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Real-time Imaging Pipelines for Tomography

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Computed Tomography (CT) is a powerful technique for 3D imaging of the interior of a wide range of objects, with applications in medicine, industry, and science. As a mixed experimental-computational method, it can be combined with various imaging modalities including X-ray imaging, optical imaging, and electron microscopy. In this lecture I will discuss the various challenges involved in speeding up the tomography pipeline towards the point where the object can be analyzed in full 3D during the scan. Real-time 3D imaging leads to the opportunity of adjusting the scanning process in real-time, which in turn paves the way for developing "intelligent"CT-systems that can interact with the operator to achieve more informative data acquisition.

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