based genetic algorithm explainer with automized image segmentation : A case study on melanoma detection dataset	Ti
Computers in Biology and Medicine, 155(2023)106613 https://doi.org/10.1016/j.compbiomed.2023.106613	Jo
Hossein Nematzadeh and José García-Nieto and Ismael Navas-Delgado and José F. Aldana-Montes	Au

xAI.Med.		2023-056
Keywords	Interpretable machine learning	

Generating post-hoc explanation from deep neural networks for multi-modal medical image analysis tasks	Ti
MethodsX, 10(2023)102009 https://doi.org/10.1016/j.mex.2023.102009	Jo

Weina Jin and Xiaoxiao Li and Mostafa Fatehi and Ghassan Hamarneh	Au
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xAI.Med.		2023-057
Keywords	Human–AI collaboration protocols, Cognitive biases, Automation bias	

Rams, hounds and white boxes: Investigating human–AI collaboration protocols in medical diagnosis	Ti
Artificial Intelligence in Medicine, 138(2023)102506 https://doi.org/10.1016/j.artmed.2023.102506	Jo
Federico Cabitza and Andrea Campagner and Luca Ronzio and Matteo Cameli and Giulia Elena Mandoli and Maria Concetta Pastore and Luca Maria Sconfienza and Duarte Folgado and Marília Barandas and Hugo Gamboa	Au

xAI.Med.		2023-058
Keywords	Genomic structural variation, missing heritability, precision medicine, kynurenine pathway	

Structural variants identified using non-Mendelian inheritance patterns advance the mechanistic understanding of autism spectrum disorder	Ti
Human Genetics and Genomics Advances, 4(2023)100150 https://doi.org/10.1016/j.xhgg.2022.100150	Jo
David Kainer and Alan R. Templeton and Erica T. Prates and Daniel Jacobson and Euan R.O. Allan and Sharlee Climer and Michael R. Garvin	Au

xAI.Med.		2023-059
Keywords	Biomarkers, Neural network, Machine learning	

An explainable AI-driven biomarker discovery framework for Non-Small Cell Lung Cancer classification	Ti
Computers in Biology and Medicine, 153(2023)106544 https://doi.org/10.1016/j.combiomed.2023.106544	Jo
Kountay Dwivedi and Ankit Rajpal and Sheetal Rajpal and Manoj Agarwal and Virendra Kumar and Naveen Kumar	Au

xAI.Med.		2023-060
Keywords	Human-AI Interaction	

How the different explanation classes impact trust calibration: The case of clinical decision support systems	Ti
International Journal of Human-Computer Studies, 169(2023)102941 https://doi.org/10.1016/j.ijhcs.2022.102941	Jo
Mohammad Naiseh and Dena Al-Thani and Nan Jiang and Raian Ali	Au

xAI.Med.		2023-061
Keywords	Prediction explanation, Machine learning	

A quantitative approach for the comparison of additive local explanation methods	Ti
Information Systems, 114(2023)102162 https://doi.org/10.1016/j.is.2022.102162	Jo
Emmanuel Doumard and Julien Aligon and Elodie Escriva and Jean-Baptiste Excoffier and Paul Monsarrat and Chantal Soulé-Dupuy	Au

xAI.Med.		2023-062
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Explainable classification of Parkinson's disease using deep learning trained on a large multi-center database of T1-weighted MRI datasets	Ti
NeuroImage: Clinical, 38(2023)103405 https://doi.org/10.1016/j.nicl.2023.103405	Jo
Milton Camacho and Matthias Wilms and Pauline Mouches and Hannes Almgren and Raissa Souza and Richard Camicioli and Zahinoor Ismail and Oury Monchi and Nils D. Forkert	Au

xAI.Med.		2023-063
Keywords	Hospital management	

An improved explainable artificial intelligence tool in healthcare for hospital recommendation	Ti
Healthcare Analytics, 3(2023) 100147 https://doi.org/10.1016/j.health.2023.100147	Jo
Yu-Cheng Wang and Tin-Chih Toly Chen and Min-Chi Chiu	Au

Select Ref. xAI.Medicine

I. 2022 jan -to Dec

xAI.Med.	COVID-19	2022-001
Keywords	Deep learning, SHAP, LIME, Grad-CAM	

Explanatory classification of CXR images into COVID-19, Pneumonia and Tuberculosis using deep learning and XAI	Ti
Computers in Biology and Medicine, 150(2022) 106156 https://doi.org/10.1016/j.compbio.2022.106156	Jo
Mohan Bhandari and Tej Bahadur Shahi and Birat Siku and Arjun Neupane	Au

xAI.Med.	COVID-19 DNA	2022-002
Keywords	pre-trained model: BERT; SHAP feature selection	

BERT-Promoter: An improved sequence-based predictor of DNA promoter using BERT pre-trained model and SHAP feature selection	Ti
Computational Biology and Chemistry, 99 (2022) 107732 https://doi.org/10.1016/j.compbiolchem.2022.107732	Jo
Nguyen Quoc Khanh Le and Quang-Thai Ho and Van-Nui Nguyen and Jung-Su Chang	Au

xAI.Med.		2022-003
Keywords	Attention mechanism, Interpretability	

Explainable diabetes classification using hybrid Bayesian-optimized TabNet architecture	Ti
Computers in Biology and Medicine, 151 (2022) 106178 https://doi.org/10.1016/j.compbio.2022.106178	Jo
Lionel P. Joseph and Erica A. Joseph and Ramendra Prasad	Au

xAI.Med.	Cell populations, Immunophenotyping	2022-004
Keywords	Flow cytometry, Human blood, Human bone marrow, Interpretable machine learning	

Flow cytometry datasets consisting of peripheral blood and bone marrow samples for the evaluation of explainable artificial intelligence methods	Ti
Data in Brief, 43(2022) 108382 https://doi.org/10.1016/j.dib.2022.108382	Jo
Michael C. Thrun and Jörg Hoffmann and Maximilian Röhnert and Malte von Bonin and Uta Oelschlägel and Cornelia Brendel and Alfred Ultsch	Au

xAI.Med.	MRI	2022-005
Keywords	Explainable NN; High-resolution heatmap,	

A novel explainable neural network for Alzheimer's disease diagnosis	Ti
Pattern Recognition, 131(2022) 108876 https://doi.org/10.1016/j.patcog.2022.108876	Jo
Lu Yu and Wei Xiang and Juan Fang and Yi-Ping Phoebe Chen and Ruifeng Zhu	Au

xAI.Med.		2022-006
Keywords	Cardiometabolic risk factors, Adolescent, Artificial intelligence	

Metabolic syndrome screening in adolescents: New scores AI_METS based on artificial intelligence techniques	Ti
Nutrition, Metabolism and Cardiovascular Diseases, 32 (2022) 2890-2899 https://doi.org/10.1016/j.nume.2022.08.007	Jo
Karima Benmohammed and Paul Valensi and Nabil Omri and Zeina Al Masry and	Au

Noureddine Zerhouni	
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xAI.Med.		2022-007
Keywords	Transfer ensemble learning, Transformer encoder (TE), Self-attention network,	

