1. Record Nr. UNINA9910631089003321

Titolo	Artificial intelligence over infrared images for medical applications and medical image assisted biomarker discovery : first MICCAI workshop, AIIIMA 2022, and first MICCAI workshop, MIABID 2022, held in conjunction with MICCAI 2022, Singapore, September 18 and 22, 2022, proceedings / / Siva Teja Kakileti [and nine others] (editors)
Pubbl/distr/stampa	Cham, Switzerland : , : Springer, , [2022] ©2022
ISBN	3-031-19660-0
Descrizione fisica	1 online resource (200 pages)
Collana	Lecture notes in computer science ; ; Volume 13602
Disciplina	610.28563
Soggetti	Artificial intelligence - Medical applications Diagnostic imaging - Data processing
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Intro -- Preface AIIIMA 2022 -- Preface MIABID 2022 -- Organization -- Contents -- Artificial Intelligence over Infrared Images for Medical Applications -- Thermal Radiomics for Improving the Interpretability of Breast Cancer Detection from Thermal Images -- 1 Introduction -- 2 Methodology -- 2.1 Thermal Radiomics -- 2.2 Classification -- 3 Experimentation and Results -- 4 Conclusions -- References -- Radiomics for Breast IR-Imaging Classification -- 1 Introduction -- 2 Breast IR Classification in the Literature -- 3 Dataset Description -- 4 Region of Interest Segmentation -- 5 Radiomic Feature Extraction -- 6 Classification Methodology -- 7 Experiments and Results -- 8 Conclusion -- References -- Early Thermographic Screening of Breast Abnormality in Women with Dense Breast by Thermal, Fractal, and Statistical Analysis -- 1 Background -- 2 Methods -- 3 Results -- 3.1 Thermal Feature-Based Analysis -- 3.2 Fractal Feature-Based Analysis -- 3.3 Statistical Feature-Based Analysis -- 4 Discussion -- 5 Conclusion and Futurescope -- References -- A Novel Thermography-Based Artificial Intelligence-Powered Solution for Screening Breast Cancer -- 1 Introduction -- 1.1 Thermography -- 1.2 Related Work -- 1.3 AI-Powered Breast Cancer Prediction Tool by AI Talos -- 2 Materials

