



The Realisation of Research

Intelligent Adaptive X-Ray Imaging System

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Category(s):

Imaging

Description:

Intelligent Adaptive X-ray Imaging System

Available For: Licensing and co-development

Summary

Professor Robert Speller and his team at University College London (UCL) have developed a new X-ray imaging system that adapts to the imaging task according to the diagnostic features within the image, resulting in optimum diagnostic information. Adaptive imaging enables optimisation of the recorded information at the same time as minimising the radiation dose or duration of examination.

The Technology and its Advantages

Adaptive systems that control the X-ray source output, such as automatic exposure control in planar imaging and CT, optimize how a detector receives exposure of the radiation so as to ensure that the detector receives an exposure within its operating dynamic range. The detector may be optimally exposed but the object may not be. The results in the problems of excess exposure to radiation, increased duration of examination or reduced signal-to-noise in the image.

As part of an international consortium, inventors at University College London have designed an intelligent imaging system which addresses these issues. The image from the radiated object is firstly analysed in order to assess its diagnostic quality, and subsequently the exposure conditions are adapted accordingly in real-time. This new system will revolutionise the way in which X-ray image information is collected and processed because of the ability to respond to changing conditions during image recording and hence optimise their performance in real time. The region of high information content within the subject is investigated most closely whilst the remaining regions of low interest are recorded with the minimum amount of radiation. The result is that maximum information collected with the minimum penalty - the ideal imaging system.

Competitive advantage:

- Optimum diagnostic information is recorded in a single pass of the object
- Optimises image recording therefore producing a superior image
- Minimises radiation dose or duration of examination

Market Opportunity

Applications:

- Digital mammography
- Other medical imaging e.g. encephalography
- Industrial inspection
- Security

Intellectual Property Status

A US patent has been granted on this novel technology. Claims cover the method and arrangement of the system which enables the subject of the x-ray imaging system to be so exposed, as to provide improved diagnostic information.

Further Information

Please contact Dr Chris Williams, UCL Business PLC, T: +44 (0)20 7679 9000 E: c.williams@uclb.com

For Information, Contact:

Chris Williams
Business Manager
UCL Business PLC
020 7679 9000
c.williams@uclb.com

Inventors:

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<http://uclb.technologypublisher.com/technology/8638>