

The background of the slide features abstract, overlapping green geometric shapes, primarily triangles and polygons, in various shades of green, creating a modern and dynamic visual effect.

第六讲

提示词工程 (III)

Lecture 6

Prompt Engineering (III)

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声明

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概念

Concepts

- 我们前面介绍了提示工程的基础知识，例如提示的要素，书写提示时的注意事项，以及借助于提示工程，将语言大模型或其它生成大模型能够应用的垂直领域。实际上，随着人们理解的深入与相应方法论的形成，人们逐渐总结出各种各样的提示词框架，来应对各种各样的场景。

We have introduced fundamental knowledge about prompt engineering (PE) in the previous sections, for example, elements and tips of PE, as long as applications of large language models into different fields by leveraging PE. Actually, sufficient practice and establishment of methodologies in this matter make people to design different prompt frameworks to cope with different scenarios.

- 通过结构化的方式来影响语言模型生成的响应，提示词框架往往不仅较好地框范了查询的问题，而且能够引导生成式人工智能工具的具体行为。这种有条不紊的方法使得获得适合各种任务的连贯、具体的响应成为可能，因此提示词框架越来越受到重视。

By provides a structured framework for influencing the responses generated by LLM, the prompt framework not just a question of knowing how to formulate queries precisely, but rather of guiding the behaviour of generative AI tools. This methodical approach makes it possible to obtain coherent, specific responses that are adapted to a variety of tasks, and hence gain its significance.

概念

Concepts

- ▶ 与一般性框架不同的是，特别是针对语言大模型的提示词框架更像是从方法论上指导用户使用。与一些软件框架不同的是，一般提示词框架直接输入，可能不能得到有意义的结果。这也启示用户可能在垂直领域应用框架书写提示时，有可能需要一定的领域知识。另外，需要用户在业有框架的基础上勤于总结，形成更好的提示风格。

Prompt frameworks of LLM might present subtle difference compared with frameworks in programming language. An obvious distinct is the direct input of vanilla framework might lead to uninterpretable response. This reminds users the necessity of domain knowledge if you are working into specific fields. In addition, practice makes perfect, retrospect and distil the process in order to form your own more promising ones.

- ▶ 在一般性的定义中，框架保证了以某种模式实现某些任务的基本可行性，用户只需添加基本元素，便可以使功能更实用。提示词框架与此类似，用户往往只需要按照框架的指引，细化或实例化框架中的组成要素，则形成的提示往往能得到高质量的输出。

The general definition of framework guarantee the basic solution to some tasks according to some patterns or paradigms. Users only need to specify or instantiate elements of the framework to make it more practical. This is also applicable to prompt engineering, by refining the elements of the framework, users can expect high quality responses from the LLM.

RTF框架

RTF Framework

- ▶ RTF框架是请求、任务和格式三种组件的缩写，作为结构化的提示写作方法，旨在简化用户与AI模型之间的交互。通过将提示分解为三个不同的部分，RTF框架可确保AI模型收到定义明确、可操作且易于理解和执行的请求：

- ▶ 请求（R）：提示的初始部分，用户可在此指定他们希望AI模型执行的操作。这通常是一个直接的问题或命令，旨在引出特定类型的响应。
- ▶ 任务（T）：详细说明请求，提供额外的细节或规范。这可能包括参数、条件或任何其他有助于AI模型了解手头任务的范围和要求的范围的信息。
- ▶ 格式（F）：可选组件，用于指定AI模型响应的所需格式。这可能是特定的数据结构、特定的布局，甚至是首选的语言风格。格式组件有助于定制输出以满足特定需求或偏好，使交互更加用户友好和有效。

▶ The RTF Framework stands for Request, Task, and Format. It is a structured approach to prompt writing that aims to streamline the interaction between the user and the AI model. By breaking down the prompt into three distinct components, the RTF Framework ensures that the AI model receives a well-defined, actionable request that is easy to understand and execute. Components of the RTF Framework are as follows:

- ▶ Request (R): It is the initial part of the prompt where the user specifies what they want the AI model to do. This is usually a direct question or command aimed at eliciting a specific type of response.
- ▶ Task (T): This component elaborates on the Request, providing additional details or specifications. This could include parameters, conditions, or any other information that helps the AI model understand the scope and requirements of the task at hand.
- ▶ Format (F): It is optional and is used to specify the desired format of the AI model's response. This could be a particular data structure, a specific layout, or even a preferred language style. The Format component helps tailor the output to meet specific needs or preferences, making the interaction more user-friendly and effective.

