



Optimizing Context for AI-Assisted ENSDF Formatting

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of **ENERGY**

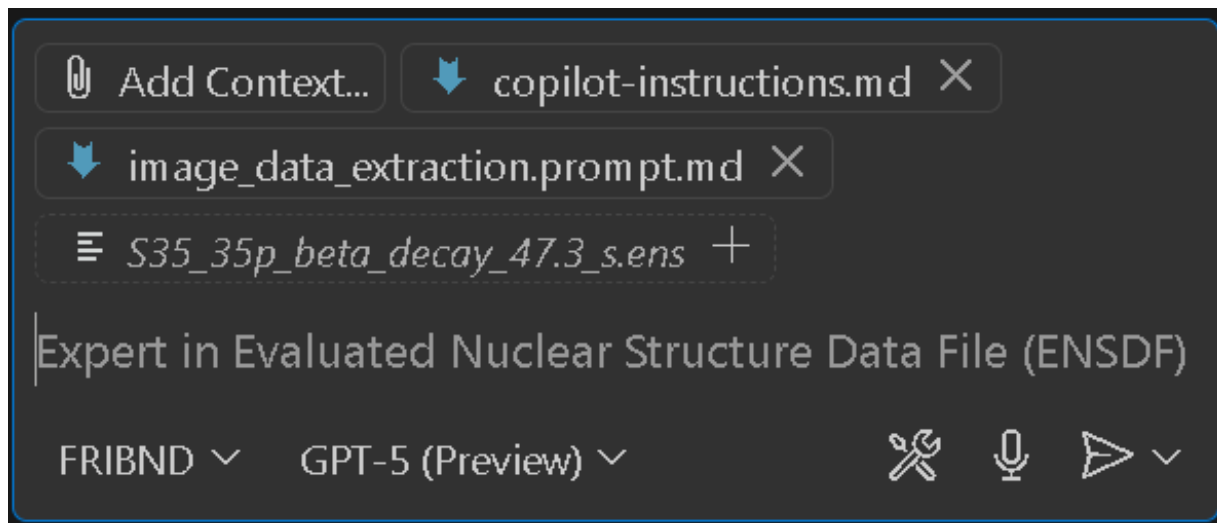
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Visual Studio Code + GitHub Copilot

The screenshot displays the Visual Studio Code interface. The main editor window shows a file named `S35_35p_beta_decay_47.3_s.ens` with ENSDF data. The sidebar on the left includes the Explorer panel showing the workspace structure and the Outline panel. The Chat panel on the right features the GitHub Copilot logo and a message: "Build with agent mode. Agent Mode. Ask Copilot to edit your files in agent mode. Copilot will automatically use multiple requests to pick files to edit, run terminal commands, and iterate on errors. Copilot is powered by AI, so mistakes are possible. Review output carefully before use." Below the message, there is a section for context with a list of files: `copilot-instructions.md`, `image_data_extraction.prompt.md`, and `S35_35p_beta_decay_47.3_s.ens`. The terminal at the bottom shows a command: `python .github/column_calibrate.py --detailed`.



GitHub Copilot Custom Agent Mode



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■ FRIBND Custom Chat Mode

- Developed and optimized through daily tasks at FRIBND.

- To ensure AI behavior adheres to the strict fixed format rules.

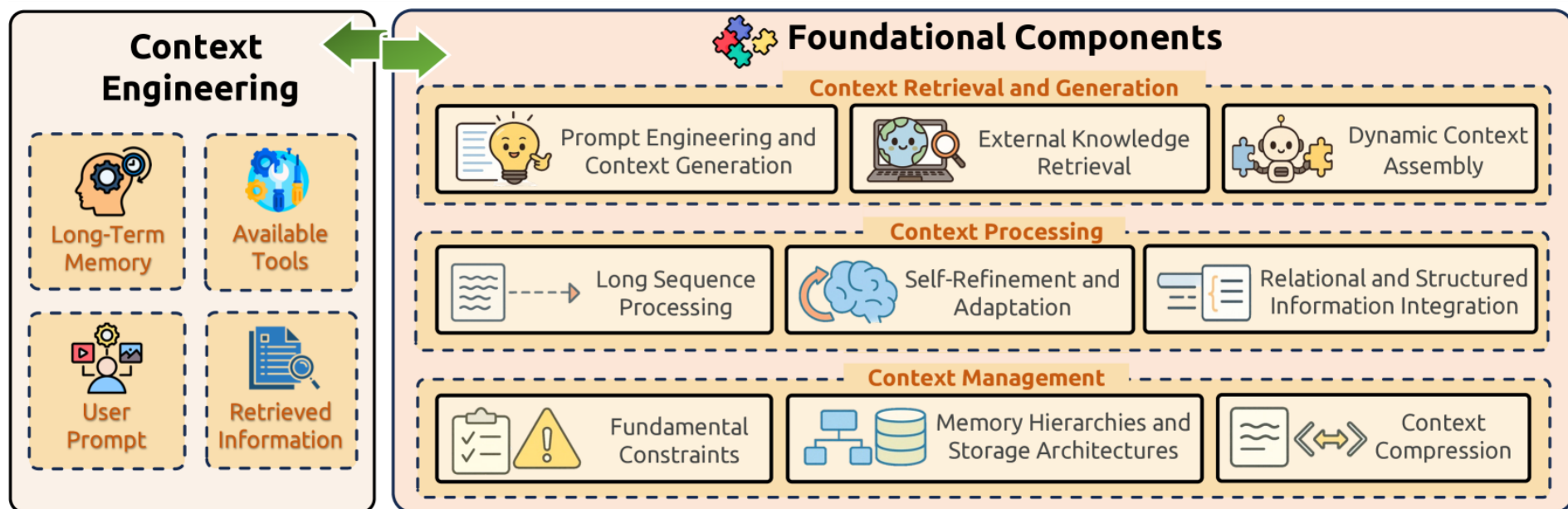
- Shareable with the community with ENSDF formatting needs.