and Methods -- 2.1 Dataset Description -- 2.2 CNN Methodology -- 3 Experimental Results -- 4 Conclusion -- References -- Thermographic Toothache Screening by Artificial Intelligence -- 1 Introduction, Review and Objectives -- 2 Materials and Methods -- 3 Results -- 4 Discussion -- 5 Conclusion -- References -- Non-fever COVID-19 Detection by Infrared Imaging -- 1 Introduction -- 2 Materials and Methods -- 2.1 Infrared Camera Calibration and Precision Assessment -- 2.2 Standard Data Bank Construction (Phase 1) -- 2.3 Classification Algorithm -- 2.4 Prospective Study (Phase 2).
2.5 Statistical Analysis -- 3 Results -- 4 Discussion -- 5 Conclusion -- References -- Automated Thermal Screening for COVID-19 Using Machine Learning -- 1 Introduction -- 2 Dataset -- 2.1 Thermal Surveillance Dataset -- 2.2 Augmented Surveillance Dataset -- 2.3 Lighting Dataset -- 3 Methodology -- 3.1 Image Preprocessing -- 3.2 Face Detection -- 3.3 Fever Detection -- 3.4 Mask Classification -- 4 Experiments and Results -- 4.1 Face Detection -- 4.2 Mask Classification -- 5 Conclusion -- References -- An Automated Approach for Screening COVID-19 from Thermal Images Using Convolutional Neural Network -- 1 Introduction -- 2 Dataset -- 3 Methodology -- 3.1 Overview -- 3.2 YOLOv5 as Mask Detection Module -- 3.3 Fever Detection Module -- 4 Results and Discussion -- 5 Conclusion -- References -- Infrared Technology for Vascular Abnormality in Finding of Abdominal Aortic Aneurysm -- 1 Introduction -- 1.1 Objective -- 2 Methodology -- 2.1 Model Setup -- 2.2 Boundary Conditions -- 2.3 Physical and Thermal Properties -- 3 Verification Studies for FSI Analysis -- 4 Result and Discussions -- 4.1 Transient FSI Analysis -- 5 Limitations -- 6 Conclusion -- References -- Non-invasive Thermal Imaging for Estimation of the Fecundity of Live Female Onchocerca Worms -- 1 Introduction -- 2 Dataset Description -- 2.1 Study Site and Population -- 2.2 Imaging Protocol -- 2.3 Histopathology and Ground truth -- 3 Methodology -- 3.1 Data Pre-processing -- 3.2 Feature Extraction -- 3.3 Classification -- 4 Experiments and Results -- 5 Conclusion -- References -- Medical Image Assisted Biomarker Discovery -- Counterfactual Image Synthesis for Discovery of Personalized Predictive Image Markers -- 1 Introduction -- 2 Methods -- 3 Experiments and Results -- 3.1 Dataset and Implementation Details -- 3.2 Evaluating Counterfactuals and Discovered Image-Based Markers.
3.3 Counterfactual Results -- 4 Conclusions -- References -- CoRe: An Automated Pipeline for the Prediction of Liver Resection Complexity from Preoperative CT Scans -- 1 Introduction -- 2 Methods -- 2.1 Liver, Lesion, and Vessel Segmentation -- 2.2 Topological Analysis of the Liver Vasculature -- 2.3 Quantitative Imaging Biomarkers for LR Complexity Prediction -- 3 Experiments -- 3.1 Datasets and Preprocessing -- 3.2 Training, Evaluation, and Inference -- 4 Results -- 4.1 Quantitative Results -- 4.2 Qualitative Results -- 5 Discussion and Conclusion -- References -- Diffusion Tensor Imaging Biomarkers for Parkinson's Disease Symptomatology -- 1 Introduction -- 1.1 Voxel-Based Diffusion Analysis and Voxel-Based Diktiometry -- 2 Materials and Methods -- 2.1 Patient Images and Clinical Scores -- 2.2 Preprocessing -- 2.3 Convolutional Neural Network -- 2.4 Diffusion Measures, Sensitivity Maps, and Statistical Processing -- 3 Results and Discussion -- 4 Conclusion -- References -- Prediction of Immune and Stromal Cell Population Abundance from Hepatocellular Carcinoma Whole Slide Images Using Weakly Supervised Learning -- 1 Introduction -- 2 Materials and Methods -- 2.1 Dataset -- 2.2 Gene Expression Processing -- 2.3 Image Preprocessing -- 2.4 Deep Learning Models -- 2.5 Attention Map Generation and Statistical

Analysis -- 2.6 Inflammatory Cell Density Map Generation -- 3 Results -- 3.1 Unsupervised Hierarchical Clustering of Samples -- 3.2 Evaluation of Deep Learning Models for the Prediction of Activation of Cell Populations -- 3.3 Interpretability and Relationships with Immunotherapy-Related Gene Signatures and with Inflammatory Cells -- 4 Discussion and Conclusion -- References -- Enhancing Local Context of Histology Features in Vision Transformers -- 1 Introduction -- 2 Methods -- 3 Experiments -- 4 Conclusion -- References. DCIS AI-TIL: Ductal Carcinoma In Situ Tumour Infiltrating Lymphocyte Scoring Using Artificial Intelligence -- 1 Introduction -- 2 Materials -- 3 Methodology -- 3.1 Cell Detection, Cell Classification and Hotspot Analysis -- 3.2 DCIS Segmentation Using GAN -- 3.3 Stromal TIL Scoring Using Artificial Intelligence -- 3.4 Statistical Analysis -- 4 Results and Discussion -- References -- Predictive Biomarkers in Melanoma: Detection of BRAF Mutation Using Dermoscopy -- 1 Introduction -- 2 Methodology -- 2.1 Pre-training Phase -- 2.2 BRAF Classification -- 3 Experimental Setup -- 3.1 Dataset and Evaluation Metrics -- 3.2 Experimental Challenges -- 3.3 Network Training and Computational Environment -- 4 Results and Discussion -- 5 Conclusion -- References -- Author Index.