RTF框架

RTF Framework

- ▶ RTF框架在需要复杂或多步骤交互的场景中特别有用。它非常适合专业环境，例如客户服务、医疗保健和数据分析，这些环境对清晰度和准确性至关重要。该框架在教育环境中也很有用，可以帮助学生更有效地与教育AI工具进行交互。下面是在具体场景中使用RTF框架的真实示例：
- ▶ 示例 1：客户服务
 - ▶ 要求：请告诉我你们的退款政策。
 - ▶ 任务：具体来说，我想知道在什么条件下可以退回电子产品。
 - ▶ 格式：请以要点形式提供信息。
- ▶ 示例 2：医疗保健
 - ▶ 要求：列出 2 型糖尿病的症状。
 - ▶ 任务：包括常见症状和罕见症状。
 - ▶ 格式：按严重程度排列症状。
- ▶ 示例 3：数据分析
 - ▶ 要求：生成上一季度的销售报告。
 - ▶ 任务：包括按部门细分的收入、支出和净利润。
 - ▶ 格式：以条形图形式呈现数据。
- ▶ 通过使用RTF框架，用户可以制作不仅清晰可行而且可以根据其特定需求和背景量身定制的提示。这种结构化方法显著提高了交互质量，使其成为任何希望有效利用AI和NLP功能的用户的宝贵工具。

RTF框架

RTF Framework

- ▶ The RTF Framework is particularly useful in scenarios where a complex or multi-step interaction is required. It is ideal for professional settings, such as customer service, healthcare, and data analysis, where clarity and precision are paramount. The framework is also beneficial in educational contexts, helping students interact more effectively with educational AI tools. The following are some real-world examples of using the RTF Framework:
- ▶ **Example 1: Customer Service**
 - ▶ Request: Tell me about your refund policy.
 - ▶ Task: Specifically, I want to know the conditions under which I can return an electronic item.
 - ▶ Format: Please provide the information in bullet points.
- ▶ **Example 2: Healthcare**
 - ▶ Request: List the symptoms of Type 2 diabetes.
 - ▶ Task: Include both common and rare symptoms.
 - ▶ Format: Organize the symptoms in order of severity.
- ▶ **Example 3: Data Analysis**
 - ▶ Request: Generate a sales report for the last quarter.
 - ▶ Task: Include revenue, expenses, and net profit, broken down by department.
 - ▶ Format: Present the data in a bar chart.
- ▶ By employing the RTF Framework, users can craft prompts that are not only clear and actionable but also tailored to their specific needs and contexts. This structured approach significantly enhances the quality of the interaction, making it a valuable tool for anyone looking to leverage the power of AI and NLP effectively.

RISEN框架

RISEN Framework

- ▶ RISEN框架是旨在将复杂或受限的任务分解为可操作的组件的提示工程技术，该名称为代表角色、指令、步骤、最终目标和缩小范围（约束）的英文首字母缩写。该框架提供了一种结构化的方法来指导AI执行多层任务，例如博客文章、研究项目或商业计划，其包含的关键组件和流程如下：
 - ▶ 角色 (R)：定义你希望AI扮演的角色。这将为输出设定基调和专业水平。
 - ▶ 指令 (I)：明确说明你希望AI完成的主要任务。
 - ▶ 步骤 (S)：提供人工智能在完成任务时需遵循的编号步骤列表。
 - ▶ 最终目标 (E)：指定输出的目标，即您希望通过输出实现什么目标。
 - ▶ 缩小范围 (N)：列出人工智能应该考虑的任何限制，例如字数限制或特定重点领域。

- ▶ The RISEN Framework is a prompt engineering technique designed to break down complex or constrained tasks into actionable components. The acronym RISEN stands for Role, Instructions, Steps, End goal, and Narrowing (constraints), and it provides a structured approach to guide AI in executing tasks with multiple layers, such as blog posts, research projects, or business plans. The RISEN Framework consists of the following key components:
 - ▶ Role (R): Define the role you want the AI to take. This sets the tone and expertise level for the output.
 - ▶ Instructions (I): Clearly state the main task you want the AI to complete.
 - ▶ Steps (S): Provide a numbered list of steps for the AI to follow in completing the task.
 - ▶ End Goal (E): Specify the goal of the output, what you aim to achieve with it.
 - ▶ Narrowing (N): List any constraints that the AI should consider, such as word count limits or specific focus areas.

