

# TAKING MEDICINE TO THE NEXT DIMENSION: 3D PRINTING IN HEALTHCARE

Dr Matthew Lee MBChB MSc

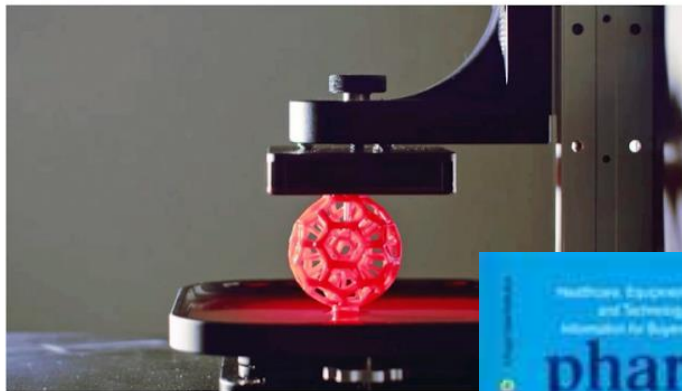
National Medical Director's Fellow, NHS England

Co-founder, M3dicube



## Additive manufacturing 3D printers will change manufacturing

*Sceptics doubt the technology can be used for mass production. Just wait*



## Obama's speech highlights rise of 3-D printing

By Doug Gross, CNN

Updated 2022 GMT (0422 HKT) February 13, 2013



### News & buzz



World Cup 2018: Exactly 100 days to go



Yes, Stormy Daniels is a real issue

### Paid Content



## 30 BUSINESS JOURNAL

TUESDAY



TOP END: Professor Tanya Monro with IPAS lab manager Lois Lima-Marques and the 3D printer.

Picture: GREG H

# Local firms urged to see the 3D picture

### CAMERON ENGLAND TECHNOLOGY

SOUTH Australian firms now have access to the cutting edge of advanced manufacturing.



prototyping direct from new designs, producing the new part in hours rather than days or weeks, ready for quick feedback and refining of designs," Professor Monro said.

South Australian companies were urged to take advantage of the new device. "If a company knows exactly what they want done... it can be a relatively straightforward process."

use in the mining industry. Maptek is investigating the potential of 3D printing to manufacture the optical chassis of its I-Site laser scanner. "Maptek are world leaders in the mining industry."

## medical & pharmaceutical Asia

### 3D Printing: Revolutionizing Health

Self-healing injectable nanogel



Roche Pharma's John C. Reed on innovation



\$6bn

estimated value of the healthcare 3D printing market by 2025

Source: Frost & Sullivan

## 'Revolutionary'

Machine makes 3-D objects from drawings

By Kathleen Sullivan  
American-Statesman Staff

Wedge into the corner of an unused photo lab at the University of Texas is an ungainly machine that can transform a computer drawing into a three-dimensional model at the touch of a button.

