Compare (advantages and disadvantages) the Algebraic Reconstruction and Radon Transform techniques.

Algebraic Reconstruction

- Simple, and intuitive
- Has low computational cost

On the other hand

- It makes assumptions on the attenuation coefficients (u_i)
- It assumes linearity, the amount of attenuation of each X-ray beam is formulated as a set of linear equations.
- It does not have a closed-form solution
- It could require a threshold to stop the iterative process

Radon Transform

It is a mathematical technique and a rigorous approach; it offers a unique solution to find the X-ray attenuation in tissue.
It has analytical properties like scaling.
The Radon transform is robust to noise
It could be implemented in a parallel computing infrastructure

Cons of Radon Transform

- It assumes that data is projected along straight lines
- It could be computationally intensive
- With limited or noisy data, it could introduce artifacts