RISEN框架

RISEN Framework

- ▶ RISEN框架对于需要多层次方法的任务特别有用，例如创建内容、规划项目或制定业务战略。在需要AI考虑多个变量和约束，同时仍然专注于特定最终目标的情况下，它非常有效。我们考察一个利用LLM规划新产品的营销活动的提示：
 - ▶ 角色：您是一位经验丰富的营销策略师，拥有十年推出成功产品的经验。
 - ▶ 指令任务：为推出我们的新型环保水瓶制定全面的营销计划。
 - ▶ 完成任务的步骤：
 1. 首先概述目标受众和市场研究结果。
 2. 讨论将要使用的营销渠道以及它们为什么对该产品有效。
 3. 提供活动的时间表，包括关键里程碑和截止日期。
 4. 最后确定每个营销渠道的预算分配和预期投资回报率。
 - ▶ 目标：目标是创建一个全面的营销计划，最大限度地提高影响力和投资回报率，同时与我们的品牌价值保持一致。
 - ▶ 限制：最多1000个字，使用外行人能理解的术语，包括线上和线下策略，使其可操作。

RISEN框架

RISEN Framework

- ▶ The RISEN Framework is particularly useful for tasks that require a multi-layered approach, such as creating content, planning projects, or developing business strategies. It is effective in situations where you need the AI to consider multiple variables and constraints while still focusing on a specific end goal. We consider an example which is about planning a marketing campaign for a new product by leveraging LLM:
 - ▶ Role: You are a seasoned marketing strategist with a decade of experience in launching successful products.
 - ▶ Instruction: Develop a comprehensive marketing plan for the launch of our new eco-friendly water bottle.
 - ▶ Steps to complete the task:
 1. Begin by outlining the target audience and market research findings.
 2. Discuss the marketing channels to be used and why they are effective for this product.
 3. Provide a timeline for the campaign, including key milestones and deadlines.
 4. End with a budget allocation and expected ROI for each marketing channel.
 - ▶ Goal: The goal is to create a well-rounded marketing plan that maximizes reach and ROI, while aligning with our brand values.
 - ▶ Constraints: Maximum of 1000 words. Use layman's terms. Include both online and offline strategies. Make it actionable.

RHODES框架

RHODES Framework

- ▶ RHODES框架是一种结构化的提示写作方法，当用户有所需输出的良好示例时，该方法特别有用。该框架名称是代表角色、目标、细节、示例和意义检查的英文的首字母缩略词。框架中的每个组件都有特定的用途：
 - ▶ 角色（R）：指定你希望AI承担的角色。这将为输出设定基调和专业水平。
 - ▶ 目标（O）：明确说明您希望AI完成什么。
 - ▶ 详细信息（D）：提供AI为生成良好输出需要考虑的任何背景或约束。
 - ▶ 示例（E）：提供可供AI用作答案模型的示例。这些示例可作为风格、语气或结构的指导。
 - ▶ 意义检查（S）：要求人工智能确认其对目标和指南的理解。
- ▶ The RHODES Framework is a structured approach to prompt writing that is particularly useful when you have good examples of your desired output. The acronym stands for Role, Objective, Details, Examples, and Sense Check. Each component serves a specific purpose:
 - ▶ Role (R): Specifies the role you want the AI to take on. This sets the tone and expertise level for the output.
 - ▶ Objective (O): Clearly states what you want the AI to accomplish.
 - ▶ Details (D): Provides any context or constraints that the AI needs to consider for generating a good output.
 - ▶ Examples (E): Offers examples that the AI can use as a model for its answer. These examples serve as a guide for the style, tone, or structure.
 - ▶ Sense Check (S): Asks the AI to confirm its understanding of the objective and guidelines.