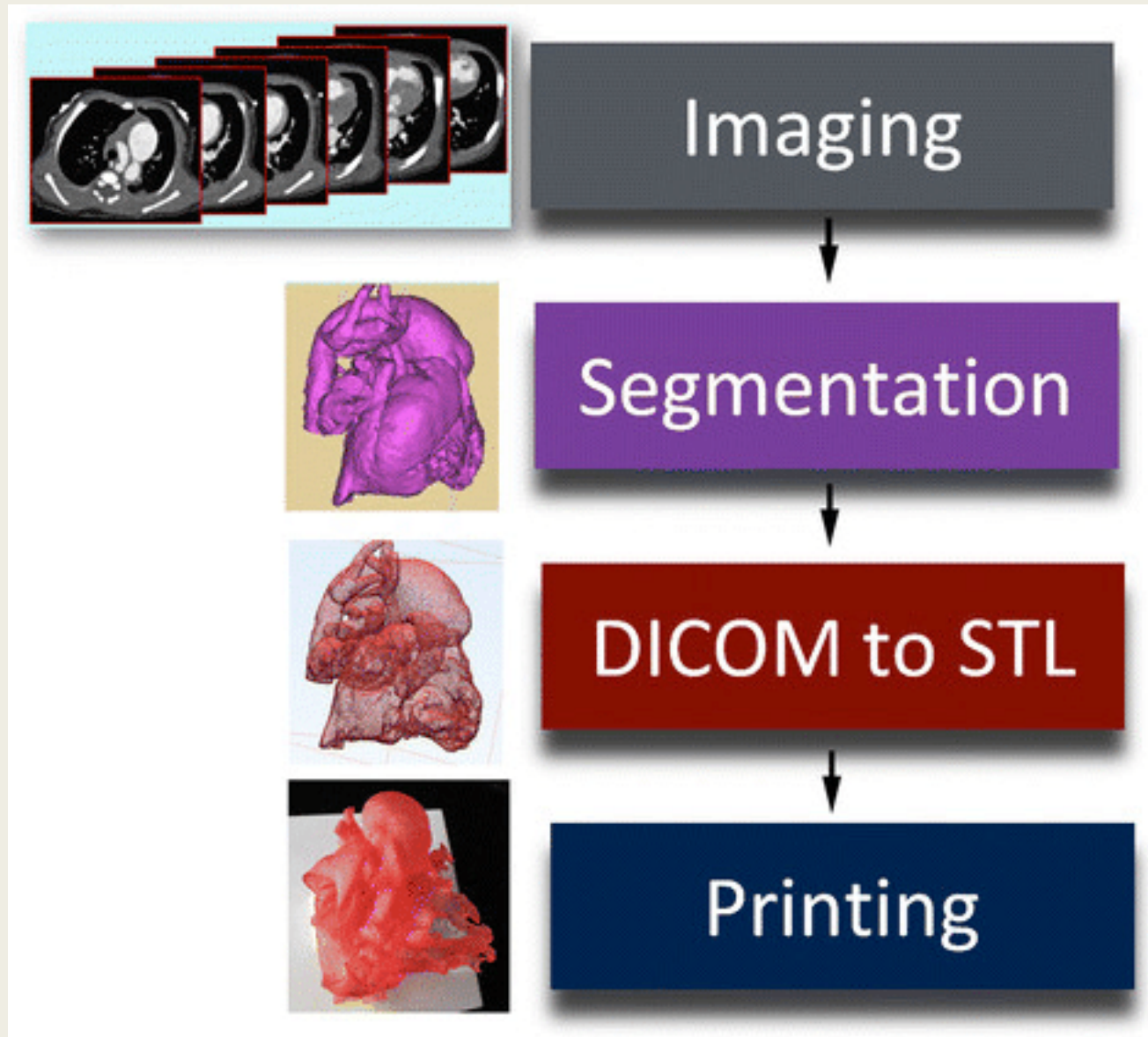
Sometime next year, the machine, which was developed by a UT graduate student, will make its way out of the lab and into the commercial arena. It will leave with the blessing of the UT Board of Regents, which Thursday gave an Austin company exclusive licensing rights to the "revolutionary" new technology embodied in the machine.

The licensing pact paves the way for the first transfer of technology from the University of Texas at Austin to a commercial venture.

The company that won the right to market the invention is Nova Automation Corp., whose principal shareholders are an Austin consulting engineer and Nova Graphics International Corp., an Austin-based computer graphics software firm.

The agreement represents a "hard fought" victory for UT's fledgling Center for Technology Development and Transfer, said Meg Wilson, coordinator of the center, which was given life during the last Texas Legislature and got

