

<b>Manuscript ID: 329</b>	
<b>Title:</b> Enhancement of Endoscopic Images Using Advanced Deep Learning and Traditional Image Enhancement Techniques	
<b>Authors:</b> Jagadesh Chilla, M. Kedhareswer Naidu, Manish Chetla, Aman Kumar, Usha Mittal, Dr. Shamneesh Sharma	
<b>Reviewer #2:</b> <b>Reviewer Comments:</b> <b>Question:</b> Q2 (Did you find the paper's structure and organization clear and logical?) <b>Response:</b> YES <b>Author Response:</b> <i>No Correction</i>	<b>Question:</b> Q2 (Did you find the paper's structure and organization clear and logical?) <b>Response:</b> YES <b>Author Response:</b> <i>No Correction</i>
<b>Question:</b> Q3 (Were the experimental or theoretical methods appropriate for addressing the research question?) <b>Response:</b> YES <b>Author Response:</b> <i>No Correction</i>	<b>Question:</b> Q3 (Were the experimental or theoretical methods appropriate for addressing the research question?) <b>Response:</b> YES <b>Author Response:</b> <i>No Correction</i>
<b>Question:</b> Q4 (Were the results presented clearly and understandably?) <b>Response:</b> YES <b>Author Response:</b> <i>No Correction</i>	<b>Question:</b> Q4 (Were the results presented clearly and understandably?) <b>Response:</b> YES <b>Author Response:</b> <i>No Correction</i>
<b>Question:</b> Q5 (Did the paper appropriately reference and contextualize prior research and related work in the field of the conference?) <b>Response:</b> YES <b>Author Response:</b> <i>No Correction</i>	<b>Question:</b> Q5 (Did the paper appropriately reference and contextualize prior research and related work in the field of the conference?) <b>Response:</b> YES <b>Author Response:</b> <i>No Correction</i>
<b>Question:</b> Q6 (Did the paper make a novel contribution to the field conference?) <b>Response:</b> YES <b>Author Response:</b> <i>No Correction</i>	<b>Question:</b> Q6 (Did the paper make a novel contribution to the field conference?) <b>Response:</b> YES <b>Author Response:</b> <i>No Correction</i>
<b>Question:</b> Q7 (What is your overall impression of the paper's quality and significance?) <b>Response:</b> The paper is of high quality and practical relevance. It presents a dual-stage image enhancement pipeline combining SRCNN and a Dual-Input U-Net, followed by multiple post-processing techniques, to improve the visual quality of endoscopic images. The significance lies in the application to clinical diagnostics, where enhanced imaging can improve accuracy in real-time decision-making. The methodology is clear, experiments are well-structured, and results show a measurable improvement in PSNR and SSIM metrics. However, the paper would benefit from more quantitative benchmarking against recent	<b>Question:</b> Q7 (What is your overall impression of the paper's quality and significance?) <b>Response:</b> We agree with the reviewers' comment and have incorporated your suggestion throughout the manuscript. The novelty has been better explained in Section 3.3, with a clear distinction of our Dual-Input strategy compared to previous models  <b>Author Response:</b>  1. <i>Added a New Section 3.3: Comparative Novelty Analysis</i>

<p>deep learning models and clearer discussions around generalizability and computational cost.</p> <p><b>Author Response:</b>  <i>We have included a new section (Section 3.3: Comparative Novelty Analysis, Page 8) where we benchmark our hybrid approach against two recent state-of-the-art methods using PSNR and SSIM. The comparison is summarized in Table 4. We have also revised the <b>Discussion</b> and <b>Limitations</b> sections (Pages 12–13) to elaborate on model generalization, efficiency, and deployment feasibility. Computational profiling has been added in <b>Table 6</b>, detailing parameter count, memory footprint, and inference time (~39 ms total). We have also added new content in the <b>Limitations</b> section and further elaborated in <b>Future Scope (Pages 13–14)</b>, discussing the ethical implications, dataset bias, and the potential risks of visual artifacts introduced by enhancement</i></p>	<ol style="list-style-type: none"> <li>2. <i>Added benchmarking against recent state-of-the-art models in Table 4</i></li> <li>3. <i>Revised Discussion and Limitations sections to elaborate on model generalization, efficiency, and deployment feasibility</i></li> <li>4. <i>Computational profiling has been added in <b>Table 6</b>, detailing parameter count, memory footprint, and inference time (~39 ms total).</i></li> </ol>
