

IMAGE SUPER RESOLUTION FOR TELESURGERY USING ESRGAN

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Introduction

In the realm of telesurgery, the ability to visualize surgical sites with utmost clarity is paramount. The advent of Image Super Resolution (ISR) techniques, particularly Enhanced Super-Resolution Generative Adversarial Networks (ESRGAN), presents a transformative opportunity to enhance the visual quality of medical images transmitted during remote surgical procedures. This abstract explores the application of ESRGAN in telesurgery, focusing on its potential to significantly improve image resolution and detail fidelity, thereby aiding surgeons in making precise and accurate decisions. By leveraging the powerful capabilities of ESRGAN, low-resolution images captured by telesurgical equipment can be upscaled to higher resolutions while preserving crucial anatomical details and reducing noise and artifacts. This enhancement not only facilitates better visual acuity but also ensures the reliability and safety of remote surgical interventions. The integration of ESRGAN into telesurgical systems promises to bridge the gap between the high demands of surgical precision and the limitations of current imaging technologies, ultimately advancing the efficacy and success of telesurgery.