

Package ‘chatLLM’

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Type Package

Title A Flexible Interface for 'LLM' API Interactions

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Description Provides a flexible interface for interacting with Large Language Model ('LLM') providers including 'OpenAI', 'Azure OpenAI', 'Azure AI Foundry', 'Groq', 'Anthropic', 'DeepSeek', 'DashScope', 'Gemini', 'Grok', 'GitHub Models', and AWS Bedrock. Supports both synchronous and asynchronous chat-completion APIs, with features such as retry logic, dynamic model selection, customizable parameters, and multi-message conversation handling. Designed to streamline integration with state-of-the-art LLM services across multiple platforms.

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Imports httr (>= 1.4.0), jsonlite (>= 1.7.2), stats

Suggests aws.signature, future, promises, later, testthat, roxygen2

URL <https://github.com/knowusuboaky/chatLLM>,
<https://knowusuboaky.github.io/chatLLM/>

BugReports <https://github.com/knowusuboaky/chatLLM/issues>

NeedsCompilation no

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call_llm

*Unified chat - completion interface***Description**

A unified wrapper for several "OpenAI - compatible" chat - completion APIs (OpenAI, Groq, Anthropic, DeepSeek, Alibaba DashScope, GitHub Models, Grok, Gemini) plus Azure OpenAI, Azure AI Foundry, and AWS Bedrock via the Converse API. Accepts either a single 'prompt' ****or**** a full 'messages' list, adds the correct authentication headers, retries on transient failures, and returns the assistant's text response. You can toggle informational console output with 'verbose = TRUE/FALSE'. If the chosen 'model' is no longer available, the function stops early and suggests running 'list_models("<provider>")'.

Arguments

prompt	Character. Single user prompt (optional if 'messages').
messages	List. Full chat history; see *Messages*.
provider	Character. One of "openai", "groq", "anthropic", "deepseek", "dashscope", "grok", "gemini", "github", "azure_openai", "azure_foundry", or "bedrock".
model	Character. Model ID. If 'NULL', uses the provider default.
temperature	Numeric. Sampling temperature (0 - 2). Default '0.7'.
max_tokens	Integer. Max tokens to generate. Default '1000'.
api_key	Character. Override API key; if 'NULL', uses the environment variable for that provider.
n_tries	Integer. Retry attempts on failure. Default '3'.
backoff	Numeric. Seconds between retries. Default '2'.
verbose	Logical. Whether to display informational messages ('TRUE') or suppress them ('FALSE'). Default 'TRUE'.
endpoint_url	Character. Custom endpoint; if 'NULL', a sensible provider - specific default is used.
github_api_version	Character. Header 'X - GitHub - Api - Version'. Default "'2022 - 11 - 28"'.
anthropic_api_version	Character. Header 'anthropic - version'. Default "'2023 - 06 - 01"'.
azure_api_version	Character. Query param used by Azure OpenAI. Default comes from 'AZURE_OPENAI_API_VERSION' (fallback "'2024-02-15-preview"').
azure_endpoint	Character. Azure OpenAI resource endpoint, e.g. 'https://my-resource.openai.azure.com'.
azure_foundry_api_version	Character. Query param used by Azure AI Foundry chat/model endpoints. Default comes from 'AZURE_FOUNDRY_API_VERSION' (fallback "'2024-05-01-preview"').

azure_foundry_endpoint	Character. Azure AI Foundry endpoint base, e.g. 'https://my-foundry.models.ai.azure.com'.
azure_foundry_token	Character. Optional bearer token for Azure AI Foundry ('Authorization: Bearer ...'). If set, this is used instead of 'AZURE_FOUNDRY_API_KEY'.
aws_region	Character. AWS region for 'provider = "bedrock"'. Defaults to 'AWS_REGION', then 'AWS_DEFAULT_REGION', then "us-east-1".
aws_access_key_id	Character. Optional AWS access key ID override.
aws_secret_access_key	Character. Optional AWS secret access key override.
aws_session_token	Character. Optional AWS session token override.
...	Extra JSON - body fields (e.g. 'top_p', 'stop', 'presence_penalty').
.post_func	Internal. HTTP POST function (default 'httr::POST').

Details

Core chat - completion wrapper for multiple providers

Value

Character scalar: assistant reply text.

Messages

* 'prompt' - character scalar treated as a single *user* message. * 'messages' - list of lists; each element must contain 'role' and 'content'. If both arguments are supplied, the 'prompt' is appended as an extra user message.

