

Functional X-ray Computed Tomography Imaging

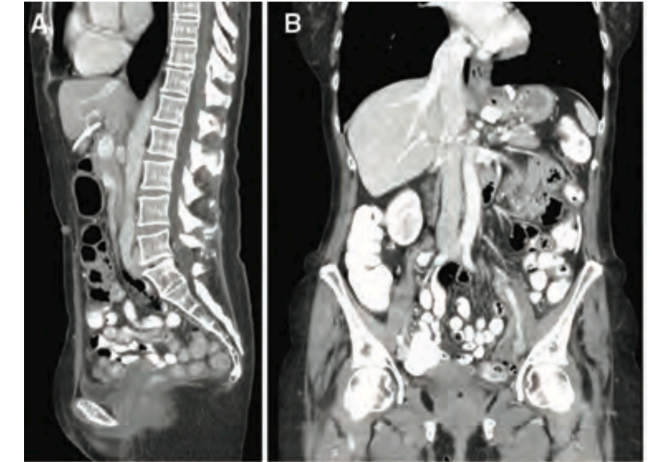
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Introduction: Anatomical vs Functional X-ray Imaging

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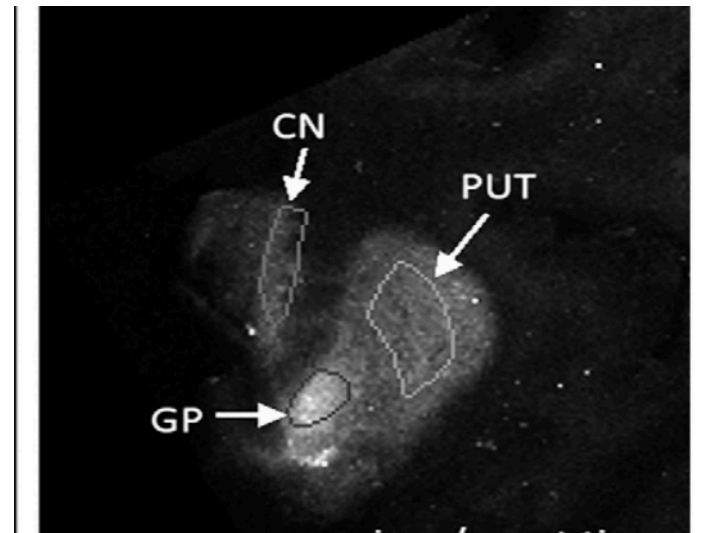
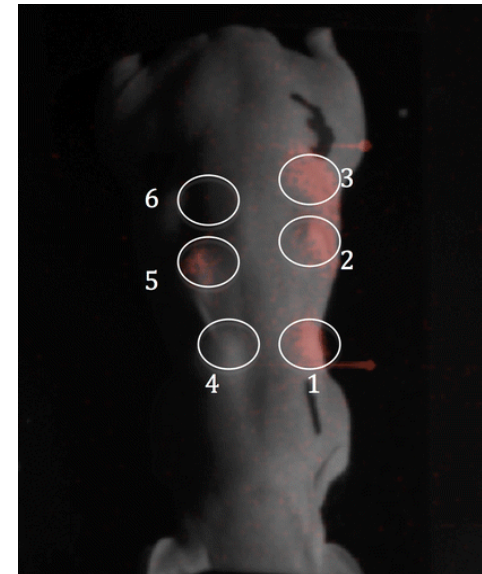
□ Conventional x-ray imaging:

- ▣ Provides good structure information
- ▣ Source of contrast:
 - x-ray attenuation
- ▣ Exogenous contrast not required



□ Functional x-ray imaging:

- ▣ (left) X-ray luminescence imaging
 - Various contrast distributions in a mouse
- ▣ (right) X-ray fluorescence imaging
 - Iron in brain hemispheres



Research and Challenges

- **Research Project:**
 - ▣ Time domain XLCT + XFCT
 - ▣ Coding/HPC
 - MATLAB
 - GATE (XFCT) + Docker/Singularity
- **Challenges and Goals:**
 - ▣ Code optimization
 - ▣ Performance tuning
 - ▣ Machine learning

