MOBILE 3D IMAGING USING FLAT PANEL X-RAY SOURCES
Timely and accurate diagnosis where it’s needed

Problem:
Diagnosis can be difficult with 2D X-ray

CT scanners show more details but have much higher cost, waiting times and radiation dose

Solution:
1) Use low-dose 3D Digital Tomosynthesis

2) Make it mobile by replacing heavy traditional vacuum tube with low-cost, lightweight Flat Panel Source array of small emitters

Applications: Low-cost, low-dose 3D X-ray brought to the patient

• 40% of wrist scaphoid fractures are missed at initial presentation [Nguyen et al 2008]. Misdiagnosis is a common cause of litigation (mean cost of €42k [Harrison et al 2014]).
• Only 24% of lung nodules visible on CT are seen on 2D X-ray [Vikgren et al 2008].
• NHS places 170k naso-gastric tubes each year. Misplacement is a potentially lethal ‘never event’ but occurred 29 times in 2018.

System weight < 100 kg compared to current 2D systems weighing ~500 kg. Deployment in vehicles with paramedics may be possible in future to reduce some hospital admissions or bring screening to rural areas.


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