A hybrid explainable ensemble transformer encoder for pneumonia identification from chest X-ray images	Ti
Journal of Advanced Research, (2022) https://doi.org/10.1016/j.jare.2022.08.021	Jo
Chiagoziem C. Ukwuoma and Zhiguang Qin and Md Belal Bin Heyat} and Faijan Akhtar and Olusola Bamisile and Abdullah Y. Muaad and Daniel Addo and Mugahed A. Al-antari	Au

xAI.Med.		2022-008
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MIXTURE of human expertise and deep learning—developing an explainable model for predicting pathological diagnosis and survival in patients with interstitial lung disease	Ti
Modern Pathology, 35(2022) 1083-1091 https://doi.org/10.1038/s41379-022-01025-7	Jo
Wataru Uegami and Andrey Bychkov and Mutsumi Ozasa and Kazuki Uehara and Kensuke Kataoka and Takeshi Johkoh and Yasuhiro Kondoh and Hidenori Sakanashi and Junya Fukuoka	Au

xAI.Med.		2022-009
Keywords	Fast Healthcare Interoperability Resources (FHIR), Data Standards, Semantic Web, , Virtual Knowledge Graphs, Shape Expressions (ShEx)	

FHIR-Ontop-OMOP: Building clinical knowledge graphs in FHIR RDF with the OMOP Common data Model	Ti
Journal of Biomedical Informatics, 134(2022) 104201 https://doi.org/10.1016/j.jbi.2022.104201	Jo
Guohui Xiao and Emily Pfaff and Eric Prud'hommeaux and David Booth and Deepak K. Sharma and Nan Huo and Yue Yu and Nansu Zong and Kathryn J. Ruddy and Christopher G. Chute and Guoqian Jiang	Au

xAI.Med.	machine learning, ML, artificial intelligence, AI, deep learning	2022-010
Keywords	precision psychiatry, digital psychiatry, computational psychiatry, neuroimaging, neurobiomarker, molecular biomarker, digital phenotyping, multi-modal data fusion, neuromodulation, causality, explainable AI, XAI, teletherapy	

Modern views of machine learning for precision psychiatry	Ti
Patterns, 3(2022) 100602 https://doi.org/10.1016/j.patter.2022.100602	Jo
Zhe Sage Chen and Prathamesh (Param) Kulkarni and Isaac R. Galatzer-Levy and Benedetta Bigio and Carla Nasca and Yu Zhang	Au

xAI.Med.		2022-011
Keywords	Translational bioinformatics, Therapeutic resistance, Cancer recurrence, Non-coding RNA	

CTRR-ncRNA: A Knowledgebase for Cancer Therapy Resistance and Recurrence Associated Non-coding RNAs	Ti
Genomics, Proteomics & Bioinformatics, (2022) https://doi.org/10.1016/j.gpb.2022.10.003	Jo
Tong Tang and Xingyun Liu and Rongrong Wu and Li Shen and Shumin Ren and Bairong Shen	Au

xAI.Med.		2022-012
Keywords	Oropharyngeal Cancer, Prognostication, Precision Medicine, Human Papillomavirus	

An interpretable machine learning prognostic system for risk stratification in oropharyngeal cancer	Ti
International Journal of Medical Informatics, 168 (2022) 104896 https://doi.org/10.1016/j.ijmedinf.2022.104896	Jo
Rasheed Omobolaji Alabi and Alhadi Almangush and Mohammed Elmusrati and Ilmo Leivo and Antti A. Mäkitie	Au

xAI.Med.		2022-013
Keywords	Deep learning, Machine learning, PRISMA, , SHAP, LIME, GradCAM, LRP, EBM, CBR, Saliency map, Rule-based, Expert system, Attention mechanism	

Application of explainable artificial intelligence for healthcare: A systematic review of the last decade (2011–2022)	Ti
Computer Methods and Programs in Biomedicine, 226(2022) 107161 https://doi.org/10.1016/j.cmpb.2022.107161	Jo
Hui Wen Loh and Chui Ping Ooi and Silvia Seoni and Prabal Datta Barua and Filippo Molinari and U Rajendra Acharya	Au

xAI.Med.		2022-014
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Explainable Artificial Intelligence for Identification of Dosimetric Predictors of Radiation Toxicity: A Secondary Analysis of RTOG 0617	Ti
International Journal of Radiation Oncology*Biography*Physics, 114 (2022) S110-S111 https://doi.org/10.1016/j.ijrobp.2022.07.544	Jo
C.J. Ladbury and A. Tam and J.R. Liu and C. Hao and R. Li and R. Li and H.M. McGee and S. Sampath and T.M. Williams and S.M. Glaser and A. Amini	Au

xAI.Med.		2022-015
Keywords	Behavioral intention, Technology trust, Perceived value	

Does AI explainability affect physicians' intention to use AI?	Ti
International Journal of Medical Informatics, 168 (2022)104884 https://doi.org/10.1016/j.ijmedinf.2022.104884	Jo
Chung-Feng Liu and Zhih-Cherng Chen and Szu-Chen Kuo and Tzu-Chi Lin	Au

xAI.Med.		2022-016
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Keywords	Length of stay prediction, Multilayer ensemble,
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Multilayer dynamic ensemble model for intensive care unit mortality prediction of neonate patients	Ti
Journal of Biomedical Informatics, 135 (2022)104216 https://doi.org/10.1016/j.jbi.2022.104216	Jo
Firuz Juraev and Shaker El-Sappagh and Eldor Abdukhamidov and Farman Ali and Tamer Abuhmed	Au

xAI.Med.		2022-017
Keywords	Interpretable AI	

A manifesto on explainability for artificial intelligence in medicine	Ti
Artificial Intelligence in Medicine, 133 (2022) 102423 https://doi.org/10.1016/j.artmed.2022.102423	Jo
Carlo Combi and Beatrice Amico and Riccardo Bellazzi and Andreas Holzinger and Jason H. Moore and Marinka Zitnik and John H. Holmes	Au

xAI.Med.	Tumor segmentation	2022-018
Keywords	U-Net,	

A framework for falsifiable explanations of machine learning models with an application in computational pathology	Ti
Medical Image Analysis, 82 (2022) 102594 https://doi.org/10.1016/j.media.2022.102594	Jo
David Schuhmacher and Stephanie Schörner and Claus Küpper and Frederik Großerueschkamp and Carlo Sternemann and Celine Lugnier and Anna-Lena Kraeft and Hendrik Jütte and Andrea Tannapfel and Anke Reinacher-Schick and Klaus Gerwert and Axel Mosig	Au

xAI.Med.		2022-019
Keywords	User experience	

Investigating the understandability of XAI methods for enhanced user experience: When Bayesian network users became detectives	Ti
Artificial Intelligence in Medicine, 134 (2022) 102438 https://doi.org/10.1016/j.artmed.2022.102438	Jo
Raphaela Butz and Renée Schulz and Arjen Hommersom and Marko van Eekelen	Au

xAI.Med.		2022-020
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Towards an explainable artificial intelligence to predict blastocyst formation potential from single oocyte images	Ti
Fertility and Sterility, 118 (2022) e337-e338 https://doi.org/10.1016/j.fertnstert.2022.09.127	Jo
Roberto Valencia and Adolfo Flores Saiffe Farías and Gerardo Mendizabal and Alejandro Chavez-Badiola and Fatima Judith Acosta Gomez	Au