See inventor, A11



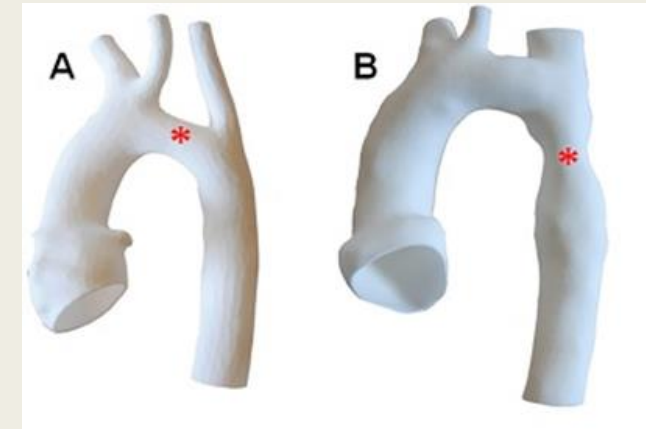




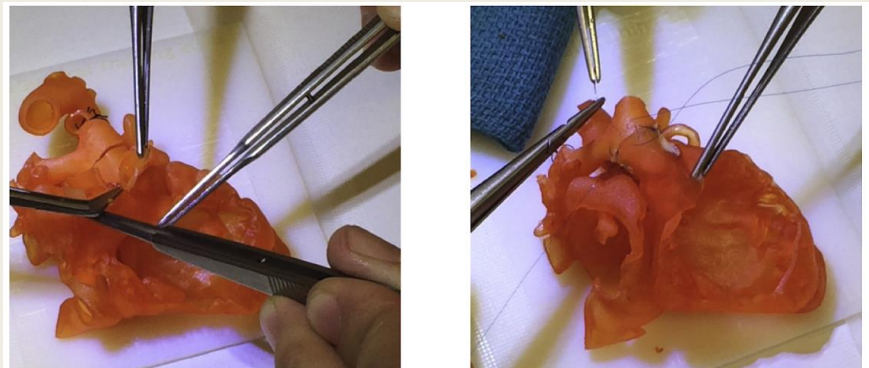
Implants



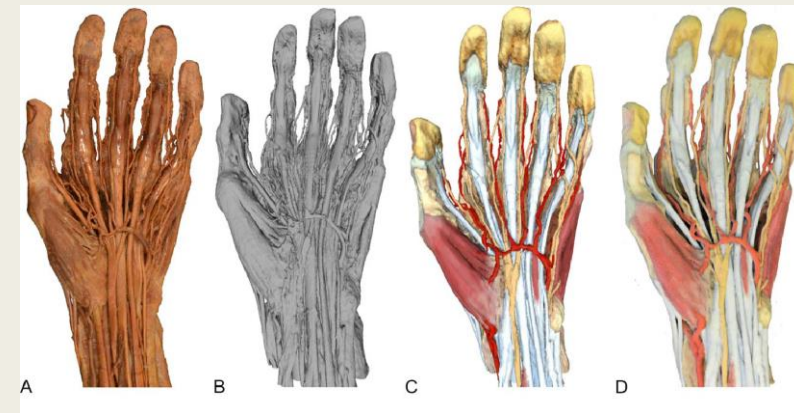
Pre-operative planning



Patient education



Procedural training



Medical Education

# 3D Printing In the NHS

Moorfields patient receives world's first 3D printed eye



25 November 2021



**South Tees Hospitals**  
NHS Foundation Trust

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[Home](#) - [Resources](#) - 3D Print Lab

## 3D Print Lab

3D Print Lab case study from South Tees Hospitals.

## 3D-printing protective equipment for COVID-19 NHS workers

Posted Wednesday, 8 April 2020 by Alex Londono



Barts Health and Queen Mary University of London have developed 3D-printed face shields for front line staff at The Royal London Hospital.



**Guy's and St Thomas'**  
NHS Foundation Trust

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## First NHS use of 3D printing for robotic surgery

Wednesday 25 May 2016



### Other latest news

[World first surgery at Guy's and St Thomas'](#)

Friday 10 March 2023

[Junior doctors' industrial action](#)

Thursday 9 March 2023

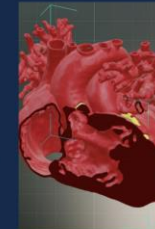
[Neonatal Unit wins London School of Paediatrics award](#)

Thursday 2 March 2023



### Segmentation-as-a-Service

We convert patients' 2D DICOM data into 3D with our easy to use, cloud-based segmentation service.



