

JSON (JavaScript Object Notation) is a lightweight [data-interchange](#) format that is easy for humans to read and write and easy for machines to [parse](#) and generate. It is widely used in web development and APIs to transmit data between a server and a client.

Key Features of JSON: 1. **Syntax:** JSON represents data as key-value pairs, where keys are strings, and values can be:

1. Strings
2. Numbers
3. Objects (another JSON object)
4. Arrays
5. Booleans (`true` or `false`)
6. `null`

2. **Lightweight:** It is less verbose compared to XML and other formats, making it efficient for data exchange.

3. **Language-Independent:** Although it originates from JavaScript, JSON is supported in most programming languages, such as Python, Java, C#, etc.

4. **Human-Readable:** The syntax is clean and easy to understand.

JSON Structure: Here is an example of a JSON object: ```json {

```
"name": "John Doe",
"age": 30,
"isEmployed": true,
"skills": ["JavaScript", "Python", "SQL"],
"address": {
  "street": "123 Main St",
  "city": "New York",
  "zipCode": "10001"
}
```

} ```

Explanation of the Structure: - **Objects:** Represented by `{}`, contain key-value pairs (e.g., `"name": "John Doe"`). - **Arrays:** Represented by `[]`, contain multiple values (e.g., `"skills": ["JavaScript", "Python", "SQL"]`). - **Keys:** Always strings, enclosed in double quotes. - **Values:** Can be strings, numbers, booleans, null, arrays, or nested objects.

Usage Examples: - **APIs:** JSON is commonly used to format and send data between clients and servers in REST APIs. - **Configuration Files:** JSON is often used for configuration settings in applications (e.g., `package.json` in Node.js). - **Data Storage:** Used in NoSQL databases like MongoDB.

Chiang et al. developed an enhanced [epilepsy diagnosis](#) system by integrating an expert-informed [ontology](#) with a custom generative pre-trained transformer (GPT), validated by inferring possible seizure lateralization and localization using retrospective textual data from the pre-surgical assessments of patients with pharmaco-resistant [epilepsy](#) (PRE).

They developed an [AI](#) system for [epilepsy diagnosis](#) using [Protégé](#) with [OWL/SWRL](#), integrating a [knowledge base](#) with [seizure semiology](#), seizure types EEG descriptors, [expert insights](#), and [literature](#) to pinpoint [seizure locations](#). A customized [GPT model](#) was then tailored for specific diagnostic needs. Validated through 16 surgical cases, the system's [accuracy](#) in seizure localization and the [JSON](#) (JavaScript Object Notation) Epilepsy Matcher's term matching capabilities were confirmed against a Protégé-based knowledge base.

117 patients with PRE underwent video-EEG monitoring at a single institution. However, only 16 of these patients received epilepsy surgery. The Protégé system achieved 75 % accuracy in diagnosing epilepsy from 16 cases using semiology, which increased to 87.5 % with EEG data. The JSON Epilepsy Matcher further improved accuracy to 87.5 % with symptoms alone and 93.8 % when including EEG data, highlighting the benefits of applying GPT techniques.

This study highlights the efficacy of the JSON Epilepsy Matcher in improving seizure diagnosis accuracy. When combined with EEG data, it achieves a 93.8 % accuracy rate, suggesting a potential improvement in the practicality and generalizability of the original ontology expert system, boosting physicians' confidence in confirming surgery and potentially sparing many children from prolonged suffering. This innovative approach not only improves diagnostic accuracy but also sets a precedent for future applications of AI in neurology ¹⁾

¹⁾

Chiang KL, Chou YC, Tung H, Huang CY, Hsieh LP, Chang KP, Kwan SY, Huang WY. Customized GPT model largely increases surgery decision accuracy for pharmaco-resistant epilepsy. J Clin Neurosci. 2024 Dec;130:110918. doi: 10.1016/j.jocn.2024.110918. Epub 2024 Nov 13. PMID: 39541652.

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