xAI.Med.		2022-021
Argumentation approaches for explainable AI in medical informatics		Ti
Intelligent Systems with Applications, 16 (2022) 200109 https://doi.org/10.1016/j.iswa.2022.200109		Jo
Luciano Caroprese and Eugenio Vocaturo and Ester Zumpano		Au
xAI.Med.		2022-022
Keywords	HRV, EDA, XAI, Stress detection, Wearable sensors, Affective computing	
Application level performance evaluation of wearable devices for stress classification with explainable AI		Ti
Pervasive and Mobile Computing, 87 (2022) 101703 https://doi.org/10.1016/j.pmcj.2022.101703		Jo
Niaz Chalabianloo and Yekta Said Can and Muhammad Umair and Corina Sas and Cem Ersoy		Au
xAI.Med.	Personalized medicine	2022-023
Keywords	Computational integration Neuropsychological tests, Cognitive assessment, , Bio-markers	
The integration of clinical data in the assessment of multiple sclerosis – A review		Ti
Computer Methods and Programs in Biomedicine, 221(2022) 106900 https://doi.org/10.1016/j.cmpb.2022.106900		Jo
Sofia Ostellino and Alfredo Benso and Gianfranco Politano		Au
xAI.Med.		2022-024
Keywords	Deep Learning	
Explainable Artificial Intelligence Techniques in Medical Signal Processing		Ti
Procedia Computer Science, 212 (2022)474-484 https://doi.org/10.1016/j.procs.2022.11.031		Jo
Ksenia Shkileva and Nikolai Zolotykh		Au
xAI.Med.		2022-025
Keywords	Europe, Climate adaptation, Emerging infectious disease Preparedness, Outbreaks management, Early warning systems, forecasting XGBoost, SHAP	
Artificial intelligence to predict West Nile virus outbreaks with eco-climatic drivers		Ti
The Lancet Regional Health – Europe, 17 (2022)100370 https://doi.org/10.1016/j.lanep.2022.100370		Jo
Zia Farooq and Joacim Rocklöv and Jonas Wallin and Najmeh Abiri and Maquines Odhiambo Sewe and Henrik Sjödin and Jan C. Semenza		Au
xAI.Med.		2022-026
Keywords	Parameter optimization, Classification, model training Medical dataset, Radiological images recognition,	

Empowering multi-class medical data classification by Group-of-Single-Class-predictors and transfer optimization: Cases of structured dataset by machine learning and radiological images by deep learning	Ti
Future Generation Computer Systems, 133 (2022) 10-22 https://doi.org/10.1016/j.future.2022.02.022	Jo
Tengyue Li and Simon Fong and Sabah Mohammed and Jinan Fiaidhi and Steven Guan and Victor Chang	Au

xAI.Med.		2022-027
Keywords	Pandemic risk analysis pandemic, Diagnostic analytics	

An explanatory analytics framework for early detection of chronic risk factors in pandemics	Ti
Healthcare Analytics, 2 (2022)2772-4425 https://doi.org/10.1016/j.health.2022.100020	Jo
Behrooz Davazdahemami and Hamed M. Zolbanin and Dursun Delen	Au

xAI.Med.	polysomnography	2022-028
Keywords	LIME	

Explainable machine learning for sleep apnea prediction	Ti
Procedia Computer Science, 207(2022) 2930-2939 https://doi.org/10.1016/j.procs.2022.09.351	Jo
A.R. Troncoso-García and M. Martínez-Ballesteros and F. Martínez-Álvarez and A. Troncoso	Au

xAI.Med.	Electronic Health Records	2022-029
Keywords	Multi-label classification, Document classification Topic models, Partially labelled dirichlet allocation	

Preliminary exploration of topic modelling representations for Electronic Health Records coding according to the International Classification of Diseases in Spanish	Ti
Expert Systems with Applications, 204(2022) 117303 https://doi.org/10.1016/j.eswa.2022.117303	Jo
Nuria Lebeña and Alberto Blanco and Alicia Pérez and Arantza Casillas	Au

xAI.Med.		2022-030
Keywords	International classification of diseases, Electronic health, Diseases of the digestive system, Per-label attention	

Implementation of specialised attention mechanisms : ICD-10 classification of Gastrointestinal discharge summaries in English, Spanish and Swedish	Ti
Journal of Biomedical Informatics, 130(2022) 104050 https://doi.org/10.1016/j.jbi.2022.104050	Jo
Alberto Blanco and Sonja Remmer and Alicia Pérez and Hercules Dalianis and Arantza Casillas	Au

xAI.Med.		2022-031
Keywords	Human-computer interaction, Decision forest, Feature selection	

A novel explainable COVID-19 diagnosis method by integration of feature selection with random forest	Ti
Informatics in Medicine Unlocked, 30(2022) 100941 https://doi.org/10.1016/j.imu.2022.100941	Jo
Mehrdad Rostami and Mourad Oussalah	Au

xAI.Med.	Grad-CAM,	2022-032
Keywords	DenseNet model, Deep learning	

Explainable detection of myocardial infarction using deep learning models with Grad-CAM technique on ECG signals	Ti
Computers in Biology and Medicine, 146 (2022)105550 https://doi.org/10.1016/j.combiomed.2022.105550	Jo
V. Jahmunah and E.Y.K. Ng and Ru-San Tan and Shu Lih Oh and U Rajendra Acharya	Au

xAI.Med.	ECG Waves	2022-033
Keywords	Deep Learning CNN, Residual Networks SHAP, Interpretability	

Explainable AI decision model for ECG data of cardiac disorders	Ti
Biomedical Signal Processing and Control, 75 (2022) 103584 https://doi.org/10.1016/j.bspc.2022.103584	Jo
Atul Anand and Tushar Kadian and Manu Kumar Shetty and Anubha Gupta	Au

xAI.Med.		2022-034
Keywords	AI- in-Dermatology, Computer-aided diagnosis, Interpretability, Textual explanations Medical image processing	

ExAID: A multimodal explanation framework for computer-aided diagnosis of skin lesions	Ti
Computer Methods and Programs in Biomedicine, 215 (2022) 106620 https://doi.org/10.1016/j.cmpb.2022.106620	Jo
Adriano Lucieri and Muhammad Naseer Bajwa and Stephan Alexander Braun and Muhammad Imran Malik and Andreas Dengel and Sheraz Ahmed	Au

xAI.Med.	Antimicrobial multidrug resistance, Intensive Care Unit	2022-035
Keywords	Multivariate Time Series, Recurrent neural network, Linguistic fuzzy models,	

Interpretable clinical time-series modeling with intelligent feature selection for early prediction of antimicrobial multidrug resistance	Ti
Future Generation Computer Systems, 133 (2022) 68-83 https://doi.org/10.1016/j.future.2022.02.021	Jo
Sergio Martínez-Agüero and Cristina Soguero-Ruiz and Jose M. Alonso-Moral and Inmaculada Mora-Jiménez and Joaquín Álvarez-Rodríguez and Antonio G. Marques	Au

xAI.Med.		2022-036
Keywords	machine learning, life sciences, clinical research	

Human-centered explainability for life sciences, healthcare, and medical informatics	Ti
Patterns, 3 (2022) 100493 https://doi.org/10.1016/j.patter.2022.100493	Jo
Sanjoy Dey and Prithwish Chakraborty and Bum Chul Kwon and Amit Dhurandhar and Mohamed Ghalwash and Fernando J. Suarez Saiz } and Kenney Ng and Daby Sow and Kush R. Varshney and Pablo Meyer	Au

xAI.Med.	X-ray,	2022-037
Keywords	Soft computing, Multi-input CNN, Internet of Things	