RHODES框架

RHODES Framework

- ▶ 当用户清楚自己想要什么，但需要输出符合特定风格或示例时，RHODES框架是最有效的。它非常适合创意任务、营销文案或任何风格和语气与内容本身同样重要的情况。下面是在实际场景中使用RHODES框架的真实世界的例子，即为AI软件工程师专家创建求职简历：
 - ▶ 角色（R）：您是一位经验丰富的专门撰写求职简历的文案撰稿人；
 - ▶ 目标（O）：制作一份求职简历，以吸引具有AI业务公司的招聘人员。
 - ▶ 详细信息（D）：
 - 篇幅不得超过A4纸张2页；
 - 使用突出专业知识和经验的语言；
 - 包含项目经验与专业技能模块。
 - ▶ 例子（E）：（事先上传一些文档并指示将上传的文档作为例子参考）
 - ▶ 感知检查（S）：询问模型是否了解此任务的目标和具体指导方针。

RHODES框架

RHODES Framework

- ▶ The RHODES Framework is most effective when you have a clear idea of what you want but need the output to adhere to specific styles or examples. It is excellent for creative tasks, marketing copy, or any situation where the style and tone are as important as the content itself. The following is an real-world example about how to use the RHODES Framework in a real-world scenario, a.k.a., creating a CV for a AI software engineer:
 - ▶ Role (R): You are an experienced copywriter specializing in HR area and résumé of applicants.
 - ▶ Objective (O): Craft a résumé that will attract recruiters from companies do AI related business.
 - ▶ Details (D):
 - The content should not exceed two pages of A4 size.
 - Use language that highlights expertise and experience.
 - Must contain the Project Experience and Personal Skills these two sections.
 - ▶ Examples (E): Upload some resumes and instruct the LLM to reference to.
 - ▶ Sense Check (S): Confirm the model it understands the objective and the specific guidelines for this task.

RACE框架

RACE Framework

- ▶ RACE框架可视为RISEN框架的变体，由于其每个元素指示或约束的粒度较大，比较适合于特定专业领域的初级用户。该框架名称是代表角色、行动、上下文、期望的英文的首字母缩略词。框架中的每个组件代表的意义列举如下：
 - ▶ 角色（R）：指定你希望AI承担的角色。这将为输出设定基调和专业水平。
 - ▶ 行动（A）：明确说明您希望AI完成什么。
 - ▶ 上下文（C）：提供AI为生成良好输出需要考虑的任何上下文背景。
 - ▶ 期望（E）：可供AI参考的输出的篇幅、结构、风格的建议。

- ▶ The RACE Framework is a variant of the RISEN framework, which is more suitable for newbies in specific area due to the coarse granularity of instructions or constraints put forwards by the components. The acronym stands for Role, Action, Context, and Expectation. Indications of each component are as follows:
 - ▶ Role (R): Specifies the role you want the AI to take on. This sets the tone and expertise level for the output.
 - ▶ Action (A): States what you want the AI to accomplish.
 - ▶ Context (C): Provides any context or constraints that the AI needs to consider for generating a good output.
 - ▶ Expectation (E): Suggestions about the content size, overall structure, style of the output.

RACE框架

RACE Framework

- ▶ 由于RACE的各个元素的指示或约束粒度较大，即使用户是特定领域的新人，也有可能在该领域有限知识的了解的基础上，得到较好的AI系统输出。下面是一个例子，例如在跨学科教学中，跨学科主题的设计可能对学科教师是一个挑战，但借助于LLM，有可能设计出令人满意的跨学科教学课件：
 - ▶ 角色（R）：您是一位经验丰富的STEM课程教师并有对新任教师的指导经验。
 - ▶ 行动（A）：制作一份符合STEM理念的课件，用于课堂教学。
 - ▶ 上下文（C）：
 - 该课件需要具有数学与物理知识的交叉；
 - 该课件包含实践内容，实践为创客导向，可以用到机械构件，电子元件等；
 - 该课件能迎合校园科技创新周主题活动。
 - ▶ 期望（E）：课件长度覆盖45分钟教学使用；课件所用术语符合初级中学学生认知水平。