Examples

```
## Not run:

## 1. Listing available models
# List all providers at once
all_mods <- list_models("all")
str(all_mods)

# List OpenAI-only, Groq-only, Anthropic-only
openai_mods <- list_models("openai")
groq_mods <- list_models("groq")
anthropic_mods<- list_models("anthropic", anthropic_api_version = "2023-06-01")

## 2. Single-prompt interface

# 2a. Basic usage
Sys.setenv(OPENAI_API_KEY = "sk-...")
res_basic <- call_llm(
```

```
    prompt = "Hello, how are you?",
    provider = "openai"
  )
cat(res_basic)

# 2b. Adjust sampling and penalties
res_sampling <- call_llm(
  prompt = "Write a haiku about winter",
  provider = "openai",
  temperature = 1.2,
  top_p = 0.5,
  presence_penalty = 0.6,
  frequency_penalty = 0.4
)
cat(res_sampling)

# 2c. Control length and retries
res_len <- call_llm(
  prompt = "List 5 uses for R",
  provider = "openai",
  max_tokens = 50,
  n_tries = 5,
  backoff = 0.5
)
cat(res_len)

# 2d. Using stop sequences
res_stop <- call_llm(
  prompt = "Count from 1 to 10:",
  provider = "openai",
  stop = c("6")
)
cat(res_stop)

# 2e. Override API key for one call
res_override <- call_llm(
  prompt = "Override test",
  provider = "openai",
  api_key = "sk-override",
  max_tokens = 20
)
cat(res_override)

# 2f. Factory interface for repeated prompts
GitHubLLM <- call_llm(
  provider = "github",
  max_tokens = 60,
  verbose = FALSE
)
# direct invocation
story1 <- GitHubLLM("Tell me a short story")
cat(story1)
```

```
## 3. Multi-message conversation

# 3a. Simple system + user
convo1 <- list(
  list(role = "system", content = "You are a helpful assistant."),
  list(role = "user", content = "Explain recursion.")
)
res1 <- call_llm(
  messages = convo1,
  provider = "openai",
  max_tokens = 100
)
cat(res1)

# 3b. Continue an existing chat by appending a prompt
prev <- list(
  list(role = "system", content = "You are concise."),
  list(role = "user", content = "Summarize the plot of Hamlet.")
)
res2 <- call_llm(
  messages = prev,
  prompt = "Now give me three bullet points."
)
cat(res2)

# 3c. Use stop sequence in multi-message
convo2 <- list(
  list(role = "system", content = "You list items."),
  list(role = "user", content = "Name three colors.")
)
res3 <- call_llm(
  messages = convo2,
  stop = c(". ")
)
cat(res3)

# 3d. Multi-message via factory interface
ScopedLLM <- call_llm(provider = "openai", temperature = 0.3)
chat_ctx <- list(
  list(role = "system", content = "You are a math tutor.")
)
ans1 <- ScopedLLM(messages = chat_ctx, prompt = "Solve 2+2.")
cat(ans1)
ans2 <- ScopedLLM("What about 10*10?")
cat(ans2)

## End(Not run)
```

Description

Retrieve the catalog of available model IDs for one or all supported chat - completion providers. Useful for discovering active models and avoiding typos or deprecated defaults.

Supported providers:

- "openai" - OpenAI Chat Completions API
- "groq" - Groq OpenAI - compatible endpoint
- "anthropic" - Anthropic Claude API
- "deepseek" - DeepSeek chat API
- "dashscope" - Alibaba DashScope compatible API
- "github" - GitHub Models OpenAI - compatible API
- "azure_openai" - Azure OpenAI deployments/models
- "azure_foundry" - Azure AI Foundry chat/models endpoints
- "bedrock" - AWS Bedrock (Converse API)
- "all" - Fetch catalogs for all of the above

Arguments

provider	Character. One of "github", "openai", "groq", "anthropic", "deepseek", "dashscope", "azure_openai", "azure_foundry", "bedrock" or "all". Case - insensitive.
...	Additional arguments passed to the per - provider helper (e.g. limit for Anthropic, or api_version for GitHub).
github_api_version	Character. Header value for X - GitHub - Api - Version (GitHub Models). Default "2022 - 11 - 28".
anthropic_api_version	Character. Header value for anthropic - version (Anthropic). Default "2023 - 06 - 01".
azure_api_version	Character. Query version for Azure OpenAI listing. Default "2024-02-15-preview".
azure_foundry_api_version	Character. Query version for Azure AI Foundry model listing. Default "2024-05-01-preview".

Value

If provider != "all", a character vector of model IDs for that single provider. If provider == "all", a named list of character vectors, one per provider.

See Also

[call_llm](#)

Examples

```
## Not run:  
Sys.setenv(OPENAI_API_KEY = "sk-...")  
openai_models <- list_models("openai")  
head(openai_models)  
  
Sys.setenv(ANTHROPIC_API_KEY = "sk-...")  
anthro_models <- list_models("anthropic", anthropic_api_version = "2023-06-01")  
  
Sys.setenv(GH_MODELS_TOKEN = "ghp-...")  
github_models <- list_models("github", github_api_version = "2022-11-28")  
  
## End(Not run)
```

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