SYSTEM AND METHOD FOR AUTOMATED FILTERING OF SALIENT ANATOMIC FEATURES IN AN ULTRASOUND IMAGE
IITM Technology Available for Licensing

Problem Statement

- ❖ **Unauthorized viewing and diagnosis of sensitive anatomical features** in ultrasound images, such as **fetal gender,** is a challenge, particularly in regions with regulations **against gender identification.**
- ❖ This invention addresses the need for an **automated system to filter out and prevent access to restricted anatomical features** in **ultrasound scans**, ensuring compliance with **regulations and privacy protection.**

Technology Category/ Market

Category – Medical Imaging Technology
Applications – Biomedical Engineering, obstetrics, Gynecology
Industry – Medical Device Manufacturing, Healthcare
Market - Medical Imaging Market size was worth USD 40 billion in 2022 and is poised to grow at **5.5% CAGR from 2023 to 2032,** driven by the incremental innovations and advancements in medical imaging technology.

Intellectual Property

- ▪ **IITM IDF Ref. 1944**
- ▪ **IN 201941040741**

Key Features / Value Proposition

Technical Perspective:
This technology uses deep learning for real-time identification and filtering of sensitive anatomical features in ultrasound images.
User Perspective:
It simplifies compliance with regulations for healthcare professionals and enhances privacy for patients during ultrasound exams.

Technology

Deep Learning:
Utilizes deep neural networks, **specifically Convolutional Neural Networks (CNNs),** to process and **analyze ultrasound images.**

Real-time Image Processing:
Performs **automated filtering of sensitive anatomical features** in ultrasound images in real-time, ensuring **immediate compliance with privacy regulations.**

Data Pre-processing:
Pre-processes image data using a neural network architecture to identify and filter out salient anatomical features, such as **fetal gender indicators.**

Network Training:
Trains the deep-learning network with a balanced dataset of data classes, **enabling accurate and reliable detection and filtering of anatomical features.**

Integration:
Can be integrated with **ultrasound machines and healthcare systems** to enhance **privacy protection and regulatory compliance in medical imaging.**

Research Lab

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TRL (Technology Readiness Level)

TRL- 4 Technology validated in Lab.

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Image

100

ULTRASOUND IMAGING UNIT **140**

IMAGE DATA **120**

105

DISPLAY UNIT **170**

ULTRASOUND IMAGE

DEEP-LEARNING BASED FILTERING MODULE **130**

DEEP-LEARNING ARCHITECTURE **150**

DEEP LEARNING NETWORK **160**
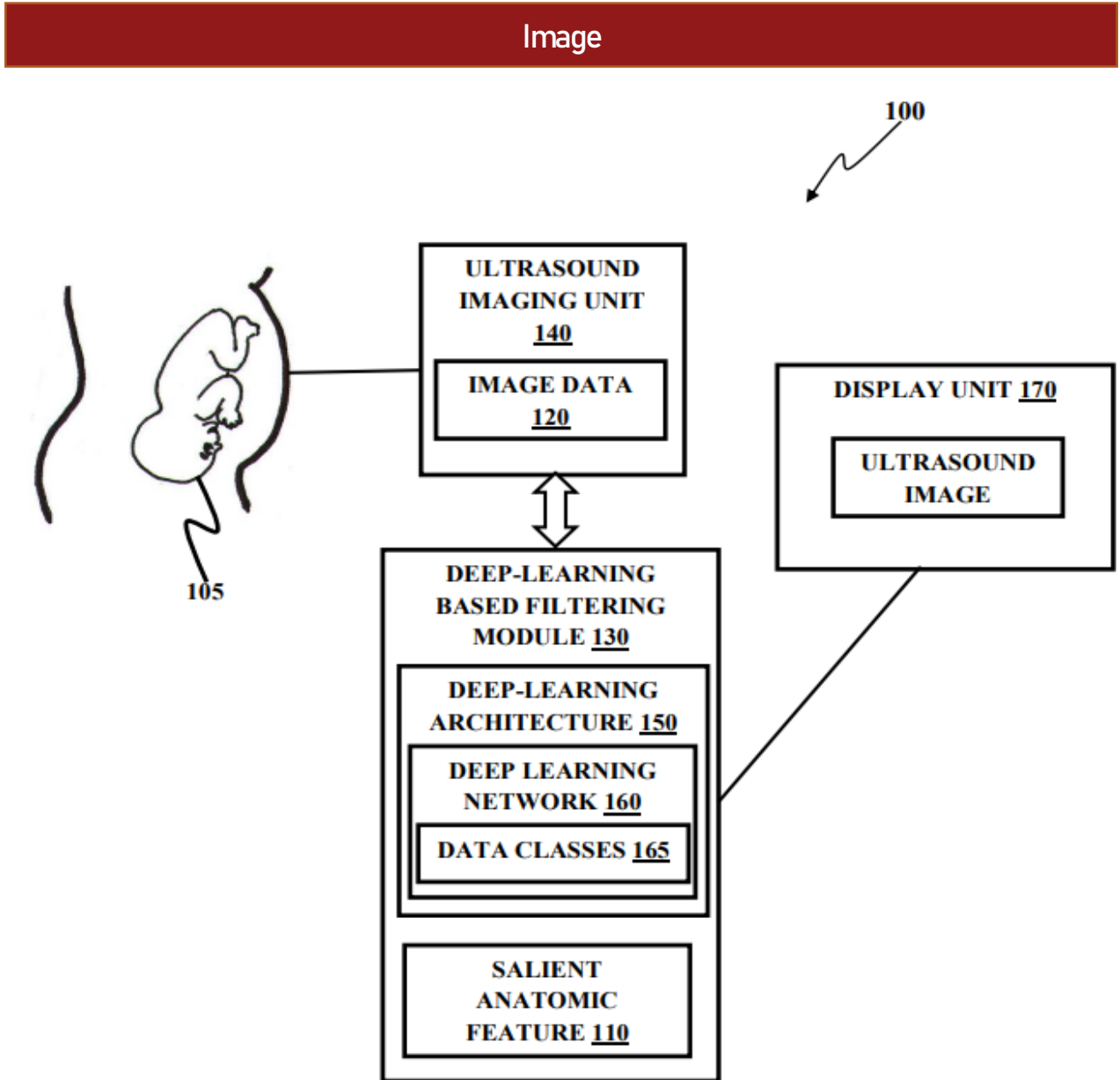
DATA CLASSES **165**

SALIENT ANATOMIC FEATURE **110**

Fig. 1 A graphical representation of a system for automated filtering of sensitive anatomical features in ultrasound images to prevent unauthorized viewing and diagnosis.