

Semantic SEO Intelligence API — Technical Documentation

Overview

The **Semantic SEO Intelligence API** is an open architecture which we have designed for easy programmatic access to in depth semantic analysis of content, context based keyword association, entity extraction, and topic modeling. We have put forth this API to empower high performance SEO teams, content engineering groups, and AI which runs content platforms to do better in search engines which are today returning to a greater focus on semantic relevance, entity meaning, and natural language understanding.

With the help of search algorithms which include Google's **Hummingbird**, RankBrain and BERT traditional keyword focused SEO has changed. This API fills in the gap for **technical SEO, natural language processing (NLP) and semantic content engineering** which in turn enables scale able enterprise level content optimization.

Core Features (High-Ranked SEO Keywords Included)

Feature	Description
Entity Recognition & Schema Suggestion	Extracts semantic entities and auto-suggests Schema.org structured data markup to boost rich snippet eligibility.
Contextual Topic Modeling	Clusters related entities, keywords, and themes based on contextual proximity and Google NLP parsing.
Search Intent Classification	Automatically detects commercial, informational, transactional, and navigational intent.
Semantic Similarity Scoring	Measures how semantically relevant your content is to a target query using cosine similarity and word embeddings.
TF-IDF vs. BERT Term	Offers hybrid keyword recommendations using both traditional and

Feature	Description
Weighting	transformer-based approaches.
SERP Feature Opportunity Detection	Flags areas for featured snippets, People Also Ask, FAQ schema, and video carousel potential.
Content Decay Prediction	Uses historical SERP fluctuation and CTR decline trends to recommend refresh timing.
SEO Content Gap Intelligence	Compares your content graph against top-ranking domains to highlight semantic voids.
E-E-A-T Compliance Audit	Evaluates if your content supports Experience , Expertise , Authoritativeness , and Trustworthiness .
Multilingual Semantic SEO Support	Supports cross-language semantic mapping, useful for international SEO strategies.

Base URL

http

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<https://api.semanticseoengine.com/v1/>

Authentication: **OAuth2** with Bearer Token

Rate Limit: **120 requests/minute**

Content Type: application/json

Authentication

Step 1: Get Access Token

bash

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POST /oauth2/token

Request:

json

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```
{  
  "client_id": "your-client-id",  
  "client_secret": "your-client-secret",  
  "grant_type": "client_credentials"  
}
```

Response:

json

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```
{  
  "access_token": "eyJhbGciOiJIUzI1NiIsInR5cCI6Ikpz...",  
  "expires_in": 3600,  
  "token_type": "Bearer"  
}
```

Use this token in the Authorization header for all endpoints.

Endpoints

1. /entities/extract

Extracts named entities and semantic terms from any URL or raw content.

Method: POST

Request:

json

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```
{  
  "url": "https://example.com/article-about-semantic-seo"  
}
```

Or:

json

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```
{  
  "content": "This is a long-form guide about Latent Semantic Indexing and NLP SEO best practices..."  
}
```

Response:

json

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```
{  
  "entities": [  
    {"type": "Person", "value": "Marie Haynes"},  
    {"type": "Organization", "value": "Google"},  
    {"type": "SEO Concept", "value": "Latent Semantic Indexing"},  
    {"type": "Tool", "value": "Google Search Console"}  
  ],  
  "recommended_schema": ["Article", "Person", "FAQPage"]  
}
```

```
}
```

2. /topics/model

Clusters keywords, questions, and semantically linked subtopics for holistic content coverage.

Method: POST

Request:

json

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```
{  
  "keyword": "semantic SEO",  
  "language": "en"  
}
```

Response:

json

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```
{  
  "primary_topic": "Semantic SEO",  
  "clusters": [  
    {  
      "subtopic": "Latent Semantic Indexing",  
      "related_keywords": ["LSI keywords", "latent indexing", "semantic terms"]  
    },  
    {  
      "subtopic": "Google NLP",  
      "related_keywords": ["Google natural language", "entity extraction", "contextual keywords"]  
    }  
  ]  
}
```

```
}  
]  
}
```

3. /intent/classify

Classifies the search intent of any query — crucial for aligning content format and tone.

Method: POST

Request:

```
json  
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{  
  "query": "best schema markup for ecommerce"  
}
```

Response:

```
json  
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{  
  "intent": "informational",  
  "confidence_score": 0.94  
}
```

4. /opportunities/serp-features

Detects potential SERP features based on your content structure.

Method: POST

Request:

json

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```
{  
  "content": "Your HTML or plaintext content here..."  
}
```

Response:

json

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```
{  
  "features_detected": [  
    "FAQ Schema",  
    "People Also Ask",  
    "Video Carousel"  
  ],  
  "missing_elements": [  
    "Breadcrumb Schema",  
    "HowTo Markup"  
  ]  
}
```

Use Cases

Automation of SEO for Business Platforms

To automatically recommend asset tags & schema, integrate with content management system (CMS) platforms such as WordPress, Contentful, or Adobe Experience Manager.

Content Refresh Strategy

Automatically flag outdated content based on decaying keyword positions and semantic gaps.

International SEO Campaigns

Enable localized semantic mapping across regions — French SEO, Japanese SEO, Arabic SEO, etc.

E-A-T Tracking of Compliance

Look for information that is devoid of indicators of credibility, such as citations, expertise quotes, author biographies, or medical disclaimers.

Response Codes

Code Meaning

200	OK
401	Unauthorized — Invalid or missing token
429	Too Many Requests — Rate limit exceeded
500	Internal Server Error

SEO Technical Stack Compatibility

- Works with NLP libraries: **spaCy**, **BERT**, **OpenAI embeddings**
- Exports to **Google Looker Studio**, **Excel**, **BigQuery**
- Compatible with **Screaming Frog**, **Ahrefs**, **Semrush**, **SurferSEO**

Related Semantic SEO Keywords for Ranking

- Semantic content optimization API
- NLP-driven SEO tools
- Programmatic content enhancement
- E-A-T audit automation
- Google NLP for SEO
- Schema markup generation API
- Entity-based content engineering
- SEO content intelligence API
- Topic modeling for SEO
- Multilingual semantic search

Concluding remarks

Keyword-focused text is not any longer sufficient in today's age of AI-powered searches. You must optimize for relationships, context, and practical significance. With the help of the Semantic SEO Intelligence API, platform developers & SEO squads can prepare for this new era, where investigator intent, natural language, especially entities are more important than ever.

This API makes cognitive data accessible whether you're developing an enterprise content strategy, enhancing technical documentation, or implementing real-time SEO automation.