Explainable artificial intelligence-based edge fuzzy images for COVID-19 detection and identification	Ti
Applied Soft Computing, 123 (2022) 108966 https://doi.org/10.1016/j.asoc.2022.108966	Jo
Qinhua Hu and Francisco Nauber B. Gois and Rafael Costa and Lijuan Zhang and Ling Yin and Naercio Magaia and Victor Hugo C. de Albuquerque	Au

xAI.	Credit risk	2022-038
Keywords	Personality traits, Social media, Psycholinguistic	

PsyCredit: An interpretable deep learning-based credit assessment approach facilitated by psychometric natural language processing	Ti
Expert Systems with Applications, 198 (2022)116847 https://doi.org/10.1016/j.eswa.2022.116847	Jo
Kai Yang and Hui Yuan and Raymond Y.K. Lau	Au

xAI.Med.	Chemical structures	2022-039
Keywords	Machine learning, Deep learning, Natural language processing	

On the road to explainable AI in drug-drug interactions prediction: A systematic review	Ti
Computational and Structural Biotechnology Journal, 20(2022)2112-2123 https://doi.org/10.1016/j.csbj.2022.04.021	Jo
Thanh Hoa Vo and Ngan Thi Kim Nguyen and Quang Hien Kha and Nguyen Quoc Khanh Le	Au

xAI.Med.	Feature importance	2022-040
Keywords	Machine learning LIME	

Feature Importance Measures as Explanation for Classification Applied to Hospital Readmission Prediction	Ti
Procedia Computer Science, 207 (2022) 1388-1397 https://doi.org/10.1016/j.procs.2022.09.195	Jo
Ma. Sheila A. Magboo and Vincent Peter C. Magboo	Au

xAI.Med.		2022-041
Keywords	Trust, Usability	

The explainability paradox : Challenges for xAI in digital pathology	Ti
Future Generation Computer Systems, 133(2022) 281-296 https://doi.org/10.1016/j.future.2022.03.009	Jo
Theodore Evans and Carl Orge Retzlaff and Christian Geißler and Michaela Kargl and Markus Plass and Heimo Müller and Tim-Rasmus Kiehl and Norman Zerbe and Andreas Holzinger	Au

xAI.Med.		2022-042
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Using explainable artificial intelligence to predict lethal outcomes in patients with myocardial infarction based on electrocardiographic and clinical data	Ti
Journal of the American College of Cardiology, 79 (2022)1087 https://doi.org/10.1016/S0735-1097(22)02078-2	Jo
Varun Bhasin and Raj Dalsania and Bobby Ghosh and Ashok Chaudhary and Deepa Balasubramanian Iyer and Naveena Yanamala and Partho P. Sengupta	Au

xAI.Med.		2022-043
Keywords	Interpretable/explainable machine learning, variable importance cloud, machine learning	

Shapley variable importance cloud for interpretable machine learning	Ti
Patterns, 3 (2022) 100452 https://doi.org/10.1016/j.patter.2022.100452	Jo
Yilin Ning and Marcus Eng Hock Ong and Bibhas Chakraborty and Benjamin Alan Goldstein and Daniel Shu Wei Ting and Roger Vaughan and Nan Liu	Au

xAI.Med.		2022-044
Keywords	Machine learning, Interpretability, Acute kidney injury, Critically illness, Mortality	

Application of interpretable machine learning for early prediction of prognosis in acute kidney injury	Ti
Computational and Structural Biotechnology Journal, 20 (2022) 2861-2870 https://doi.org/10.1016/j.csbj.2022.06.003	Jo
Chang Hu and Qing Tan and Qinran Zhang and Yiming Li and Fengyun Wang and Xiufen Zou and Zhiyong Peng	Au

xAI.Med.		2022-045
Keywords	Breastfeeding rates, Exclusive breastfeeding, Maternity hospitals, Baby-Friendly Hospital Initiative	

Predicting exclusive breastfeeding in maternity wards using machine learning techniques	Ti
Computer Methods and Programs in Biomedicine, 221(2022) 106837 https://doi.org/10.1016/j.cmpb.2022.106837	Jo
Antonio Oliver-Roig and Juan Ramón Rico-Juan and Miguel Richart-Martínez and Julio	Au

Cabrero-García	
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xAI.Med.		2022-046
Keywords	AI-ethics, legal-liability	

When Artificial Intelligence Models Surpass Physician Performance: Medical Malpractice Liability in an Era of Advanced Artificial Intelligence	Ti
Journal of the American College of Radiology, 19 (2022) 816-820 https://doi.org/10.1016/j.jacr.2021.11.014	Jo
John D. Banja and Rolf Dieter Hollstein and Michael A. Bruno	Au

xAI.Med.		2022-047
Keywords	Clinical decision support systems	

Pulse-line intersection method with unboxed artificial intelligence for hesitant pulse wave classification	Ti
Information Processing & Management, 59 (2022) 102855 https://doi.org/10.1016/j.ipm.2021.102855	Jo
Hsing-Chung Chen and Cahya Damarjati and Karisma Trinanda Putra and Han-MI Chen and Ching-Liang Hsieh and Hung-Jen Lin and Mei-Yao Wu and Chin-Sheng Chen	Au

xAI.Med.		2022-048
Keywords	Portable systems	

A fuzzy-enhanced deep learning approach for early detection of Covid-19 pneumonia from portable chest X-ray images	Ti
Neurocomputing, 481(2022) 202-215 https://doi.org/10.1016/j.neucom.2022.01.055	Jo
Cosimo Ieracitano and Nadia Mammone and Mario Versaci and Giuseppe Varone and Abder-Rahman Ali and Antonio Armentano and Grazia Calabrese and Anna Ferrarelli and Lorena Turano and Carmela Tebala and Zain Hussain and Zakariya Sheikh and Aziz Sheikh and Giuseppe Sceni and Amir Hussain and Francesco Carlo Morabito	Au

xAI.Med.	Pregnancy	2022-049
Keywords	Emotional computing, Affective computing, User-centered design, Human-Centered Design, Privacy, Security,	

Towards a data collection methodology for Responsible Artificial Intelligence in health: A prospective and qualitative study in pregnancy	Ti
Information Fusion, 83-84 (2022) 53-78 https://doi.org/10.1016/j.inffus.2022.03.011	Jo
A.M. Oprescu and G. Miró-Amarante and L. García-Díaz and V.E. Rey and A. Chimenea-Toscano and R. Martínez-Martínez and M.C. Romero-Terneró	Au

xAI.Med.		2022-050
Keywords	Human Centered Computing, Human Inspired AI	

Explainable AI and Interpretable Machine Learning: A Case Study in Perspective	Ti
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Procedia Computer Science, 204 (2022) 869-876 https://doi.org/10.1016/j.procs.2022.08.105	Jo
Varad Vishwarupe and Prachi M. Joshi and Nicole Mathias and Shrey Maheshwari and Shweta Mhaisalkar and Vishal Pawar	Au

xAI.Med.	Skin neoplasms, Dermatology	2022-051
Keywords	Man-machine systems,	

Explainable artificial intelligence in skin cancer recognition: A systematic review	Ti
European Journal of Cancer, 167 (2022) 54-69 https://doi.org/10.1016/j.ejca.2022.02.025	Jo
Katja Hauser and Alexander Kurz and Sarah Haggemüller and Roman C. Maron and Christof von Kalle} and Jochen S. Utikal and Friedegund Meier and Sarah Hobelsberger and Frank F. Gellrich and Mildred Sergon and Axel Hauschild and Lars E. French and Lucie Heinzerling and Justin G. Schlager and Kamran Ghoreschi and Max Schlaak and Franz J. Hilke and Gabriela Poch and Heinz Kutzner and Carola Berking and Markus V. Heppt and Michael Erdmann and Sebastian Haferkamp and Dirk Schadendorf and Wiebke Sondermann and Matthias Goebeler and Bastian Schilling and Jakob N. Kather and Stefan Fröhling and Daniel B. Lipka and Achim Hekler and Eva Kriehoff-Henning and Titus J. Brinker	Au

xAI.Med.	Organ allocation	2022-052
Keywords	Machine learning, Random forest, Shapley additive explanations	

