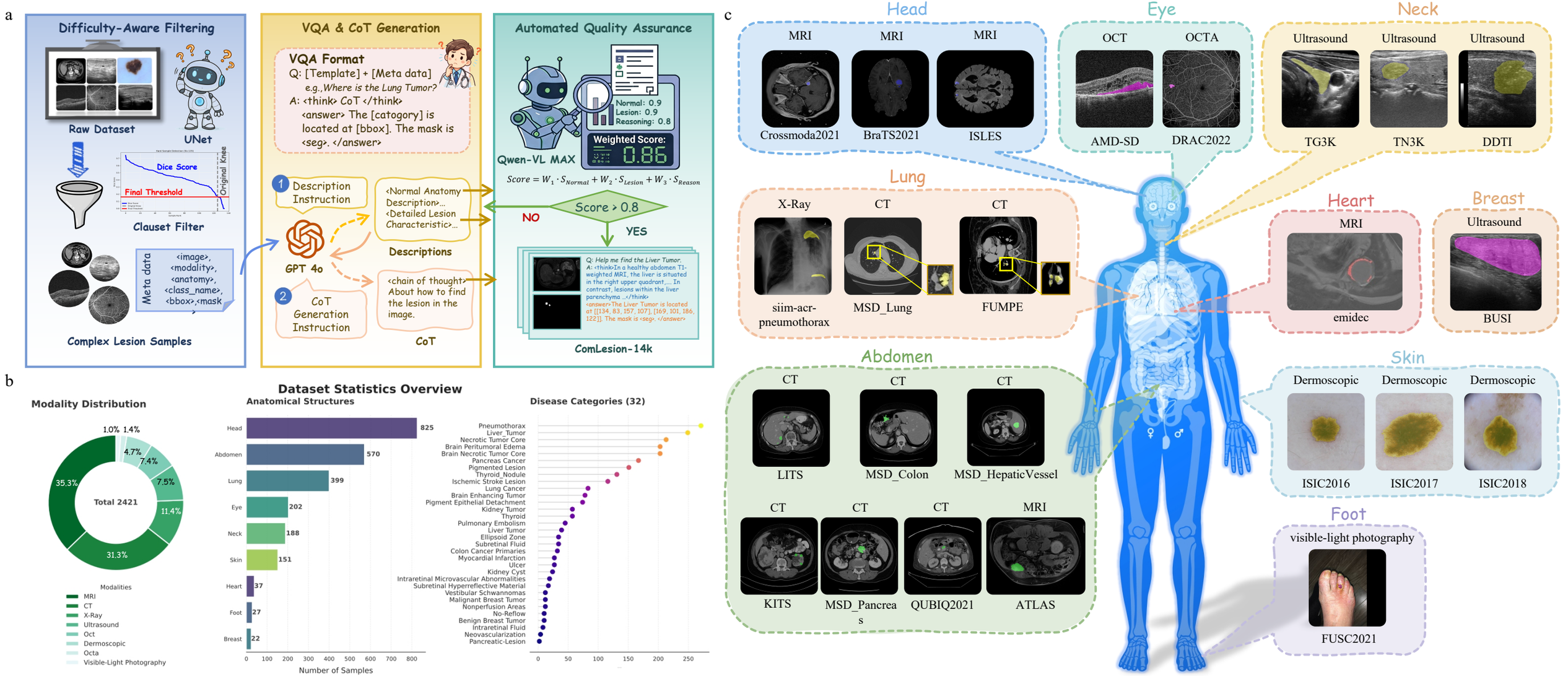
a
Difficulty-Aware Filtering
Raw Dataset
UNet
Dice Score
Final Threshold
Original
Knee
Clauset Filter
Meta data
<image>,
<modality>,
<anatomy>,
<class_name>,
<bbox>,<mask
Complex Lesion Samples
VQA & CoT Generation
VQA Format
Q: [Template] + [Meta data]
e.g.,Where is the Lung Tumor?
A: <think> CoT </think>
<answer> The [catogory] is located at [bbox]. The mask is <seg>. </answer>
1 Description Instruction
<Normal Anatomy Description>...
<Detailed Lesion Characteristic>...
Descriptions
GPT 4o
2 CoT Generation Instruction
<chain of thought> About how to find the lesion in the image.
CoT
Automated Quality Assurance
Qwen-VL MAX
Normal: 0.9
Lesion: 0.9
Reasoning: 0.8
Weighted Score:
0.86
Score = W1 · S_Normal + W2 · S_Lesion + W3 · S_Reason
Score > 0.8
NO
YES
Q: Help me find the Liver Tumor.
A: <think>In a healthy abdomen T1-weighted MRI, the liver is situated in the right upper quadrant,... In contrast, lesions within the liver parenchyma ...</think>
<answer>The Liver Tumor is located at [[134, 83, 157, 107], [169, 101, 186, 122]]. The mask is <seg>. </answer>
ComLesion-14k
b
Dataset Statistics Overview
Modality Distribution
1.0%
1.4%
4.7%
7.4%
7.5%
11.4%
31.3%
35.3%
Total 2421
Modalities
MRI
CT
X-Ray
Ultrasound
Oct
Dermoscopic
Octa
Visible-Light Photography
Anatomical Structures
Head 825
Abdomen 570
Lung 399
Eye 202
Neck 188
Skin 151
Heart 37
Foot 27
Breast 22
0 100 200 300 400 500 600 700 800
Number of Samples
Disease Categories (32)
Pneumothorax
Liver_Tumor
Necrotic Tumor Core
Brain Peritumoral Edema
Brain Necrotic Tumor Core
Pancreas Cancer
Pigmented Lesion
Thyroid_Nodule
Ischemic Stroke Lesion
Lung Cancer
Brain Enhancing Tumor
Pigment Epithelial Detachment
Kidney Tumor
Thyroid
Pulmonary Embolism
Liver Tumor
Ellipsoid Zone
Subretinal Fluid
Colon Cancer Primaries
Myocardial Infarction
Ulcer
Kidney Cyst
Intraretinal Microvascular Abnormalities
Subretinal Hyperreflective Material
Vestibular Schwannomas
Malignant Breast Tumor
Nonperfusion Areas
No-Reflow
Benign Breast Tumor
Intraretinal Fluid
Neovascularization
Pancreatic-Lesion
0 50 100 150 200 250
c
Head
MRI
MRI
MRI
Crossmoda2021
BraTS2021
ISLES
Eye
OCT
OCTA
AMD-SD
DRAC2022
Neck
Ultrasound
Ultrasound
Ultrasound
TG3K
TN3K
DDTI
Lung
X-Ray
CT
CT
siim-acr-pneumothorax
MSD_Lung
FUMPE
Heart
MRI
emidec
Breast
Ultrasound
BUSI
Abdomen
CT
CT
CT
LITS
MSD_Colon
MSD_HepaticVessel
CT
CT
CT
MRI
KITS
MSD_Pancreas
QUBIQ2021
ATLAS
Skin
Dermoscopic
Dermoscopic
Dermoscopic
ISIC2016
ISIC2017
ISIC2018
Foot
visible-light photography
FUSC2021