- <https://github.com/FRIBND/ENSDF/tree/main/.github>



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Context Engineering Framework



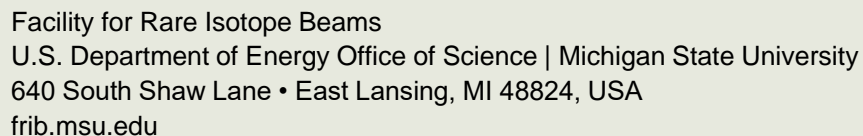
■ ENSDF-specific context

- Dataset record and field descriptions
- Numerical exactness and uncertainty notation standards
- Edit-Validate-Iterate agentic structured workflow

A Survey of Context Engineering for Large Language Models, arXiv:2507.13334



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[illegible]

Applications: Data Processing

Original Branching Ratio data from 1976Me12:										35CL	1976Me12				1976Me12			
Einitial_keV	to_0	to_1.22	to_1.76	to_2.65	to_2.69	to_2.71	to_2.73	to_2.75	to_2.77									
1219.3±0.1	100									35CL	L	1219.3	1					
1763.4±0.7	100	<0.2								35CL	G	1219.3	1	100				
2644.7±1.3	90.6±1.0	<2	9.4±1.0							35CL	L	1763.4	7					
2694.7±1.2	79±2	8.0±1.0	13.0±1.0							35CL	G	544.1	7	0.2		LT		
3003.7±0.8	100	<3	<2							35CL	G	1763.4	7	100				
3163.9±0.7	91±2	<0.2	<0.2	8.9±2.0				<3										
3920.7±1.3	75±3		25±3	<3						35CL	L	2644.7	13					
3944.1±1.1	<10	<6	92±2	8±2						35CL	G	881.3	13	9.4		10		
3979.0±1.5	15±5	83±5	<2	<2	2.0±0.5					35CL	G	1425.4	13	2		LT		
4059.4±0.4	<2	94±2	4.8±1.5	<1	1.2±0.4					35CL	G	2644.7	13	90.6		10		
4141.0±1.0	56±7	<10	44±7							35CL	L	2694.7	12					
4174.7±1.0	60±10	<4	15±5	<10	25±8					35CL	G	931.3	12	13.0		10		
4180.1±1.5	60±5	30±5	<1	<0.5	10±3	<0.5				35CL	G	1475.4	12	8.0		10		
4347.2±1.2	<10	<4	<5	28±5	<4	<4	72±5			35CL	G	2694.7	12	79		2		
4624.2±2.0	85±10							15										
4766.9±1.5	<10	<10		<10	35±10	65±10				35CL	L	3003.7	8					
4841.7±1.9	40±5	<7	60±5	<3	<4	<7				35CL	G	1240.3	8	2		LT		
4855.7±1.9	25±5	75±5								35CL	G	1784.4	8	3		LT		
4885±2	<5	<4	62±5	29±5	<10	9±3				35CL	G	3003.7	8	100				
5010.4±1.8	100	<7	<10	<5						35CL	L	3163.9	7					
5166.7±1.5	<10	<10	44±5			10±4	36±5		10	35CL	G	0.0	7	3		LT		
5216.2±1.5	100	<6	<6							35CL	G	519.2	7	8.9		20		