An explanatory analytics model for identifying factors indicative of long- versus short-term survival after lung transplantation	Ti
Decision Analytics Journal,3(2022) 100058 https://doi.org/10.1016/j.dajour.2022.100058	Jo
Mostafa Amini and Ali Bagheri and Dursun Delen	Au

xAI.Med.	Biomarkers, Clinical heterogeneity	2022-053
Keywords	Default mode network, Reproducible science	

Robust, Generalizable, and Interpretable Artificial Intelligence–Derived Brain Fingerprints of Autism and Social Communication Symptom Severity	Ti
Biological Psychiatry, 92(2022)643-653 https://doi.org/10.1016/j.biopsych.2022.02.005	Jo
Kaustubh Supekar and Srikanth Ryali and Rui Yuan and Devinder Kumar and Carlo de los Angeles} and Vinod Menon	Au

xAI.Med.		2022-054
Keywords	EMG signal decoding	

XAI for myo-controlled prosthesis : Explaining EMG data for hand gesture classification	Ti
Knowledge-Based Systems, 240 (2022) 108053 https://doi.org/10.1016/j.knosys.2021.108053	Jo
Noemi Gozzi and Lorenzo Malandri and Fabio Mercorio and Alessandra Pedrocchi	Au

xAI.Med.		2022-055
Keywords	SHAP values Principal component analysis, XGBoost machine learning classifier	

Application of explainable artificial intelligence in the identification of Squamous Cell Carcinoma biomarkers	Ti
Computers in Biology and Medicine, 146(2022) 105505 https://doi.org/10.1016/j.compbiomed.2022.105505	Jo
Jaishree Meena and Yasha Hasija	Au

xAI.Med.		2022-056
Keywords	Intelligent systems, Ontology modeling, Linked open data, Metaheuristic, Knowledge centric	

Chapter 12 - IntelliOntoRec: a knowledge infused semiautomatic approach for ontology formulation in healthcare and medical science	Ti
Semantic Models in IoT and eHealth Applications, (2022) 245–265 https://doi.org/10.1016/B978-0-32-391773-5.00018-2	Jo
Gerard Deepak and Deepak Surya S. }	Au

xAI.Med.		2022-057
Keywords	Interpretable-DeepLrn, Survey	

Explainable artificial intelligence (XAI) in deep learning-based medical image analysis	Ti
Medical Image Analysis, 79(2022) 102470 https://doi.org/10.1016/j.media.2022.102470	Jo
Bas H.M. van der Velden} and Hugo J. Kuijff and Kenneth G.A. Gilhuijs and Max A. Viergever	Au

xAI.Med.		2022-058
Keywords	CNN Black-box representations CNN visualisation Interpretable neural networks, Architecture understanding, Activation heatmaps, Feature visualisation, Saliency maps	

A review of visualisation-as-explanation techniques for convolutional neural networks and their evaluation	Ti
Displays, 73(2022) 102239 https://doi.org/10.1016/j.displa.2022.102239	Jo
Elhassan Mohamed and Konstantinos Sirlantzis and Gareth Howells	Au

xAI.Med.		2022-059
Keywords	object detection	

An Overview and Comparison of XAI Methods for Object Detection in Computer Tomography	Ti
Procedia Computer Science, 212 (2022)209-219	Jo

https://doi.org/10.1016/j.procs.2022.11.005	
Kseniya Sahatova and Ksenia Balabaeva	Au

xAI.Med.		2022-060
Keywords	explainable artificial intelligence, deep learning, segmentation, XAI	

Exploring the Relationship Between Error and Interpretation of the Segmentation Model's Prediction	Ti
Procedia Computer Science, 212(2022)122-131 https://doi.org/10.1016/j.procs.2022.10.214	Jo
Nikita Detkov and Ksenia Balabaeva and Sergey Kovalchuk	Au

xAI.Med.		2022-061
Keywords	AI advice acceptance, Human-AI interaction	

Who needs explanation and when? Juggling explainable AI and user epistemic uncertainty	Ti
International Journal of Human-Computer Studies, 165(2022)102839 https://doi.org/10.1016/j.ijhcs.2022.102839	Jo
Jinglu Jiang and Surinder Kahai and Ming Yang	Au

xAI.Med.		2022-062
Keywords	Information fusion, Multi-domain information fusion, Weakly supervised learning, Medical image analysis	

Unbox the black-box for the medical explainable AI via multi-modal and multi-centre data fusion: A mini-review, two showcases and beyond	Ti
Information Fusion, 77(2022) 29-52 https://doi.org/10.1016/j.inffus.2021.07.016	Jo
Guang Yang and Qinghao Ye and Jun Xia	Au

xAI.Med.		2022-063
Keywords	diagnostic accuracy, SPECT	

Clinical Deployment of Explainable Artificial Intelligence of SPECT for Diagnosis of Coronary Artery Disease	Ti
JACC: Cardiovascular Imaging, 15(2022) 1091-1102 https://doi.org/10.1016/j.jcmg.2021.04.030	Jo
Yuka Otaki and Ananya Singh and Paul Kavanagh and Robert J.H. Miller and Tejas Parekh and Balaji K. Tamarappoo and Tali Sharir and Andrew J. Einstein and Mathews B. Fish and Terrence D. Ruddy and Philipp A. Kaufmann and Albert J. Sinusas and Edward J. Miller and Timothy M. Bateman and Sharmila Dorbala and Marcelo Di Carli} and Sebastien Cadet and Joanna X. Liang and Damini Dey and Daniel S. Berman and Piotr J. Slomka	Au

xAI.Med.		2022-064
Keywords	Deep Neural Understanding, Clinical Language Processing, Electronic Health Records, International Classification of Diseases, Decision Support Systems	

Explainable ICD multi-label classification of EHRs in Spanish with convolutional attention	Ti
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International Journal of Medical Informatics, 157(2022) 104615 https://doi.org/10.1016/j.ijmedinf.2021.104615	Jo
Owen Trigueros and Alberto Blanco and Nuria Lebeña and Arantza Casillas and Alicia Pérez	Au

xAI.Med.		2022-065
Keywords	Biomarkers, SVM, Biomedical engineering	

Explainable machine learning of the breast cancer staging for designing smart biomarker sensors	Ti
Sensors International, 3(2022) 100202 https://doi.org/10.1016/j.sintl.2022.100202	Jo
Muhammad Idrees and Ayesha Sohail	Au

xAI.Med.		2022-066
Keywords	, Adaptive and evolving algorithms, Fuzzy linguistic descriptions, Acoustic markers, Smartphone monitoring,	

