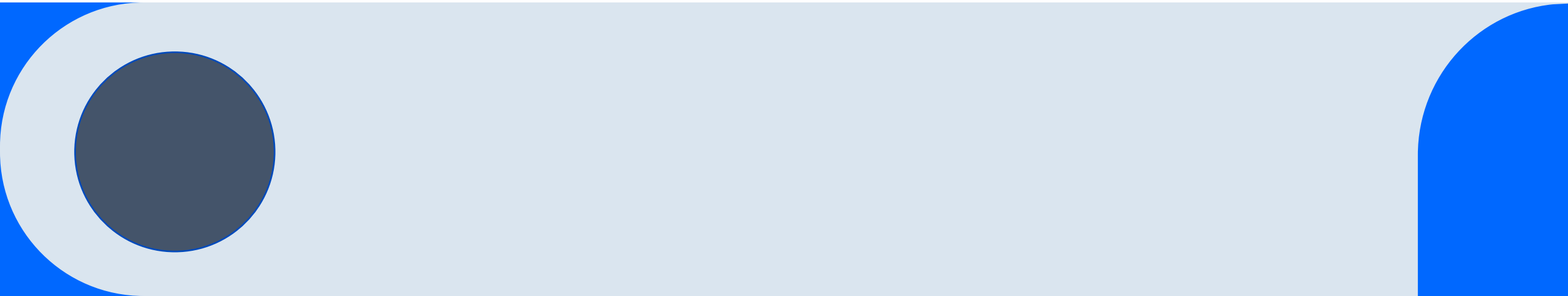


Medical Imaging Tool – A Hands-on Project



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

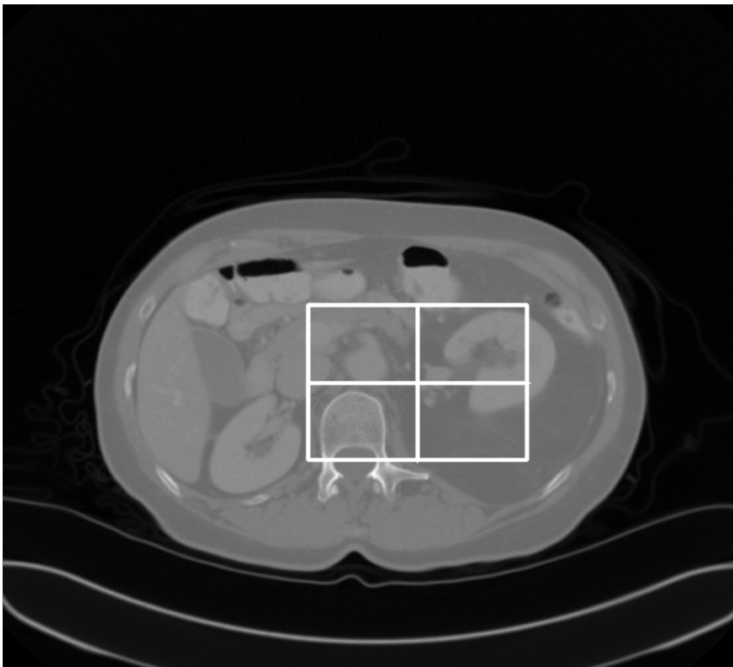
CI/CD & Version Control: GitHub Actions

Key Features

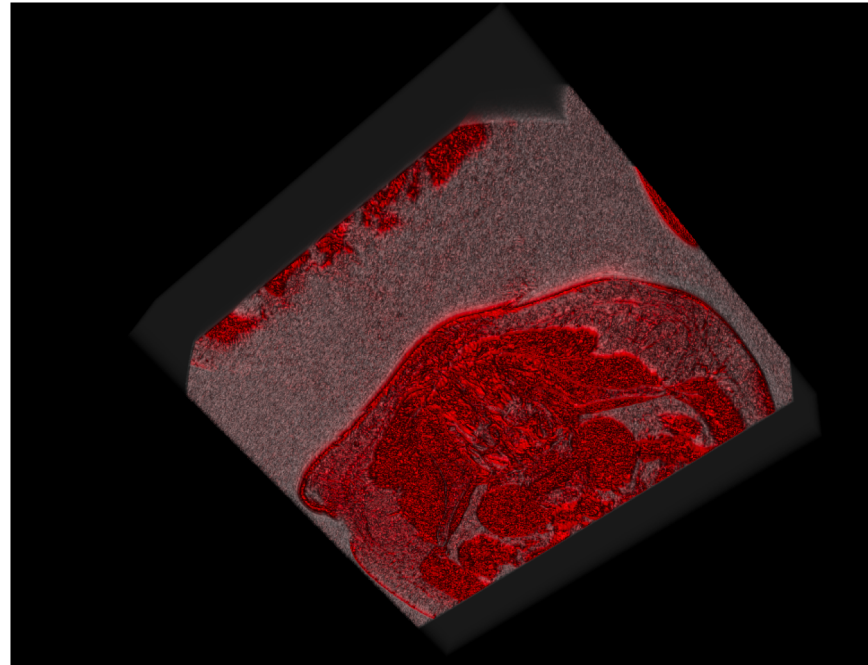
- **Load & View DICOM Files** (Single & Series)
- **3D Volume Rendering** using VTK
- **Image Segmentation & ROI Selection**
- **DICOM Metadata Extraction**
- **Export Processed Images** (PNG, DICOM)

Visuals of the Application


DICOM Image Viewer



3D Volume Rendering



Metadata



Patient Name: Fall 2
Patient ID: 11788761116033
Patient Age: Unknown
Patient Sex: O
Study Date: 20010101
Study Time: 113646
Modality: CT
Study Description: CT Abdomen
Institution: Anonymized Hospital
Manufacturer: Philips
Rows: 512
Columns: 512
Pixel Spacing: [0.7578125, 0.7578125]
Bits Allocated: 16
Bits Stored: 12
High Bit: 11
Rescale Intercept: -1024
Rescale Slope: 1

OK

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