<p><b>Question:</b> Q8 (How significant are the findings presented in the paper?)</p> <p><b>Response:</b> The findings are moderately to highly significant, especially in medical imaging. The proposed approach yields:</p> <ul style="list-style-type: none"> <li>• Improved image resolution and clarity through SRCNN.</li> <li>• Structural detail preservation using Dual-Input U-Net.</li> <li>• Enhanced interpretability with post-processing techniques.</li> </ul> <p>The combination leads to better image quality, confirmed by metrics and visual examples. Although not radically novel in deep learning terms, the integration tailored to endoscopy fills an important applied gap.</p> <p><b>Author Response:</b>  <i>We agree with the reviewer's observation. Additional clarifications have been made to highlight the applied novelty and the clinical relevance of the dual-stage pipeline.</i></p>	<p><b>Question:</b> Q8 (How significant are the findings presented in the paper?)</p> <p><b>Response:</b> We agree with the reviewer's observation. Additional clarifications have been made to highlight the applied novelty and the clinical relevance of the dual-stage pipeline.</p> <p><b>Author Response:</b>  <i>We have added Section 4.3 (Page 11) detailing the impact of individual post-processing steps. Table 4 now provides PSNR/SSIM deltas, supported by visual comparisons in Figure 7.</i></p>
<p><b>Question:</b> Q9 (Are there any areas where the author's reasoning or arguments could be improved?)</p> <p><b>Response:</b></p>	<p><b>Question:</b> Q9 (Are there any areas where the author's reasoning or arguments could be improved?)</p> <p><b>Response:</b></p>

<ul style="list-style-type: none"> <li>• Novelty justification: The architecture is effective but derivative. The authors should better clarify how their Dual-Input setup outperforms or differs from existing enhancement networks.</li> <li>• Post-processing impact: The reduction in PSNR/SSIM post-processing is noted but not explained well enough—a short ablation or discussion would help.</li> <li>• Runtime performance and feasibility in real-time clinical scenarios should be briefly addressed.</li> <li>• There is no discussion of ethical aspects, dataset diversity, or potential risks of enhancement errors.</li> </ul> <p><b>Author Response:</b></p> <ol style="list-style-type: none"> <li>1. <i>A detailed explanation of how the Dual-Input U-Net differs from existing enhancement networks has been added.</i></li> <li>2. <i>An ablation study and discussion on the impact of post-processing on PSNR/SSIM metrics have been included.</i></li> <li>3. <i>Runtime performance and real-time feasibility in clinical workflows are now discussed.</i></li> <li>4. <i>Ethical considerations, dataset diversity, and risk mitigation strategies are incorporated to strengthen the paper.</i></li> </ol>	<p>We agree with the reviewers' comment and have incorporated your suggestion throughout the manuscript. The novelty has been better explained in Section 3.3, with a clear distinction of our Dual-Input strategy compared to previous models.</p> <p><b>Author Response:</b></p> <ol style="list-style-type: none"> <li>1. <i>A detailed explanation of how the Dual-Input U-Net differs from existing enhancement networks has been added.</i></li> <li>2. <i>An ablation study and discussion on the impact of post-processing on PSNR/SSIM metrics have been included.</i></li> <li>3. <i>Runtime performance and real-time feasibility in clinical workflows are now discussed.</i></li> <li>4. <i>Ethical considerations, dataset diversity, and risk mitigation strategies are incorporated to strengthen the paper.</i></li> </ol>
<p><b>Question:</b> Q10 (Based on your assessment, would you recommend accepting the paper in its current form, with revision, or do you recommend rejection?)</p> <p><b>Response:</b> Accept with minor revision</p> <p><b>Author Response:</b> <i>Revisions completed as suggested.</i></p>	<p><b>Question:</b> Q10 (Based on your assessment, would you recommend accepting the paper in its current form, with revision, or do you recommend rejection?)</p> <p><b>Response:</b> Thanks to your reviews and suggestions, we have revised our work and made proper changes as suggested.</p> <p><b>Author Response:</b> <i>Revisions completed as suggested.</i></p>
<p><b>Reviewer #3</b> <b>Reviewer Comments:</b> <b>Question:</b> Q2 (Did you find the paper's structure and organization clear and logical?)</p> <p><b>Response:</b> YES</p> <p><b>Author Response:</b> <i>No Correction</i></p>	<p><b>Question:</b> Q2 (Did you find the paper's structure and organization clear and logical?)</p> <p><b>Response:</b> YES</p> <p><b>Author Response:</b> <i>No Correction</i></p>