### 3D Visualization

When you want to visualize your patient's data in 3D, but don't need a physical 3D printed model.



### 3D Print-Ready File

After segmenting your data, we can provide you a print-ready STL file to export to your 3D printer and print in-house.



### 3D Printed Model

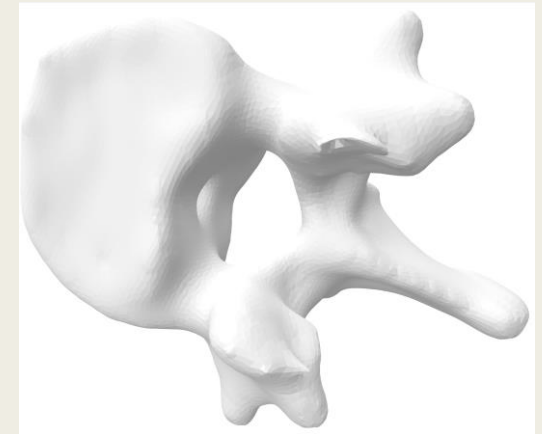
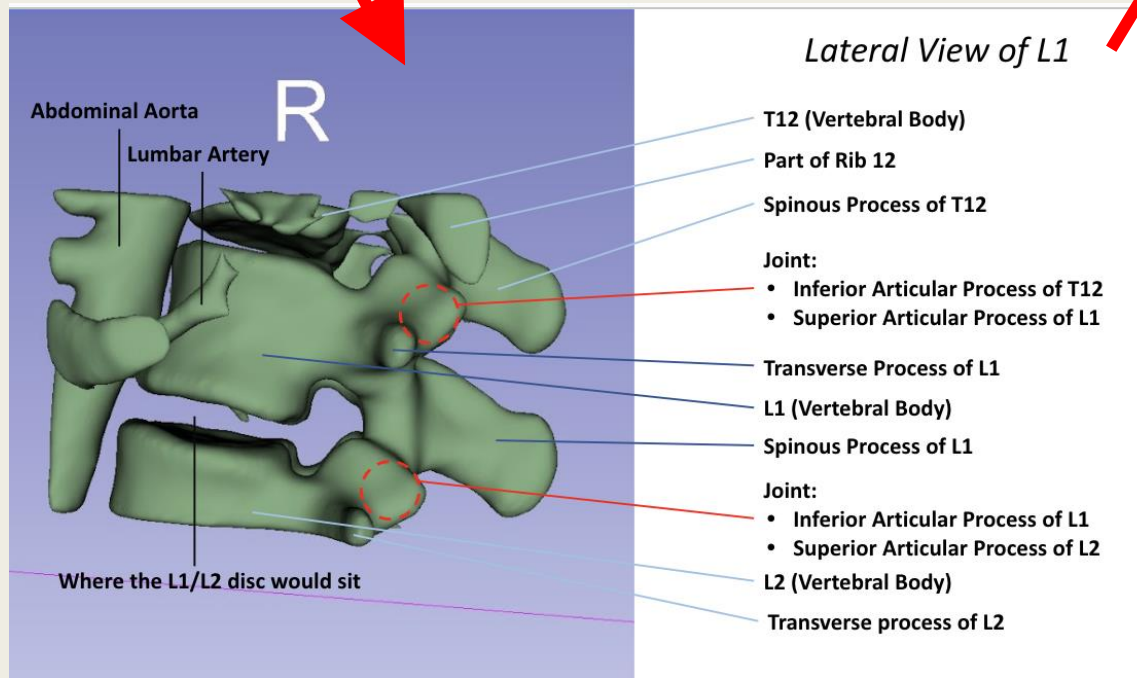
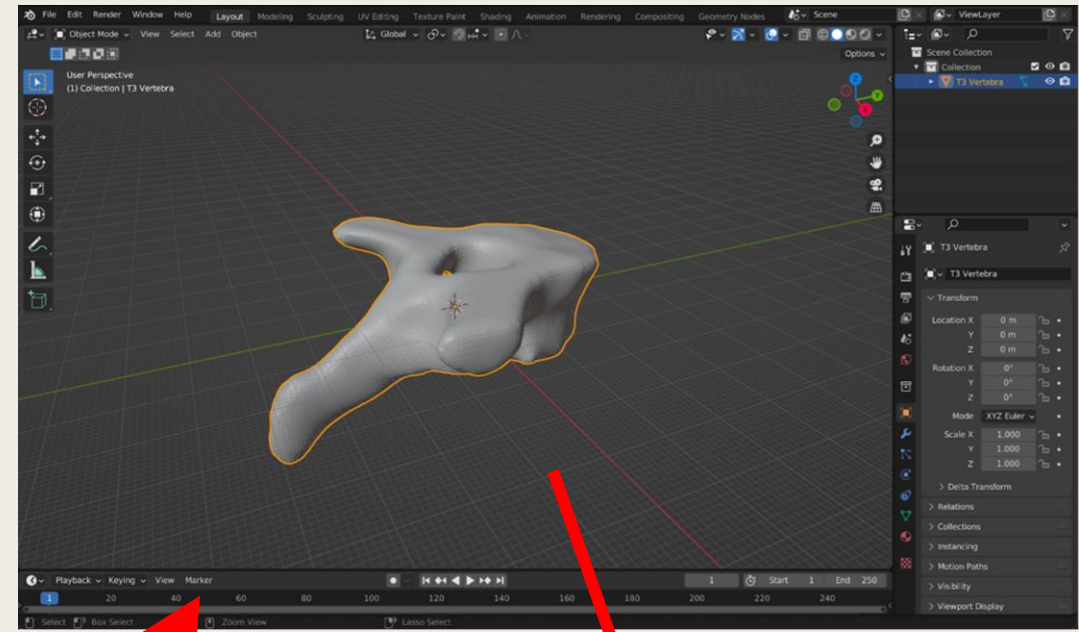
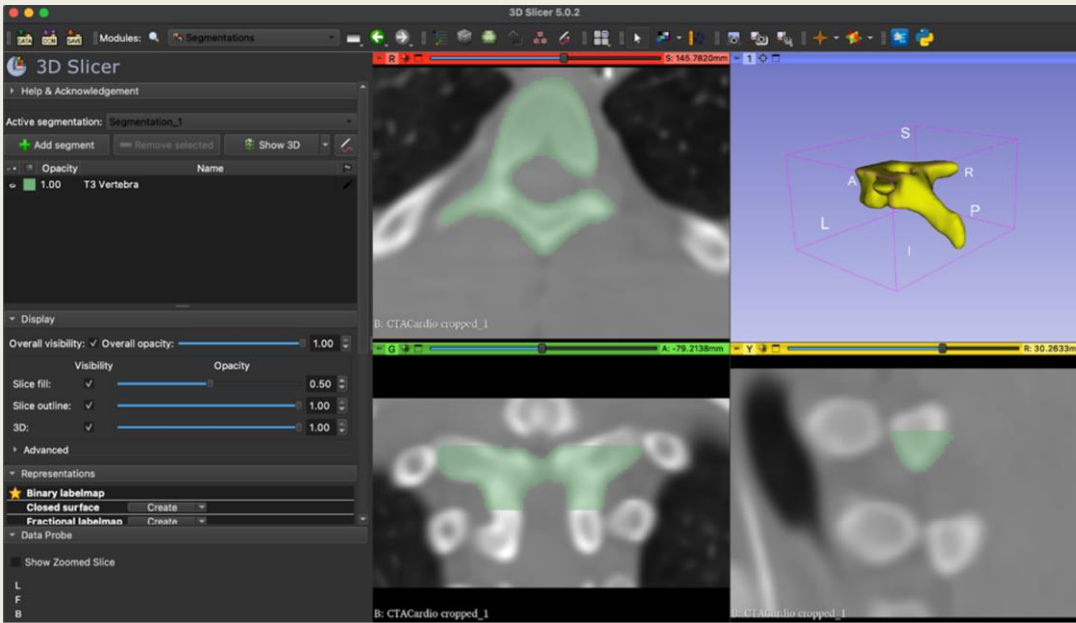
Hold your patient's anatomy in your hand to provide better insight to improve your surgical plan. Models made with Stratasys print technology.

