

Lecture Syllabus

Lecture Title:

Application of Radiomics in Breast Ultrasound

Presenter:

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Abstract

Radiomics involves high-dimensional, hand-crafted feature extraction from medical images and subsequent machine learning–based modeling. Despite the current AI era, which enables fully automated workflows, this human intervention–based approach continues to provide complementary value. In this lecture, we will cover key concepts of radiomics analysis, along with its challenges and applications.

Contents

1. Overview

Radiomics; quantitative imaging analysis; emerging role in medical imaging

2. Concept of Radiomics

Feature-based image representation; high-dimensional data; analysis workflow; machine learning and deep learning approaches

3. Challenges

Variability in imaging; segmentation uncertainty; feature robustness; reproducibility; standardization; methodological limitations

4. Applications

Applications in ultrasound imaging; analytical pipeline; potential clinical utility

5. Conclusion / Perspective

Strength of radiomics; limitations; methodological considerations; future research directions