<p><b>Question:</b> Q3 (Were the experimental or theoretical methods appropriate for addressing the research question?)</p> <p><b>Response:</b> YES</p> <p><b>Author Response:</b> <i>No Correction</i></p>	<p><b>Question:</b> Q3 (Were the experimental or theoretical methods appropriate for addressing the research question?)</p> <p><b>Response:</b> YES</p> <p><b>Author Response:</b> <i>No Correction</i></p>
<p><b>Question:</b> Q4 (Were the results presented clearly and understandably?)</p> <p><b>Response:</b> YES</p> <p><b>Author Response:</b> <i>No Correction</i></p>	<p><b>Question:</b> Q4 (Were the results presented clearly and understandably?)</p> <p><b>Response:</b> YES</p> <p><b>Author Response:</b> <i>No Correction</i></p>
<p><b>Question:</b> Q5 (Did the paper appropriately reference and contextualize prior research and related work in the field of the conference?)</p> <p><b>Response:</b> YES</p> <p><b>Author Response:</b> <i>No Correction</i></p>	<p><b>Question:</b> Q5 (Did the paper appropriately reference and contextualize prior research and related work in the field of the conference?)</p> <p><b>Response:</b> YES</p> <p><b>Author Response:</b> <i>No Correction</i></p>
<p><b>Question:</b> Q6 (Did the paper make a novel contribution to the field conference?)</p> <p><b>Response:</b> YES</p> <p><b>Author Response:</b> <i>No Correction</i></p>	<p><b>Question:</b> Q6 (Did the paper make a novel contribution to the field conference?)</p> <p><b>Response:</b> YES</p> <p><b>Author Response:</b> <i>No Correction</i></p>
<p><b>Question:</b> Q7 (What is your overall impression of the paper's quality and significance?)</p> <p><b>Response:</b> Paper's quality is Standard.</p> <p><b>Author Response:</b> <i>We thank the reviewer for the feedback. Efforts have been made to improve presentation, readability, and technical clarity to further enhance the overall quality.</i></p>	<p><b>Question:</b> Q7 (What is your overall impression of the paper's quality and significance?)</p> <p><b>Response:</b> Paper's quality is Standard.</p> <p><b>Author Response:</b> <i>We thank the reviewer for the feedback. Efforts have been made to improve presentation, readability, and technical clarity to further enhance the overall quality.</i></p>
<p><b>Question:</b> Q8 (How significant are the findings presented in the paper?)</p> <p><b>Response:</b> Most relevant</p> <p><b>Author Response:</b> <i>No Correction</i></p>	<p><b>Question:</b> Q8 (How significant are the findings presented in the paper?)</p> <p><b>Response:</b> Most relevant</p> <p><b>Author Response:</b> <i>No Correction</i></p>
<p><b>Question:</b> Q9 (Are there any areas where the author's reasoning or arguments could be improved?)</p> <p><b>Response:</b> It's OK</p> <p><b>Author Response:</b> <i>No Correction</i></p>	<p><b>Question:</b> Q9 (Are there any areas where the author's reasoning or arguments could be improved?)</p> <p><b>Response:</b> It's OK</p> <p><b>Author Response:</b> <i>No Correction</i></p>
<p><b>Question:</b> Q10 (Based on your assessment, would you recommend accepting the paper in its current form, with revision, or do you recommend rejection?)</p> <p><b>Response:</b> Accept</p> <p><b>Author Response:</b> <i>No Correction</i></p>	<p><b>Question:</b> Q10 (Based on your assessment, would you recommend accepting the paper in its current form, with revision, or do you recommend rejection?)</p> <p><b>Response:</b> Accept</p> <p><b>Author Response:</b> <i>No Correction</i></p>

<p><b>Reviewer #6</b>  <b>Reviewer Comments:</b>  <b>Question:</b> Q2 (Did you find the paper's structure and organization clear and logical?)  <b>Response:</b> YES  <b>Author Response:</b>  <i>No Correction</i></p>	<p><b>Question:</b> Q2 (Did you find the paper's structure and organization clear and logical?)  <b>Response:</b> YES  <b>Author Response:</b>  <i>No Correction</i></p>
<p><b>Question:</b> Q3 (Were the experimental or theoretical methods appropriate for addressing the research question?)  <b>Response:</b> YES  <b>Author Response:</b>  <i>No Correction</i></p>	<p><b>Question:</b> Q3 (Were the experimental or theoretical methods appropriate for addressing the research question?)  <b>Response:</b> YES  <b>Author Response:</b>  <i>No Correction</i></p>
<p><b>Question:</b> Q4 (Were the results presented clearly and understandably?)  <b>Response:</b> YES  <b>Author Response:</b>  <i>No Correction</i></p>	<p><b>Question:</b> Q4 (Were the results presented clearly and understandably?)  <b>Response:</b> YES  <b>Author Response:</b>  <i>No Correction</i></p>
<p><b>Question:</b> Q5 (Did the paper appropriately reference and contextualize prior research and related work in the field of the conference?)  <b>Response:</b> YES  <b>Author Response:</b>  <i>No Correction</i></p>	<p><b>Question:</b> Q5 (Did the paper appropriately reference and contextualize prior research and related work in the field of the conference?)  <b>Response:</b> YES  <b>Author Response:</b>  <i>No Correction</i></p>
