

Category	Subcategory	Representative Works	Handling Unconventional Input		Beneficial Effects of the Reasoning		Control of LLMs Outputs		Impact of Invocation Costs		Maintenance of Historical Information	Capability of Utilizing External Tools
			Content Exceeding LLM's Token Limit	Non-textual Contents Beyond LLMs' Capabilities	Acceleration of Reasoning	Refining Outputs to Stipulated Criteria	Output's Content	Output's Structure	Decrease LLMs Invocation Frequency	Decrease Token Processing During LLMs Invocation		
The Shell of LLMs (LLM-SH)	Universal LLM-SH	Haystack	✓	⚠	✓	✓	✓	✓	✗	✓	✓	⚠
		Semantic Kernel	✓	⚠	✓	✓	✓	✓	✗	✓	✓	⚠
		LangChain	✓	⚠	✓	✓	✓	✓	⚠	✓	✓	⚠
		Griptape	✓	⚠	✓	✓	✓	✓	✗	✓	✓	⚠
		PromptFlow	✓	⚠	✓	✓	✓	✓	✗	✓	✓	⚠
		LLM-chain	✓	⚠	✓	✓	✓	✓	✗	✓	✓	⚠
		LinGoose	✓	⚠	✓	✓	✓	✓	✗	✓	✓	⚠
		LLMStack	✓	⚠	✓	✓	✓	✓	✗	✓	✓	⚠
		OpenDAN	✓	⚠	✓	✓	✓	✓	✗	✓	✓	⚠
		Hyv	✗	⚠	✓	✓	✓	✓	✗	✓	✓	⚠
		LangStream	✓	⚠	✓	✓	✓	✓	✗	✓	✓	⚠
		Floom	✓	⚠	✓	✓	✓	✓	✗	✓	✓	⚠
		Langroid	✓	⚠	✓	✓	✓	✓	✗	✓	✓	⚠
		ModelFusion	✓	⚠	✓	✓	✓	✓	✗	✓	✓	⚠
		Flappy	✓	⚠	✓	✓	✓	✓	✗	✓	✓	⚠
		Dify	✓	⚠	✓	✓	✓	✓	✗	✓	✓	⚠
	Domain-Specific LLM-SH	LlamaIndex	✓	⚠	✓	✓	✓	✓	✗	✓	✓	⚠
		embedchain	✓	⚠	⚠	✓	✓	✓	✗	✓	✓	⚠
		AgentVerse	✓	⚠	✓	✓	✓	✓	✗	✓	✓	⚠
		SuperAGI	✓	⚠	✓	✓	✓	✓	✗	✓	✓	⚠
		Txtai	✓	⚠	✓	✓	✓	✓	✗	✓	✓	⚠
		AutoChain	✓	⚠	✓	✓	✓	✓	✗	✓	✓	⚠
		TermGPT	✗	⚠	⚠	✓	✓	✓	✗	✗	✓	✗
		Botpress	✓	⚠	✓	✓	✓	✓	✗	✗	✓	⚠
		MindSQL	✓	⚠	✓	✓	✓	✓	✗	✓	✓	⚠
		LLMCompiler	✓	⚠	✓	✓	✓	✓	✗	✓	✓	⚠
		Swiss Army Llama	✓	⚠	⚠	✓	✓	✓	✗	✓	✓	⚠
		QA-Pilot	✓	⚠	✓	✓	✓	✓	✗	✗	✓	⚠
Language for Interaction with LLMs (LLM-LANG)	Programming LLM-LANG	LMQL	⚠	⚠	✓	✓	✓	✓	✓	⚠	⚠	⚠
		SGLang	✓	⚠	✓	✓	✓	✓	✓	✓	⚠	⚠
		Magentic	✓	⚠	✓	✓	✓	✓	✗	✗	⚠	⚠
	Pseudocode LLM-LANG	PromptLang	✗	✗	✓	✓	✓	✓	⚠	⚠	✗	✗
		SudoLang	✗	✗	✗	✓	✓	✓	✗	✗	✗	✗
Output Restrictors of LLMs (LLM-RSTR)	Content LLM-RSTR	GPT-jargon	✗	✗	✗	✓	✓	✓	✗	✗	✗	✗
		NeMo-Guardrails	✓	⚠	✗	✓	✓	✓	✗	✓	⚠	⚠
	Structure LLM-RSTR	Guardrails	✓	✗	✗	✓	✓	✓	✗	✓	✗	✗
		Guidance	✓	✗	⚠	✓	✓	✓	✗	✓	⚠	⚠
		Promptify	✗	✗	✗	✓	✓	✓	✗	✗	✗	✗
		ReLLM	✗	✗	✗	✓	✓	✓	✗	✗	✗	✗
		TypeChat	✓	✗	✗	✓	✓	✓	⚠	✓	✗	⚠