



## Forced oscillation technique for lung disease detection

**Project supervisor(s):** Dr Andreas Fouras

**Contact:** [Andreas.Fouras@monash.edu](mailto:Andreas.Fouras@monash.edu)

**Department:** Division of Biological Engineering

**Pre-requisites to do this project:** You must currently be in your penultimate year (2011)

**This project is open to:** All students from the Faculty of Engineering who have a keen interest in biological systems and students studying a **Biomedical Science** degree.

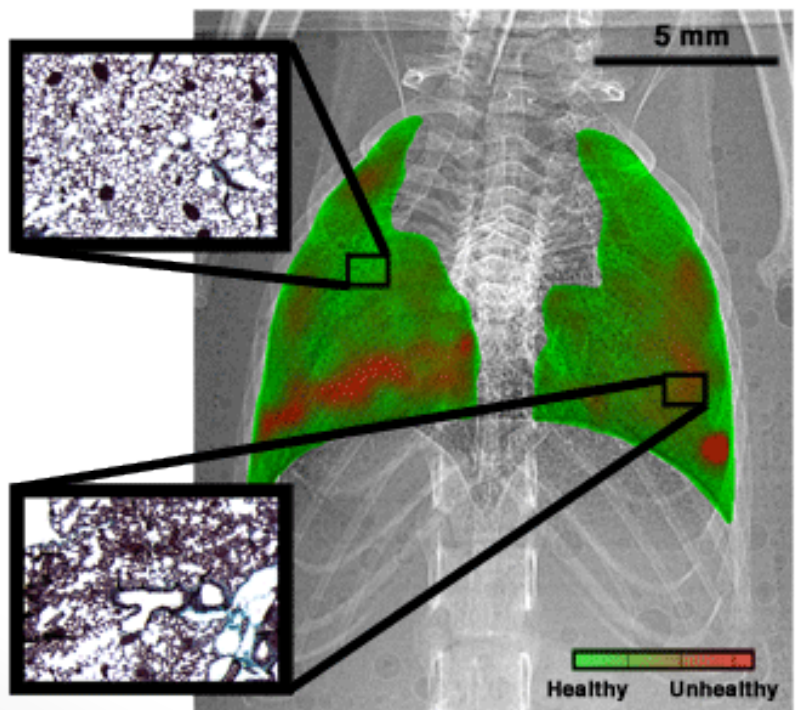
### The Problem

Forced oscillation technique (FOT) determines breathing mechanics by sending small pressure signals into the lungs and measuring the response. This may be effective, but the information provided relates to the whole lung - whereas most lung diseases are localised - delaying diagnosis and providing doctors with a confusing picture.

### The Project

This project will establish how FOT results will relate to specific lung conditions observed via synchrotron based X-ray imaging.

The applicant will possess a strong interest in **biomedical imaging** and **image processing** as well as **signal processing** and **analysis**. You will be required to work in a team of biomedical engineers and liaise with medical researchers and doctors.



Contours of lung tissue health (determined using LDIs world leading dynamic X-ray imaging technology) overlaid with the raw X-ray image, and with corresponding histology images showing the difference between healthy and unhealthy regions of lung tissue. Image courtesy: C. Chua, LDI.

### Facilities

➤ The applicant will have access to synchrotron imaging data sets that are at the forefront of medical imaging research and the latest supercomputing hardware.

This project is offered by the Division of Biological Engineering

For more information about the Laboratory for Dynamic Imaging, please visit: <http://www.mubeta.monash.edu/>