Explaining smartphone-based acoustic data in bipolar disorder: Semi-supervised fuzzy clustering and relative linguistic summaries	Ti
Information Sciences, 588(2022) 174-195 https://doi.org/10.1016/j.ins.2021.12.049	Jo
Katarzyna Kaczmarek-Majer and Gabriella Casalino and Giovanna Castellano and Olgierd Hryniewicz and Monika Dominiak	Au

xAI.Med.		2022-067
Keywords	Deep learning, Privacy, Security, Federated learning	

Designing ECG monitoring healthcare system with federated transfer learning and explainable AI	Ti
Knowledge-Based Systems, 236(2022) 107763 https://doi.org/10.1016/j.knosys.2021.107763	Jo
Ali Raza and Kim Phuc Tran and Ludovic Koehl and Shujun Li	Au

xAI.Med.		2022-068
Keywords	Explainability, Interpretability	

Transparency of deep neural networks for medical image analysis: A review of interpretability methods	Ti
Computers in Biology and Medicine, 140(2022) 105111 https://doi.org/10.1016/j.combiomed.2021.105111	Jo
Zohaib Salahuddin and Henry C. Woodruff and Avishek Chatterjee and Philippe Lambin	Au

xAI.Med.		2022-069
Keywords	Protective factor	

NDDRF: A risk factor knowledgebase for personalized prevention of neurodegenerative diseases	Ti
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Journal of Advanced Research, 40(2022) 223-231 https://doi.org/10.1016/j.jare.2021.06.015	Jo
Cheng Bi and Shengrong Zhou and Xingyun Liu and Yu Zhu and Jia Yu and Xueli Zhang and Manhong Shi and Rongrong Wu and Hongxin He and Chaoying Zhan and Yuxin Lin and Bairong Shen	Au

xAI.Med.		2022-070
Keywords	Ethics, Challenges, Transparency, Autonomy	

The three ghosts of medical AI : Can the black-box present deliver?	Ti
Artificial Intelligence in Medicine, 124(2022) 102158 https://doi.org/10.1016/j.artmed.2021.102158	Jo
Thomas P. Quinn and Stephan Jacobs and Manisha Senadeera and Vuong Le and Simon Coghlan	Au

xAI.Med.		2022-071
Keywords	Fusion model	

Prostate cancer classification from ultrasound and MRI images using deep learning based Explainable Artificial Intelligence	Ti
Future Generation Computer Systems, 127(2022)462-472 https://doi.org/10.1016/j.future.2021.09.030	Jo
Md. Rafiul Hassan and Md. Fakrul Islam and Md. Zia Uddin and Goutam Ghoshal and Mohammad Mehedi Hassan and Shamsul Huda and Giancarlo Fortino	Au

xAI.Med.		2022-072
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Explainable process trace classification: An application to stroke	Ti
Journal of Biomedical Informatics, 126(2022) 103981 https://doi.org/10.1016/j.jbi.2021.103981	Jo
Giorgio Leonardi and Stefania Montani and Manuel Striani	Au

xAI.Med.		2022-073
Keywords	Interpretable Mach Lrn, Autoencoder, Predictive maintenance	

Degradation stage classification via interpretable feature learning	Ti
Journal of Manufacturing Systems, 62(2022) 972-983 https://doi.org/10.1016/j.jmsy.2021.05.003	Jo
Antonio L. Alfeo and Mario G.C.A. Cimino and Gigliola Vaglini	Au

xAI.Med.		2022-074
Keywords	Smart healthcare systems	

XSRU-IoMT: Explainable simple recurrent units for threat detection in Internet of Medical Things networks	Ti
Future Generation Computer Systems, 127(2022) 181-193 https://doi.org/10.1016/j.future.2021.09.010	Jo

Izhar Ahmed Khan and Nour Moustafa and Imran Razzak and M. Tanveer and Dechang Pi and Yue Pan and Bakht Sher Ali	Au
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Multi-task driven explainable diagnosis of COVID-19 using chest X-ray images	Ti
Pattern Recognition, 122(2022)108243 https://doi.org/10.1016/j.patcog.2021.108243	Jo
Aakarsh Malhotra and Surbhi Mittal and Puspita Majumdar and Saheb Chhabra and Kartik Thakral and Mayank Vatsa and Richa Singh and Santanu Chaudhury and Ashwin Pudrod and Anjali Agrawal	Au

xAI.Med.	2022-076
Keywords	Interpretability, Explainability, AI, Machine learning,

Interpretability in the medical field: A systematic mapping and review study	Ti
Applied Soft Computing, 117(2022) 108391 https://doi.org/10.1016/j.asoc.2021.108391	Jo
Hajar Hakkoum and Ibtissam Abnane and Ali Idri	Au

xAI.Med.	2022-077
Keywords	CNN, Multi-objective genetic algorithms

Evolved explainable classifications for lymph node metastases	Ti
Neural Networks, 148(2022)1-12 https://doi.org/10.1016/j.neunet.2021.12.014	Jo
Iam Palatnik de Sousa } and Marley M.B.R. Vellasco and Eduardo Costa da Silva }	Au

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xAI.Med.	2021-001
Keywords	Knowledge graphs, Counterfactuals

Towards multi-modal causability with Graph Neural Networks enabling information fusion for explainable AI	Ti
Information Fusion, 71(2023) 28-37 https://doi.org/10.1016/j.inffus.2021.01.008	Jo
Andreas Holzinger and Bernd Malle and Anna Saranti and Bastian Pfeifer	Au

xAI.Med.		2021-002
Keywords	Ensemble classification, Post-hoc explainability, Clinical decision-making, Healthcare mobile application	

Machine Learning and XAI approaches for Allergy Diagnosis	Ti
Biomedical Signal Processing and Control, 69(2021) 102681 https://doi.org/10.1016/j.bspc.2021.102681	Jo
Ramisetty Kavya and Jabez Christopher and Subhrakanta Panda and Y. Bakthasingh Lazarus	Au

xAI.Med.		2021-003
Keywords	Visual interpretability, Medical imaging, Visual explanations	

Visual interpretability in 3D brain tumor segmentation network	Ti
Computers in Biology and Medicine, 133(2021) 104410 https://doi.org/10.1016/j.combiomed.2021.104410	Jo
Hira Saleem and Ahmad Raza Shahid and Basit Raza	Au

xAI.Med.		2021-004
Keywords	Self-supervised learning	

ExplAIin: Explanatory artificial intelligence for diabetic retinopathy diagnosis	Ti
Medical Image Analysis, 72(2021)102118 https://doi.org/10.1016/j.media.2021.102118	Jo
Gwenolé Quellec and Hassan {Al Hajj} and Mathieu Lamard and Pierre-Henri Conze and Pascale Massin and Béatrice Cochener	Au

xAI.Med.		2021-005
Keywords	Graph signal processing, fMRI	

Combining anatomical and functional networks for neuropathology identification: A case study on autism spectrum disorder	Ti
Medical Image Analysis, 69(2021)101986 https://doi.org/10.1016/j.media.2021.101986	Jo
Sarah Itani and Dorina Thanou	Au

xAI.Med.		2021-006
Keywords	Machine learning, Time series, Heartbeat classification, Electrocardiogram, Visual explanations, Usability, Human–AI interfaces	

