



Improved Computer-Aided Detection of Pulmonary Embolism in CT Pulmonary Angiography

AzTE Case # M13-026

Inventors

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Invention Description

Pulmonary embolism (PE) is a common cardiovascular emergency. Quick and accurate diagnosis of PE is critical, so that scientifically proven and efficacious life-saving treatment can be administered appropriately. Suspected PE is typically diagnosed with CT pulmonary angiography (CTPA), but even with recent increases in diagnostic accuracy, this technique still has several issues with interpretation of intricate branching structures, artifacts that may obscure or mimic embolisms, suboptimal contrast, and inhomogeneities.

Researchers at Arizona State University have developed a novel approach for computer-aided detection of emboli in CTPA. This technique automatically registers the vessel orientation in display, providing compelling demonstration of arterial filling defects, if present, and allowing the radiologist to thoroughly inspect the vessel lumen from multiple perspectives and report any filling defects with high confidence.

The flexibility of this technique, coupled with its precise detection of both acute and chronic PE, significantly reduces radiologist workload and improves the efficiency and accuracy of PE diagnosis in CTPA.

Potential Applications

- Accurate diagnosis of PE in CTPA images

Intellectual Property

Status:

Patent Pending

Benefits and Advantages

- Detects both acute and chronic pulmonary emboli
- Allows visualization of vascular intensity levels and local vascular structure and occlusion
- Navigates the vessel based on its local structure
- Enables thorough inspection of the vessel lumen from multiple perspectives through automatic registration
- Incrementally reports any detection to facilitate real-time support

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