Blurring Techniques

- **Gaussian blur** is often used to reduce noise and soften edges. It's a popular choice for general-purpose blurring.

- **Median blur** is particularly effective at removing salt-and-pepper noise (random black and white pixels). It preserves edges better than Gaussian blur.

- **Bilateral filter** is useful for preserving edges while reducing noise. It's a good choice for images with fine details.

- **Box filter** is a simple blurring technique that can be used to smooth out noise. However, it can also blur edges.

- **Motion blur** can be used to create artistic effects or to simulate real-world motion.

- **Unsharp mask** is often used to enhance image details and make them appear sharper.

Comparison
Blurring, Noise Reduction, Edge Preservation, Artistic Effects, Sharpening

Edge Detection Techniques

Sobel edge detection is a simple and computationally efficient method. It's sensitive to noise and can produce double edges.

Laplacian edge detection is less sensitive to noise than Sobel edge detection but can be more susceptible to noise. It may also produce multiple edges for a single edge.

Prewitt edge detection is also a simple and computationally efficient method. It's like Sobel edge detection in terms of sensitivity to noise and the potential for double edges.

Canny edge detection is considered one of the most robust edge detection algorithms. It's less sensitive to noise than Sobel and Laplacian, and it can produce thin, continuous edges.

Comparison:
Sensitivity to Noise, Edge Thinness, Edge Continuity, Computational Efficiency