PROPOSED TITLE:

EFFICIENT CLASSIFICATION OF STREAMING DATA FROM CYBER PHYSICAL SYSTEM

OBJECTIVE:

Retroperitoneal soft tissue sarcomas (RPS) are rare tumours which can grow to an extremely large size in the retro peritoneum, before symptoms or signs of abdominal pain, back pain develop. RPS have bad prognosis and are often detected at a late stage. In addition, time and costs required for medical experts to screen all patients with RPS are expensive. Oncologists need an automatic diagnosis system to assess a patient's risk. Image mining technique plays a vital role in today's retrieval process. One challenge in implementing such a system is locating the affected region acccurately using image mining techniques like segmentation, classification, clustering etc,.

SCOPE OF THE RESEARCH WORK:

The aim of this work is to subject Positron Emission Tomography (PET)-Magnetic Resonance Imaging (MRI) images to mining algorithms for automated early detection of sarcomas and to evaluate the potency of PET-MRI.

PREVIOUS WORK:

Assessment of RPS

Biological test   Imaging
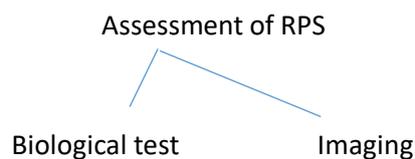
DETERMINATION OF TUMOR LOCATION IS A MAJOR CRITERION

IMAGING TECHNIQUES	
CT	**MRI**
Computerised Tomography	Magnetic Resonance Imaging
Uses X-rays	Uses magnetic field
Image bone, soft tissue and blood vessels all at the same time.	Provides much more soft tissue details than a CT scan.
High radiation	Do not emit ionizing radiation.

POSITRON EMISSION   TOMOGRAPHY(PET)

- ❖ First nuclear medical imaging technique to give functional information.
- ❖ Produces a three dimensional image of functional processes in the body.
- ❖ Positron- anti-matter electron

- identical in mass

- opposite charge of +1

❖ Detect cancerous tissues and cells in the body accurately, compared to computed tomography (CT) or magnetic resonance imaging (MRI)

PROPOSED WORK:

Subject Positron Emission Tomography (PET)-Magnetic Resonance Imaging (MRI) images to mining algorithms for automated early detection of sarcomas and to evaluate the potency of PET-MRI.

❖ Image mining process undergoes many techniques such as classification, clustering, association rule mining etc.
❖ Mining algorithms :

GA-SVM

Decision Tree

Naive Bayes

SVM-CART.

❖ Improve the interpretability or perception of information in images for human viewers or to provide 'better' input for automated image mining techniques.
❖ The goal of mining a medical image is to simplify the representation of an image into a meaningful image and makes it easier to analyse. Evaluation of sarcomas in MRI/CT is conventionally performed using skill and knowledge of experts. This manual assessment on sarcoma is time consuming but also shows high inconsistency among human raters. To overcome this drawback of inaccurate prediction, PET-MRI images are initially subjected to any of the image enhancement techniques and further subjected to clustering or classification for automated detection of sarcomas that can reveal very encouraging results in terms of quality of solution found.