You are a professional academic summarization agent. I will provide you with the text of an illustrated academic article. The article will also include images. Each image will be preceded by an idx tag in the format <---index_number--->, where index_number is a unique integer identifying the image and its order within the article. Your task is to summarize the article's content into exactly four paragraphs.

For each paragraph of your summary, you must:
Summarize Content: Provide a concise and accurate summary, following the exact template provided for each paragraph below. Fill in the blanks in the templates with relevant information from the article.
Image Relevance Determination: State clearly whether or not referencing one of the provided images is necessary to enhance the understanding of that specific paragraph.
    If an image is necessary, specify the image using its idx tag (e.g., "imageRef": "idx_number"). You will also create a concise and descriptive "imageCaption" for the selected image (e.g., "imageCaption": "caption").
    If an image is not necessary, use "imageRef": "None" and "imageCaption": "None".
    Emphasis: **One paragraph only selects one image, and the same image can only be selected once in all paragraphs.** That is, if an image is suitable for multiple paragraphs at the same time, only the most suitable paragraph can be selected, and other paragraphs can only be selected from the remaining images.

Specific Requirements for Each Paragraph:
Paragraph1. Introduction or background
    Summary about the research background and the current state of research domestically and internationally from the [Introduction],[Background] or [Related Work] sections of the article.
    Example Sentences:
      "This paper addresses the ... problem and proposes a ... method."
      "Existing methods for the ... problem include ..., ..., etc. These methods have ... advantages but are limited by ... disadvantages and cannot meet the ... requirements."
    "imageRef": "idx_number", "imageCaption": "caption"

Paragraph2. Proposed Method
    Summary about the main method used in this paper from the "Method", "Model", or "Framework"... sections of the article.
    If the article mentions the specific name of the method, please use it to replace the title of this paragraph. If the article does not have an explicit model name, you can use a general description, such as "Proposed Improvement Method."
    If the method includes multiple steps, components, modules, or strategies, please extract them in the following format:
        Subtitle 1: Name of step/component/module/strategy\n
        Describe the specific content in detail, explaining the specific approach, motivation, effect, etc.
        Subtitle 2: Name of step/component/module/strategy\n
        Describe the specific content in detail, explaining the specific approach, motivation, effect, etc.
        ...
    Example Sentences:
      "To address the ... problem, this paper proposes a ... method/model."
      "The core idea of this method/model is ..."
      "This method/model includes the following key steps/components/modules/strategies, They are ..."
    "imageRef": "idx_number", "imageCaption": "caption"

Paragraph3. Experimental Results
    Summary about the experimental design and results from the "Experiment", "Results", or "Analysis"... sections of the article.
    Example Sentences:
      "The authors compared the ... model on the ... dataset. The advantages of the proposed method are ..., and the disadvantages are ...."
      "The experimental scheme/experimental setup is as follows: ..."
      "Experimental results and analysis:"
      "Compared with the ... model, the proposed model improved by ... on the ... dataset. This indicates ..."
    "imageRef": "idx_number", "imageCaption": "caption"

Paragraph4. Conclusion
    Summary from the [Conclusion] or [Summary] sections of the article.
    Example Sentences:
      "This paper proposes a ... method..."
      "Experiments have verified ..."
      "Experimental results show ..."
    "imageRef": "idx_number", "imageCaption": "caption"

The overall output format is as follows:
```json
[
{
"summary": "the summary of Paragraph1",
"image": {"imageRef": "idx", "imageCaption": "caption"} or {"imageRef": "None", "imageCaption": "None"}
},
{
"summary": "the summary of Paragraph2",
"image": {"imageRef": "idx", "imageCaption": "caption"} or {"imageRef": "None", "imageCaption": "None"}
},
{
"summary": "the summary of Paragraph3",
"image": {"imageRef": "idx", "imageCaption": "caption"} or {"imageRef": "None", "imageCaption": "None"}
},
{
"summary": "the summary of Paragraph4",
"image": {"imageRef": "idx", "imageCaption": "caption"} or {"imageRef": "None", "imageCaption": "None"}
}
]
```

Please output only the content in JSON format, and do not include any other irrelevant information.
Output: