Digital NAO x TECMILENIO

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Server and Database Commands:

Google Scholar API

Introduction

The Google Scholar API by SerpApi provides a robust interface for retrieving structured academic search results. With a single endpoint, flexible query parameters, and support for JSON and HTML outputs, it caters to diverse use cases, from research automation to data analysis. Authentication is straightforward via an API key, and usage limits depend on the account plan. It supports easy integration across multiple programming languages, making the API accessible to developers of varying expertise.

Endpoints: URLs used to access different API functions

Function	Endpoint
Search articles	https://serpapi.com/search?engine=google_scholar
Cited by (who cites an article)	same endpoint, add cites parameter
Author’s articles	engine=google_scholar_author
Author profiles	engine=google_scholar_profiles
Citations	engine=google_scholar_cite

Authentication methods: How to obtain and use access keys or tokens

Authentication is performed using a private API key that needs to be added as a parameter: api_key=YOUR_KEY.

Query parameters: Options to filter and customize searches

q → search term (example: "machine learning").

cites → show papers citing a specific article.

as_ylo / as_yhi → filter by year (from / to).

num → how many results per page (1–20).

start → pagination (0 = first page, 10 = next page, etc.).

hl → language (e.g. en, es).

as_sdt → include/exclude patents, or search case law.

output → json (default) or html.

Response formats: How the returned data is structured

The default return comes as a JSON file, which contains: search_metadata, search_parameters, and organic_results. Each result has: title, link, authors, snippet.

Optional = HTML (raw Google Scholar page).

Usage limits: Restrictions on the number of requests you can make

- Max results per page: 20 (for author API: up to 100).
- Free plan: 250 searches/month.
- Paid plans: from 5,000 to 30,000+ searches/month.
- Cached results are free (expire after 1h).

Code examples:

Python

```
from serpapi import GoogleSearch

params = {
  "engine": "google_scholar",
  "q": "machine learning",
  "api_key": "YOUR_API_KEY"
}

search = GoogleSearch(params)
results = search.get_dict()
for r in results.get("organic_results", []):
    print(r["title"], "-", r["link"])
```

Java

```
import okhttp3.OkHttpClient;
import okhttp3.Request;
import okhttp3.Response;

public class ScholarExample {
    public static void main(String[] args) {
        OkHttpClient client = new OkHttpClient();

        String apiKey = "YOUR_API_KEY";
        String url = 
"https://serpapi.com/search?engine=google_scholar&q=machine+learning&ap
i_key=" + apiKey;

        Request request = new Request.Builder()
                .url(url)
                .build();

        try (Response response = client.newCall(request).execute()) {
            if (response.isSuccessful() && response.body() != null) {
                System.out.println(response.body().string());
            } else {
                System.out.println("Request failed: " + 
response.code());
            }
        } catch (Exception e) {
            e.printStackTrace();
        }
    }
}
```