RACE框架

RACE Framework

- ▶ As aforementioned, the coarse granularity of instructions and constraints of components of RACE make it suitable for newbies in specific fields, since RACE to some extent still guarantees good outputs. The following is an example which demonstrates how subject teachers can leverage LLM to design lecture notes under STEM interdisciplinary principles and framework, usually it is quite challenging for subject instructors to do it well:
 - ▶ Role (R): You are an experienced STEM instructor and mentor for new teachers.
 - ▶ Action (A): Craft a lecture notes for class teaching.
 - ▶ Context (C):
 - The lecture notes should cover both math and physics.
 - The lecture notes should include a project part, which is of maker or DIY style. Students can use mechanical and electrical components to fulfil it.
 - The lecture notes adhere to the theme week of science and technology.
 - ▶ Expectation (E): The length of the lecture notes can cover a 45-minute classroom, and the language and terminologies it adopts suits students in middle school.

ICIO框架

ICIO Framework

- 通常情况下，我们与模型交互时并不需要显式的输入，但某些情况下，我们可能期望模型对已有的工作修改或提质，ICIO框架适用于此情形。该框架名称是代表指令、上下文、输入与输出的英文首字母缩略词。框架中的每个组件代表的意义列举如下：

- 指令（I）：为AI系统提供明确、具体的指令或要求；
- 上下文（C）：人工智能需要考虑的任何相关背景、背景信息或限制，引导模型做出更好的反应；
- 输入（I）：指定 AI 应使用来完成任务的数据、信息或资源；
- 输出（O）：描述 AI 输出或可交付成果的所需格式、结构或其他特征。

- The RACE Framework is a variant of the RISEN framework, which is more suitable for newbies in specific area due to the coarse granularity of instructions or constraints put forwards by the components. The acronym stands for Role, Action, Context, and Expectation. Indications of each component are as follows:

- Instruction (I): Provide a clear and specific instruction or request for the AI system..
- Context (C): Include any relevant context, background information, or constraints that the AI needs to consider.
- Input (I): Specify the data, information, or resources the AI should use to complete the task.
- Output (O): Describe the desired format, structure, or other characteristics of the AI's output or deliverable.

ICIO框架

ICIO Framework

► 在需要对输入进行加工的场所，ICIO框架是比较有用的，下面是一个健身中心进行促销的例子，其需要根据会员的情况发送邮件：

- 指令（I）： 请根据提供的模板按照输入生成一封健身中心促销邮件；
- 上下文（C）： 该模板会在下一次对话中提供。
- 输入（I）： 相应输入如下：

王玲玲女士	钻石会员	8月	6折
金健雄先生	钻石会员	8月	6折
东方娇女士	金卡会员	10月	7折
张希清先生	银卡会员	9月	8折

- 输出（O）： 将模板中的“客户”用输入的每一行的第一列的值代替，“会员级别”用输入的每一行的第二列的值代替，“月份”用输入的每一行的第三列的值代替，“折扣”用输入的每一行的第四列的值代替。根据行数输出促销邮件个数。

"客户"您好，
都市青年健体中心推出了针对老客户的回馈活动，作为我们的"会员级别"，您的会员将于"月份"到期，您现在续费的话，享受等级会员"折扣"优惠。如果您感兴趣，请光临时联系前台咨询业务。
感谢！

都市青年健体中心

ICIO框架

ICIO Framework

- ▶ ICIO is quite helpful in the scenarios that you want modifications or polishing to the input, even further based on some template. The following is to show how to compile a promoting email for a gym center based on members case by case:

- ▶ Instruction (I): Compile promoting emails based on given template.
- ▶ Context (C): The template will be provided in the next dialog/interaction.
- ▶ Input (I): The inputs are as follows:

Ms. LingLing Wang | Diamond Membership | Aug. | 60% Percent

Mr. Jianxiong Jin | Diamond Membership | Aug. | 60% Percent

Ms. Jiao Dongfang | Silver Membership | Oct. | 80% Percent

Mr. Xiqing Zhang | Gold Membership | Sep. | 70% Percent

- ▶ Output (O): Substitute the "customer" occupier in the template with the text of first column in each line. Substitute the "membership" occupier in the template with the text of the second column in each line. Substitute the "month" occupier in the template with the text of the third column in each line. Substitute the "percentage" occupier in the template with the text of the fourth column in each line. The number of emails equals to the number of input lines.