Interpretable heartbeat classification using local model-agnostic explanations on ECGs	Ti
Computers in Biology and Medicine https://doi.org/10.1016/j.combiomed.2021.104393	Jo
Inês Neves and Duarte Folgado and Sara Santos and Marília Barandas and Andrea Campagner and Luca Ronzio and Federico Cabitza and Hugo Gamboa	Au

xAI.Med.		2021-007
Keywords	Data mining, Network analysis	

Explainable artificial intelligence in high-throughput drug repositioning for subgroup stratifications with interventionable	Ti
Journal of Biomedical Informatics, 118 (2021) 103792 https://doi.org/10.1016/j.jbi.2021.103792	Jo
Zainab Al-Taie and Danlu Liu and Jonathan B Mitchem and Christos Papageorgiou and Jussuf T. Kaifi and Wesley C. Warren and Chi-Ren Shyu	Au

xAI.Med.		2021-008
Keywords	Explainability, Causability, Human-centered design, User study	

Human-centered XAI: Developing design patterns for explanations of clinical decision support systems	Ti
International Journal of Human-Computer Studies, 154(2021)102684 https://doi.org/10.1016/j.ijhcs.2021.102684	Jo
Tjeerd A.J. Schoonderwoerd and Wiard Jorritsma and Mark A. Neerincx and Karel {van den Bosch}	Au

xAI.Med.		2021-009
Keywords	Machine learning, Convolutional neural network, Radiomics, Data curation	

Artificial intelligence: Deep learning in oncological radiomics and challenges of interpretability and data harmonization	Ti
Physica Medica, 83(2021)108-121 https://doi.org/10.1016/j.ejmp.2021.03.009	Jo
Panagiotis Papadimitroulas and Lennart Brocki and Neo {Christopher Chung} and Wistan Marchadour and Franck Vermet and Laurent Gaubert and Vasilis Eleftheriadis and Dimitris Plachouris and Dimitris Visvikis and George C. Kagadis and Mathieu Hatt	Au

xAI.Med.		2021-010
Keywords	Machine learning, Medical toxicology	

Diagnosis of Acute Poisoning using explainable artificial intelligence	Ti
Computers in Biology and Medicine, 134(2021) 104469 https://doi.org/10.1016/j.compbimed.2021.104469	Jo
Michael Chary and Ed W. Boyer and Michele M. Burns	Au

xAI.Med.		2021-011
Keywords	Two-phase processes, Shifted-Pareto distribution Statistics from non-IID samples	

Inferring statistical trends of the COVID19 pandemic from current data. Where probability meets fuzziness	Ti
Information Sciences, 574 (2021) 333-348	Jo

https://doi.org/10.1016/j.ins.2021.06.011	
Bruno Apolloni	Au

xAI.Med.		2021-012
Keywords	CerbB2, HER2, IHC scoring, Targeted therapy, Digital pathology, Image analysis	

Automated scoring of CerbB2/HER2 receptors using histogram based analysis of immunohistochemistry breast cancer tissue images	Ti
Biomedical Signal Processing and Control,69(2021)102924 https://doi.org/10.1016/j.bspc.2021.102924	Jo
Kaan Aykut Kabakçı and Aslı Çakır and İlknur Türkmen and Behçet Uğur Töreyn and Abdulkerim Çapar	Au

xAI.Med.		2021-013
Keywords	Adenocarcinoma, Machine learning, Computer-aided diagnosis	

Convolutional Neural Networks for the evaluation of cancer in Barrett's esophagus: Explainable AI to lighten up the black-box	Ti
Computers in Biology and Medicine, 135 (2021) 104578 https://doi.org/10.1016/j.compbimed.2021.104578	Jo
Luis A. {de Souza} and Robert Mendel and Sophia Strasser and Alanna Ebigbo and Andreas Probst and Helmut Messmann and João P. Papa and Christoph Palm	Au

xAI.Med.		2021-014
Keywords	Medical image processing, Shapely additive explanation	

An explainable ensemble feedforward method with Gaussian convolutional filter	Ti
Knowledge-Based Systems, 225 (2021)107103 https://doi.org/10.1016/j.knosys.2021.107103	Jo
Jingchen Li and Haobin Shi and Kao-Shing Hwang	Au

xAI.Med.		2021-015
Keywords	Scientific explanation, Medical AI, sXAI, Interpretable AI	

Dissecting scientific explanation in AI (sXAI): A case for medicine and healthcare	Ti
Artificial Intelligence, 297 (2021)103498 https://doi.org/10.1016/j.artint.2021.103498	Jo
Juan M. Durán	Au

xAI.Med.		2021-016
Keywords	Machine learning, Tumor burden, Prognosis, Therapeutics,	

An interpretable machine learning prognostic system for locoregionally advanced nasopharyngeal carcinoma based on tumor burden features	Ti
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Oral Oncology, 118 (2021)105335 https://doi.org/10.1016/j.oraloncology.2021.105335	Jo
Xi Chen and Yingxue Li and Xiang Li and Xun Cao and Yanqun Xiang and Weixiong Xia and Jianpeng Li and Mingyong Gao and Yuyao Sun and Kuiyuan Liu and Mengyun Qiang and Chixiong Liang and Jingjing Miao and Zhuochen Cai and Xiang Guo and Chaofeng Li and Guotong Xie and Xing Lv	Au

xAI.Med.		2021-017
Keywords	Pharmacovigilance, Machine learning, Acute coronary syndrome, Administrative data, Pharmacoepidemiology	

Explainable artificial intelligence for pharmacovigilance: What features are important when predicting adverse outcomes?	Ti
Computer Methods and Programs in Biomedicine, 212 (2021) 106415 https://doi.org/10.1016/j.cmpb.2021.106415	Jo
Isaac Ronald Ward and Ling Wang and Juan Lu and Mohammed Bennamoun and Girish Dwivedi and Frank M Sanfilippo	Au

xAI.Med.		2021-018
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Does tetanus vaccination contribute to reduced severity of the COVID-19 infection?	Ti
Medical Hypotheses, 146 (2021) 110395 https://doi.org/10.1016/j.mehy.2020.110395	Jo
Christopher D. Rickett and Kristyn J. Maschhoff and Sreenivas R. Sukumar	Au

xAI.Med.		2021-019
Keywords	Interpretability, Explainable modelling, Post-hoc explanation	

The role of explainability in creating trustworthy artificial intelligence for health care: A comprehensive survey of the terminology, design choices, and evaluation strategies	Ti
Journal of Biomedical Informatics, 13 (2021) 103655 https://doi.org/10.1016/j.jbi.2020.103655	Jo
Aniek F. Markus and Jan A. Kors and Peter R. Rijnbeek	Au

xAI.Med.		2021-020
Keywords	Heart disease prediction, Classification rules learning, Machine learning,	

An accurate fuzzy rule-based classification systems for heart disease diagnosis	Ti
Scientific African, 14 (2021)e01019 https://doi.org/10.1016/j.sciaf.2021.e01019	Jo
Khalid Bahani and Mohammed Moujabbir and Mohammed Ramdani	Au

xAI.Med.		2021-021
Keywords	In silico tools, QSAR, Physicochemical parameters, Screening, Lead optimization, Machine learning (ML), Site of metabolism	

Feature importance of machine learning prediction models shows structurally active part and important physicochemical features in drug design	Ti
Drug Metabolism and Pharmacokinetics, 39(2021)100401 https://doi.org/10.1016/j.dmpk.2021.100401	Jo
Katsunori Sasahara and Masakazu Shibata and Hiroyuki Sasabe and Tomoki Suzuki and Kenji Takeuchi and Ken Umehara and Eiji Kashiya	Au

xAI.Med.		2021-022
Keywords	Criteria graph, Decision tree	

Explaining machine learning based diagnosis of COVID-19 from routine blood tests with decision trees and criteria graphs	Ti
Computers in Biology and Medicine, 132 (2021)104335 https://doi.org/10.1016/j.compbiomed.2021.104335	Jo
Marcos Antonio Alves and Giulia Zanon Castro and Bruno Alberto Soares Oliveira and Leonardo Augusto Ferreira and Jaime Arturo Ramírez and Rodrigo Silva and Frederico Gadelha Guimarães	Au

xAI.Med.		2021-023
Keywords	PHM, Knowledge formalization, integration, SME, Data analysis	

X-PHM: Prognostics and health management knowledge-based framework for SME	Ti
Procedia CIRP, 104 (2021)1595-1600 https://doi.org/10.1016/j.procir.2021.11.269	Jo
Nabil Omri and Zeina Al Masry and Nicolas Mairrot and Sylvian Giampiccolo and Noureddine Zerhouni	Au

xAI.Med.		2021-024
Keywords	Interpretable machine learning	

PASTLE: Pivot-aided space transformation for local explanations	Ti
Pattern Recognition Letters, 149 (2021) 67-74 https://doi.org/10.1016/j.patrec.2021.05.018	Jo
Valerio {La Gatta} and Vincenzo Moscato and Marco Postiglione and Giancarlo Sperli	Au

xAI.Med.		2021-025
Keywords	Decision curve analysis, Sleep heart health study	

Ensemble-learning regression to estimate sleep apnea severity using at-home oximetry in adults	Ti
Applied Soft Computing, 111 (2021) 107827 https://doi.org/10.1016/j.asoc.2021.107827	Jo
Gonzalo C. Gutiérrez-Tobal and Daniel Álvarez and Fernando Vaquerizo-Villar and Andrea Crespo and Leila Kheirandish-Gozal and David Gozal and Félix {del Campo} and Roberto Hornero	Au

xAI.Med.		2021-026
Keywords	spatial intratumor heterogeneity, functional cell phenotyping, spatial proteomics,	

machine learning, microdomains, spatial systems pathology, pointwise mutual information, phenotypic continuum, phenotypic hierarchy

In situ functional cell phenotyping reveals microdomain networks in colorectal cancer recurrence	Ti
Cell Reports Methods, 1 (2022) 100072 https://doi.org/10.1016/j.crmeth.2021.100072	Jo
Samantha A. Furman and Andrew M. Stern and Shikhar Uttam and D. Lansing Taylor and Filippo Pullara and S. Chakra Chennubhotla	Au

xAI.Med.		2021-027
Keywords	Clustering ensemble, Machine learning, Interpretable models, Features importance	

Features and explainable methods for cytokines analysis of Dry Eye Disease in HIV infected patients	Ti
Healthcare Analytics, 1 (2021){100001 https://doi.org/10.1016/j.health.2021.100001	Jo
Francesco Curia	Au

xAI.Med.		2021-028
Keywords	Evolutionary computation	

Cartesian genetic programming for diagnosis of Parkinson disease through handwriting analysis: Performance vs. interpretability issues	Ti
Artificial Intelligence in Medicine, 111 (2021) 101984 https://doi.org/10.1016/j.artmed.2020.101984	Jo
A. Parziale and R. Senatore and A. {Della Cioppa} and A. Marcelli	Au

xAI.Med.		2021-029
Keywords	Pervasive healthcare, Sensor-based activity recognition	

HealthXAI: Collaborative and explainable AI for supporting early diagnosis of cognitive decline	Ti
Future Generation Computer Systems, 116 (2021) 168-189 https://doi.org/10.1016/j.future.2020.10.030	Jo
Elham Khodabandehloo and Daniele Riboni and Abbas Alimohammadi	Au

xAI.Med.		2021-030
Keywords	Clinical decision support systems, Fairness and bias in machine learning systems,	

FairLens: Auditing black-box clinical decision support systems	Ti
Information Processing & Management, 58 (2021)102657 https://doi.org/10.1016/j.ipm.2021.102657	Jo
Cecilia Panigutti and Alan Perotti and André Panisson and Paolo Bajardi and Dino Pedreschi	Au

xAI.Med.		2021-031
Keywords	Electrocardiography	

Explainable artificial intelligence to detect atrial fibrillation using electrocardiogram	Ti
International Journal of Cardiology, 328 (2021)104-110 https://doi.org/10.1016/j.ijcard.2020.11.053	Jo
Yong-Yeon Jo and Younghoon Cho and Soo Youn Lee and Joon-myung Kwon and Kyung-Hee Kim and Ki-Hyun Jeon and Soohyun Cho and Jinsik Park and Byung-Hee Oh	Au

xAI.Med.		2021-032
Keywords	Aneurysm, Subarachnoid hemorrhage, Feature analysis, Cerebral arterial vasospasm	

Analysis of risk factors correlated with angiographic vasospasm in patients with aneurysmal subarachnoid hemorrhage using explainable predictive modelling	Ti
Journal of Clinical Neuroscience, 91 (2021)334-342 https://doi.org/10.1016/j.jocn.2021.07.028	Jo
Kwang Hyeon Kim and Hae-Won Koo and Byung-Jou Lee and Moon-Jun Sohn	Au

xAI.Med.		2021-033
Keywords	Ensembles of Convolutional Neural Networks, Heatmaps, Pneumonia, Pediatrics	

Ensembles of Convolutional Neural Network models for pediatric pneumonia diagnosis	Ti
Future Generation Computer Systems, 122(2021)220-223 https://doi.org/10.1016/j.future.2021.04.007	Jo
Helena Liz and Manuel Sánchez-Montañés and Alfredo Tagarro and Sara Domínguez-Rodríguez and Ron Dagan and David Camacho	Au

xAI.Med.		2021-034
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The false hope of current approaches to explainable artificial intelligence in health care	Ti
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Marzyeh Ghassemi and Luke Oakden-Rayner and Andrew L Beam	Au

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Keywords	Neural networks, Squashing function, Fuzzy logic	

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Keywords Deep learning	

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Keywords Interpretable machine learning, Black-box models, Transparent models, Deep learning	

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Keywords analytics, autonomy, saliency, software framework, toolkit	

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Keywords	Domain models, intelligent tutoring systems, pedagogy, user models
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Keywords	Interpretable machine learning	

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Keywords	Radiometry	

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Keywords	Explainability, interpretability, terminology	

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Keywords	Drug-induced LQTS, QT-Prolongation, Torsades de pointes, TdP, Automated ECG interpretation, Human-like algorithm, Rule-based algorithm, Visual perception, Machine perception	

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Keywords	Interpretable AI,, machine learning,healthcare

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Keywords	object recognition, transferability, texture, evolutionary algorithms, BIM, convolutional neural networks, frequency

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Keywords	evaluation metrics, systematic literature review

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Editors: Aditya Khamparia · Deepak Gupta, Ashish Khanna · Valentina E. Balas	Ed

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Keywords	MRI

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Keywords	Interpretable machine learning, personalized medicine

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Keywords	evaluation methods, human-centred, computer-centred, literature review

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Keywords	black box, interpretability, explainability, model introspection, MRsegmentation

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Keywords	machine learning

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Keywords	Deep learning, Disease diagnosis, Image processing, Monkeypox virus, Machine learning, Transfer learning.

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Keywords	Data inequality, Deep learning, Early detection, Metastatic cancer

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Keywords	ML model refinement, Depression screening

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Keywords	Hybrid ensemble deep feature extraction, Multi-head self-attention network, Visual explainable saliency maps

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