# Medical Imaging Tool – A Hands-on Project

# Introduction

**Objective:** Develop a software application to **process and visualize DICOM medical images**

**Motivation:** Aligned with XIMED's focus on **image analysis, processing, and reconstruction**

**Outcome:** Created a **fully functional tool** with features like segmentation, 3D visualization, and metadata extraction

# Why I Tested This?

*Understanding the Role Requirements*

- **Bridging Data Engineering & Medical Imaging**
- **Hands-on experience with DICOM processing**
- **Building software solutions for medical professionals**
- **Experimenting with real-world challenges in medical imaging**

# Tech Stack

**Programming Language:** Python 🐍

**Libraries:** OpenCV, Pydicom, VTK

**GUI Framework:** PyQt5

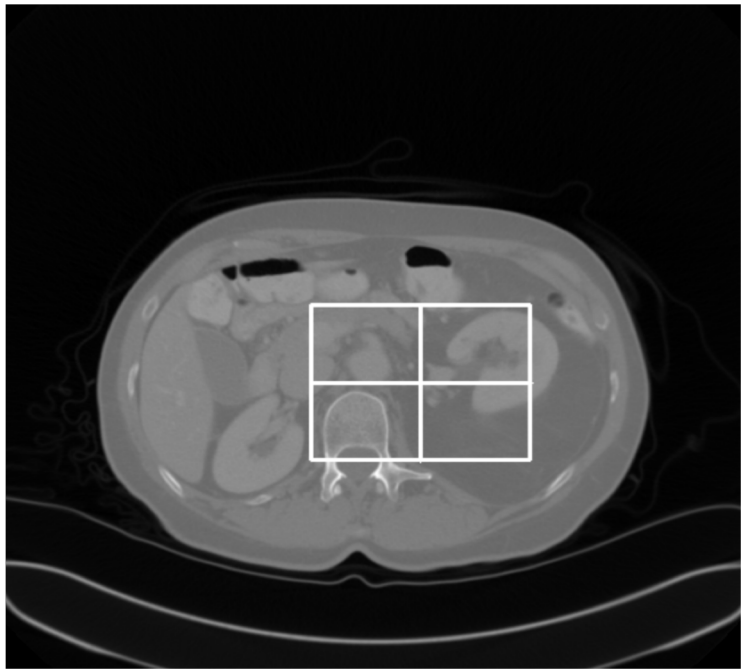
**CI/CD & Version Control:** GitHub Actions

# Key Features

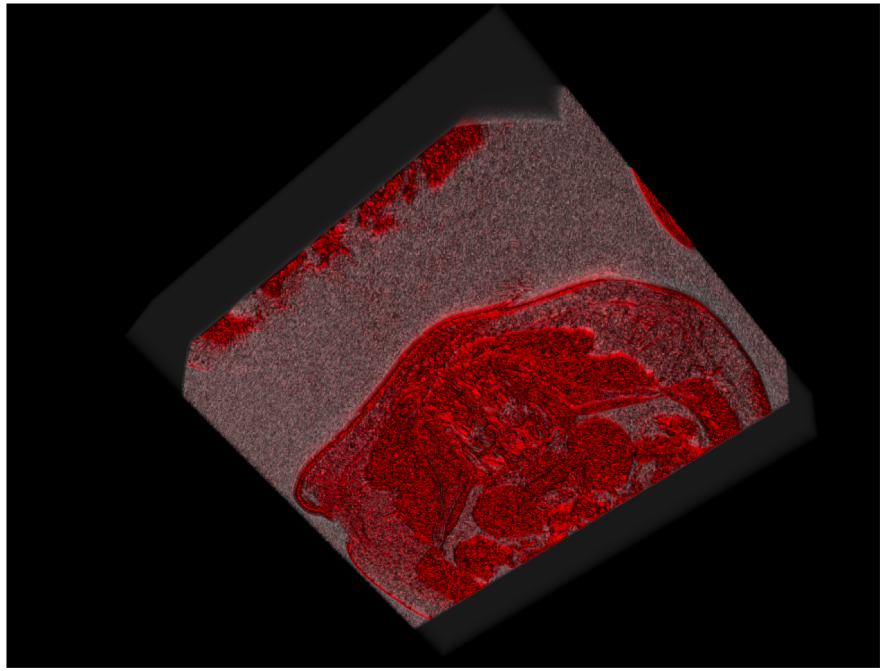
- **Load & View DICOM Files** (Single & Series)
- **3D Volume Rendering** using VTK
- **Image Segmentation & ROI Selection**
- **DICOM Metadata Extraction**
- **Export Processed Images** (PNG, DICOM)

# Visuals of the Application

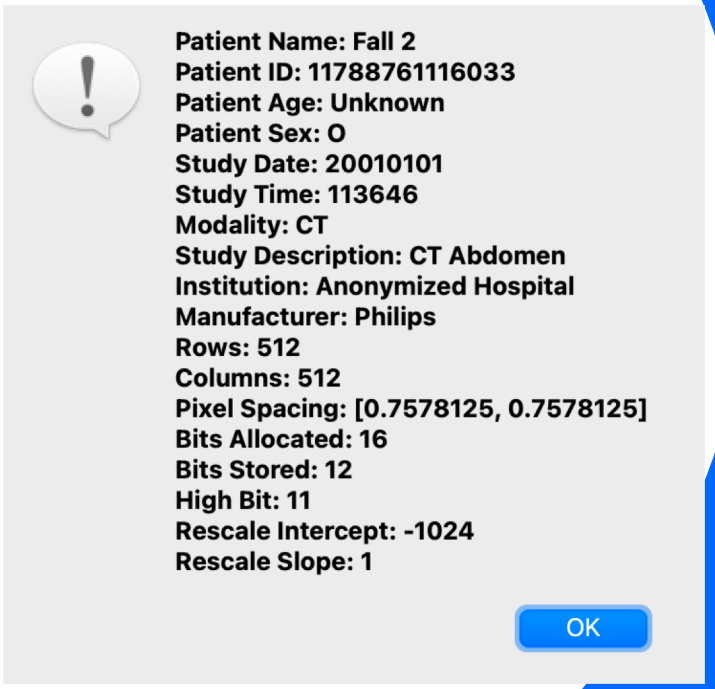
## DICOM Image Viewer



## 3D Volume Rendering



## Metadata



# Demo & GitHub Repository

Explore the Project

**GitHub Repository:** Medical Imaging Tool

**Demo Video:** Click Here

**Try the Code:** Clone the repo & run python app/gui.py

# Thank you