Dear "customer",

We kindly let you know that the Urban Youth Gym just launches a promotion for our registered members. Your "membership" will be expiry in "month", however, you will be enjoying a "percentage" discount if you extend it now. Please feel free to ask our helpdesk on your next visit if you feel interests.

Regards,

Urban Youth Gym

BROKE框架

BROKE Framework

- ▶ BROKE框架旨在通过持续交互提高输出质量，适合需要详细背景信息、角色设定和关键结果衡量的复杂任务，如战略规划、产品开发等，其相关元素如下：

- ▶ 背景（B）：提供足够的背景信息，使大模型能够理解问题的上下文；
- ▶ 角色（R）：设定特定的角色，让大模型能够根据该角色来生成响应；
- ▶ 目标（O）：明确任务目标，让大模型清楚知道需要实现什么；
- ▶ 关键结果（K）：定义关键的、可衡量的结果，以便让大模型知道如何衡量目标的完成情况；
- ▶ 演化（E）：通过试验和调整来测试结果，并根据需要进行优化。

The BROKE Framework is to increase the response quality via continual interactions. It suits the tasks where interactive tasks demand detailed background information, role playing, key result measurement, for example, strategic planning, product development, etc. The relevant components are as follows:

- ▶ Background (B): To provide background information to have the model understand the context.
- ▶ Role (R): Specify the role which directs the suitability of responses from the model.
- ▶ Objectives (O): Manifest the objectives of the tasks, which makes the model understand what to achieve.
- ▶ Key Results (K): Define key, measurable results to help the model measure the completion of the objectives.
- ▶ Evolve (E): Test the results through experiments and adjustments, and optimize as needed.

BROKE框架

BROKE Framework

- ▶ 由于BROKE框架添加了演化元素，因此对过程性问题可能会比较有效，下面是一个利用该框架进行IT设施问题解决的例子：
 - ▶ 背景（B）：公司里有两种类型的网络，有线网络与无线网络，现在会出现无线网络上的个别设备与有线网络上的个别设备不能连通的情况，影响使用体验；
 - ▶ 角色（R）：假设您是一个经验丰富的IT系统与设备运维人员；
 - ▶ 目标（O）：请协助解决个别设备在两个网络上互联互通工作；
 - ▶ 关键结果（K）：
 - ▶ 定位出问题所在，即网络本身的问题还是个别设备存在的问题；
 - ▶ 给出解决方案，包括定位问题的步骤，解决问题的步骤，涵盖替代性解决方案。
 - ▶ 演化（E）：可能给出的解决方案在实际环境中的有效性仍待验证，因此在随后的交互中，请在同一上下文中考虑。

BROKE框架

BROKE Framework

- ▶ Since the BROKE framework incorporates the element of evolving, it can be quite effective for procedural problems. Below is an example of using this framework to solve IT infrastructure issues:
 - ▶ Background (B): The company has two types of networks, a.k.a., wired one and wireless one. Currently, some devices on the wireless network cannot connect with certain devices on the wired network, and vice versa, which affects user experience.
 - ▶ Role (R): Assume you are an experienced IT systems and equipment maintenance staff.
 - ▶ Objective (O): Please help resolve the issue of interconnection between individual problematic devices on the two networks.
 - ▶ Key Results (K):
 - ▶ Identify the source of the problem, whether it is a network issue or issues with specific devices.
 - ▶ Provide solutions, including steps to identify the problem, steps to resolve the problem, and potential alternative solutions in some scenario.
 - ▶ Evolve (E): The effectiveness of the proposed solutions remains to be verified in practice. Therefore, please consider the same context in subsequent interactions.