# M3dicube

- A national organisation that empowers healthcare professionals to use 3D printing and segmentation
- Started by medical students with a passion for 3D printing and medical education
- Developed anatomical education curriculum for medical students using 3D segmentation, taught in >6 universities

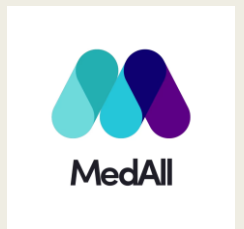
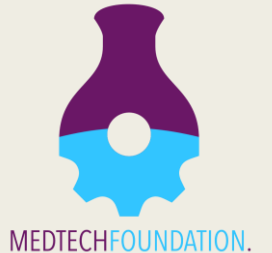
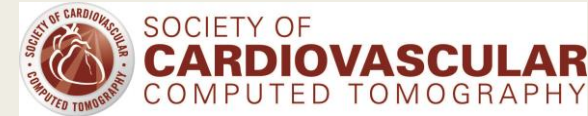






# Our Work So Far

- >500 healthcare professionals taught through online curriculum and in-person workshops
- Teams across 6 cities delivering workshops locally
- Major contributions by alumni to academic research, presentations, publications





# Future of 3D printing

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Despite disrupting many industries, 3D printing in healthcare is yet to see wide use

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Limited by high initial costs and technological barriers

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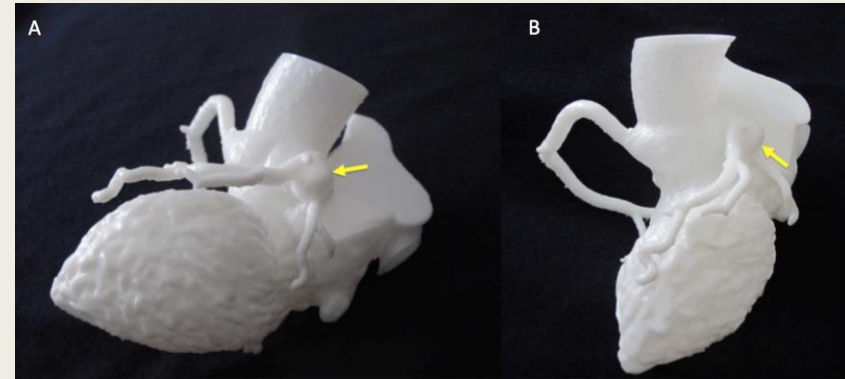
A cultural shift towards personalised care

# Thank you!

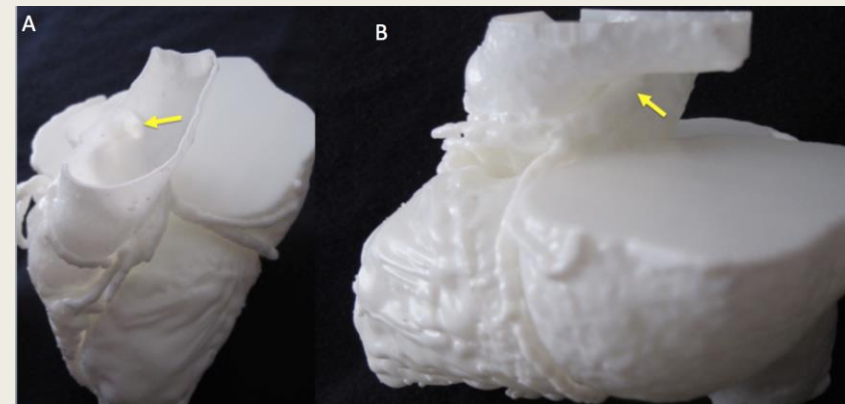
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Kawasaki's Disease Aneurysm



Anomalous Coronary Artery from  
Left Coronary Artery (ALCAPA)