UCF Center for Research in Computer Vision

# CRCV RET Project

## Computer Aided Detection (CAD) of Lung Nodules using LDCT in the IB Biology Classroom

Sarah Sanford

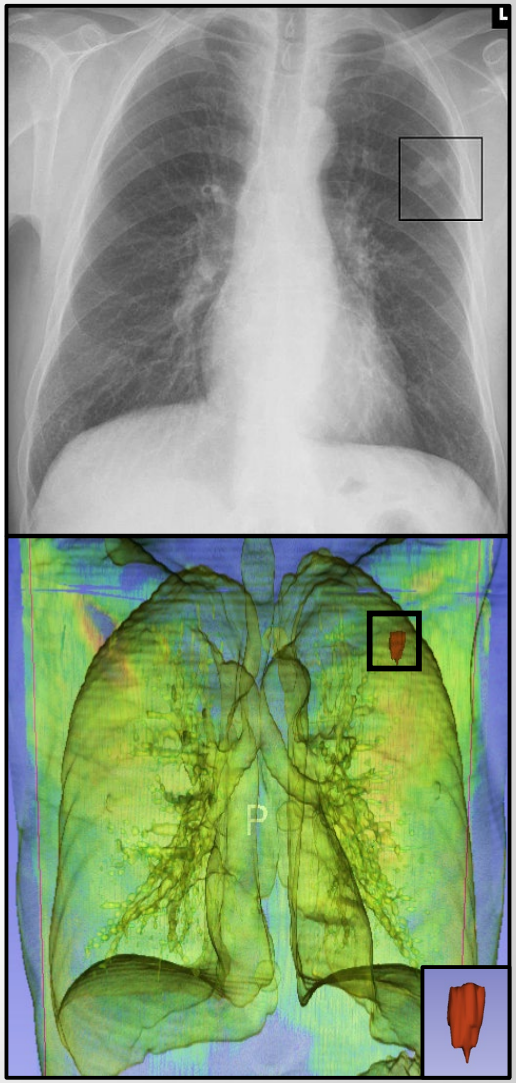
*TR Robinson High School*

UNIVERSITY OF CENTRAL FLORIDA

# Topic: Computer Aided Detection (CAD) of Lung Nodules using LDCT

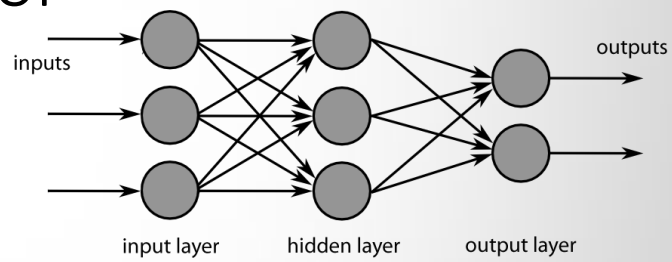
- Lung Cancer: 14% of all new diagnoses, 26% cancer deaths
- As Baby boomers age ↑ 52% diagnoses by 2030.[1]
- LDCT screening: 15-20% ↓ in mortality.[3]

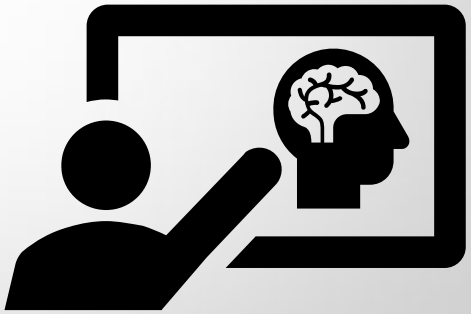
**As diagnoses are expected to increase, so *should our preparation of the next generation of medical and technical professionals.***



# Computer Vision Integration:

- **LDCT** analysis (segmentation and characterization) of metastatic lung nodules **using 3D-Slicer.**
- Facilitate understanding of **CNN in CAD**, and the implications of **deep learning in medical imaging BY:**
  1. Develop schematics of CNN for lung nodule detection
  2. Researching/debating deep learning in medical imaging
  3. Exploring/analyzing additional patient data from the Cancer Image Archive in 3D slicer



# Timeline:

## Flipped

- HHMI Lecture
- Download & Install 3D-Slicer

## Day 1

- Meet Laura
- Lung Cancer Basics
- 2D Screening

## Day 2

- Check in with Laura
- 3D Screening (3D-Slicer)
- Meet Sir Geoffrey

## Day 3

- CV Basics
- CV Assignment Choice
  - CNN schematic
  - Deep Learning Paper
  - Addtl 3D-slicer analysis
- Saying Goodbye to Laura