STEBCA框架

STEBCA Framework

- ▶ STEBCA框架在艺术方面的内容生成方面有较广泛的应用，其各个元素解释如下：
 - ▶ 风格（S）：美学艺术风格或年代，可细化为4W准则：
 - ▶ When: 什么年代的风格？文艺复兴、80年代
 - ▶ Who: 你想要谁的风格？人，如穆卡、梵高，或组织，抽象画派，现实主义画派
 - ▶ What: 什么艺术类型的风格？或者艺术运动的风格？浮世绘、视错觉艺术、波谱艺术
 - ▶ Where: 什么国家的风格？哥特式艺术、荷兰黄金时期油画
 - ▶ 主题（T）：描述图片主要内容是关于什么的，例如人、物体、动物，包括外观、颜色等特征细节，可细分为2W准则：
 - ▶ Who: 人物就描述性别、样貌、表情、衣着、动作等
- ▶ The STEBCA framework is mainly applied in art generation. Explanations of its elements are as follows:
 - ▶ Style (S): Aesthetic art style or era, it can be further specified into 4W guidelines:
 - ▶ When: What era's style? Renaissance, 1980s
 - ▶ Who: Whose style do you want? People such as Mucha, Van Gogh, or organizations,
 - ▶ What: What type of art style? Or art movement style? Ukiyo-e, optical illusion art, Pop art
 - ▶ Where: What country's style? Gothic art, Dutch Golden Age oil painting
 - ▶ Theme (T): What is the main content of the picture? People, objects, animals? What are the characteristics? Including appearance, color and unique features. The more details, the better. It can be specified into 2W guideline:
 - ▶ Who: If it is a person, describe the gender, appearance, expression, clothing, action, etc.

STEBCA框架

STEBCA Framework

- ▶ What: 实物的话就要描述它是什么物品、材质、颜色、形态等
- ▶ 环境 (E): 光照类型, 如明亮、昏暗、自然等, 画面情绪如欢快、神秘等, 氛围效果, 其他因素, 如天气等;
- ▶ 背景 (B): 背景性信息, 包括位置 (室内、室外、想象)、环境元素 (自然、城市)、一天中的时间和天气条件;
- ▶ 构图 (C): 视角 (特写、广角、空中)、角度和特定的取景偏好, 例如:
 - ▶ 镜头的焦点在哪里? 身后的草原还是主体人像的眼睛
 - ▶ 主体的朝向是哪里? 侧身正面还是背影
 - ▶ 主体和背景的画面占比是怎样的? 七分身、局部特写还是全景
- ▶ 细节补充 (A): 以上部分的补充说明, 比如: 次要物体、人物、动物以及它们相对于主要主题的相互作用或位置。

- ▶ What: If it is a physical object, describe what it is, its material, color, shape, etc.
- ▶ Environment (E): Lighting type (bright, dim, natural), mood (happy, mysterious) and ambience effects, weather, etc.
- ▶ Background (B): Details include location (indoor, outdoor, imaginary), environmental elements (natural, urban), time of day, and weather conditions.
- ▶ Composition (C): Perspective (close-up, wide-angle, aerial), angles, and specific framing preferences.
 - ▶ Where is the focus of the shot? The grassland behind or the subject's eyes
 - ▶ Where is the subject facing? Side profile or back view
 - ▶ What is the proportion of the subject and background in the picture? 30% body, partial close-up or full view
- ▶ Additional details (A): What else is not mentioned above? For example: secondary objects, people, animals and their interaction or position relative to the main subject.

STEBCA框架

STEBCA Framework

► 下面是基于STEBCA框架生成特定图片的一个提示的例子：

- 风格 (S)：复古吉卜力场景；
- 主题 (T)：一只小猫在草地上快乐地看着一大群萤火虫；
- 环境 (E)：浪漫；
- 背景 (B)：夜晚的草原；
- 构图 (C)：后视图，低角度；
- 细节补充 (A)：无

► Following is an example which utilizes the STEBCA framework to generate an image:

- Style (S): Retro Ghibli scene.
- Theme (T): A little cat happily watches a large group of fireflies on the grass.
- Environment (E): Romantic.
- Background (B): Grassland at night.
- Composition (C): Rear view, low angle.
- Additional details (A): None.

STEBCA框架

STEBCA Framework

- 下面是生成的图片，基本符合提示的要求：

The following are the generated images, which are in accordance with the prompts.