<p><b>Question:</b> Q6 (Did the paper make a novel contribution to the field conference?)  <b>Response:</b> YES  <b>Author Response:</b>  <i>No Correction</i></p>	<p><b>Question:</b> Q6 (Did the paper make a novel contribution to the field conference?)  <b>Response:</b> YES  <b>Author Response:</b>  <i>No Correction</i></p>
<p><b>Question:</b> Q7 (What is your overall impression of the paper's quality and significance?)  <b>Response:</b> The paper demonstrates strong technical merit with its innovative dual-stage enhancement approach for medical imaging, though it requires clearer benchmarking for full validation.  <b>Author Response:</b>  <i>We appreciate the reviewer's observation. Additional benchmarking experiments have been incorporated for stronger validation.</i></p>	<p><b>Question:</b> Q7 (What is your overall impression of the paper's quality and significance?)  <b>Response:</b> The paper demonstrates strong technical merit with its innovative dual-stage enhancement approach for medical imaging, though it requires clearer benchmarking for full validation.  <b>Author Response:</b>  <i>We appreciate the reviewer's observation. Additional benchmarking experiments have been incorporated for stronger validation.</i></p>
<p><b>Question:</b> Q8 (How significant are the findings presented in the paper?)  <b>Response:</b> The methodology offers clinically valuable improvements in endoscopic image quality, supported by quantitative metrics, but needs deeper comparison to state-of-the-art alternatives.  <b>Author Response:</b></p>	<p><b>Question:</b> Q8 (How significant are the findings presented in the paper?)  <b>Response:</b> The methodology offers clinically valuable improvements in endoscopic image quality, supported by quantitative metrics, but needs deeper comparison to state-of-the-art alternatives.  <b>Author Response:</b></p>

<p><i>Comparisons to recent state-of-the-art methods have been expanded in the revised version for greater clarity.</i></p>	<p><i>Comparisons to recent state-of-the-art methods have been expanded in the revised version for greater clarity.</i></p>
<p><b>Question:</b> Q9 (Are there any areas where the author's reasoning or arguments could be improved?)</p> <p><b>Response:</b> Conditional acceptance hinges on</p> <ol style="list-style-type: none"> <li>(1) expanded novelty discussion,</li> <li>(2) computational efficiency analysis, and</li> <li>(3) ethical considerations regarding clinical deployment.</li> </ol> <p><b>Author Response:</b></p> <ol style="list-style-type: none"> <li>1. <i>The novelty discussion has been expanded to clearly differentiate our proposed pipeline.</i></li> <li>2. <i>Computational efficiency analysis and runtime performance have been added.</i></li> <li>3. <i>Ethical considerations regarding deployment in clinical scenarios are now discussed in the manuscript.</i></li> </ol>	<p><b>Question:</b> Q9 (Are there any areas where the author's reasoning or arguments could be improved?)</p> <p><b>Response:</b> Thank you for raising this. The <b>Discussion</b> and <b>Table 6 (Page 12)</b> now address computational efficiency, showing a total average inference time of ~39 ms. This makes our method feasible for real-time applications.</p> <p><b>Author Response:</b></p> <ol style="list-style-type: none"> <li>1. <i>The novelty discussion has been expanded to clearly differentiate our proposed pipeline.</i></li> <li>2. <i>Computational efficiency analysis and runtime performance have been added.</i></li> <li>3. <i>Ethical considerations regarding deployment in clinical scenarios are now discussed in the manuscript.</i></li> </ol>
<p><b>Question:</b> Q10 (Based on your assessment, would you recommend accepting the paper in its current form, with revision, or do you recommend rejection?)</p> <p><b>Response:</b> Conditional Acceptance</p> <p><b>Author Response:</b></p> <p><i>Revisions addressing novelty, computational efficiency, and ethical aspects have been implemented.</i></p>	<p><b>Question:</b> Q10 (Based on your assessment, would you recommend accepting the paper in its current form, with revision, or do you recommend rejection?)</p> <p><b>Response:</b> We thank the reviewer for the feedback. Efforts have been made to improve presentation, readability, and technical clarity to further enhance the overall quality.</p> <p><b>Author Response:</b></p> <p><i>Revisions addressing novelty, computational efficiency, and ethical aspects have been implemented.</i></p>