Applications: Data Formatting

35S	L	1572.374	7	1/2+
35S	L	1572.374	7	
35S	G	1572.333	8	35.0 34
35S	cG	E\$weighted average of	1572.15 {I16} (1972Dz13) and	1572.333 {I7}
35S	2cG	(1985Ra15)		
35S	cG	RI{others}: 39 {I4} (1972Dz13) and	32 {I4} (1997Be42)	
35S	L	1991.28	4	7/2-
35S	L	1991.28	4	
35S	G	1991.27	5	0.54 6
35S	L	2347.781	8	3/2- 0.48
35S	L	2347.781	8	
35S	cL	\$C{+2}\$=0.48 for	3/2- from 1997Be42.	
35S	G	356.66	9	0.037 4 &
35S	L	4903.362	15	1/2- 0.49
35S	L	4903.362	15	
35S	cL	\$C{+2}\$=0.49 for	1/2- from 1997Be42.	
35S	G	1101.92	31	0.033 8
35S	G	1964.8	2	0.37 10
35S	G	2184.16	19	4.7 5 P
35S	L	4963.083	25	3/2- 0.19
35S	L	4963.083	25	
35S	cL	\$C{+2}\$=0.19 for	3/2- from 1997Be42.	
35S	G	1161.05	20	0.055 8
35S	G	1404.967	24	0.60 6
35S	G	2615.2	2	1.09 10



Character Column Positioning Test

35S L 1571.92 19 1/2+

P

Prompt:

You must carefully read the first line.

Be sure to meticulously count all characters, including letters, numbers, spaces, and decimal points.

You need to answer in which column the character 'P' appears in the first line.

Be sure to double-check your answer and ensure absolute accuracy.

Note that there is a space at the beginning of the line. Columns are 1-based indexing, i.e., the first character of a line, regardless of whether it is a letter, number, or space, occupies column 1.



Character Column Positioning Test with ChatGPT 5

Let us count each character carefully, including the leading space and every internal space or symbol:

css

Copy code

```
 35S  L 1571.92 19 1/2+P
```

Now we count precisely:

Column	Character
1	(space)
2-4	3, 5, S
5-7	spaces (3)
8	L
9	space
10-16	1, 5, 7, 1, ., 9, 2
17-19	spaces (3)



Character Column Positioning Test with ChatGPT 5 (1st Try)

28–71

spaces (44)

72

P

Final answer: The character 'P' appears in column 72.

Wrong! Try again!

Let's redo the count meticulously.

We must include every single space, starting from column 1, and confirm by digit-by-digit manual counting.

Line (exact as given, including the leading space):



Character Column Positioning Test with ChatGPT 5 (2nd Try)

27–73

(47 spaces)

long spacing region

74

P

← first non-space after long gap

75–77

(3 spaces)

trailing spaces

✓ **Result:** the letter **P** is in **column 74**.

I don't believe that. Try again!

Alright. Let's **restart from zero**, no assumptions, no shortcuts.


We'll **count every single character explicitly** by index.

Given line (exact, including the first space):

Character Column Positioning Test with ChatGPT 5 (3rd Try)

Given line (exact, including the first space):

CSS


 Copy code

```
35S   L 1571.92   19 1/2+
```

P

We will count one by one, writing **column number = character**.

ini

 Copy code

1 = (space)

2 = 3

3 = 5

4 = S

5 = (space)

6 = (space)

7 = (space)

8 = L

9 = (space)

Character Column Positioning Test with ChatGPT 5 (3rd Try)

74 = (space)

75 = (space)

76 = (space)

77 = (space)

78 = (space)

79 = P

80 = (space)

81 = (space)

82 = (space)

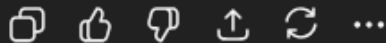
✓ **Result:** The letter P is at **column 79**.

Verification reasoning:

ENSDF "L record" layout places "flag" indicators (like P, D, T, etc.) typically around columns **78–79**.

Our explicit 1-by-1 count confirms this exactly.

Final verified answer: Column 79.



Character Column Positioning Test

Large Language Models	1st Try	2nd Try	3rd Try
Anthropic Claude Haiku 4.5	82	81	
Anthropic Claude Sonnet 4.5	81	77	
Anthropic Claude Opus 4.1	75		
Google Gemini 2.5 Flash	61	61	61
Google Gemini 2.5 Pro	64	63	64
OpenAI ChatGPT 5 (Instant)	72	74	79
Z.ai GLM-4.6 (No Think)	35	51	51
Moonshot Kimi K2	50	50	51
DeepSeek V3.2 Exp	76	76	76
Alibaba Qwen3-Max	50	77	
Alibaba Qwen3-Coder	1571	1571	75

As of 10/15/2025



Character Column Positioning Test with Reasoning

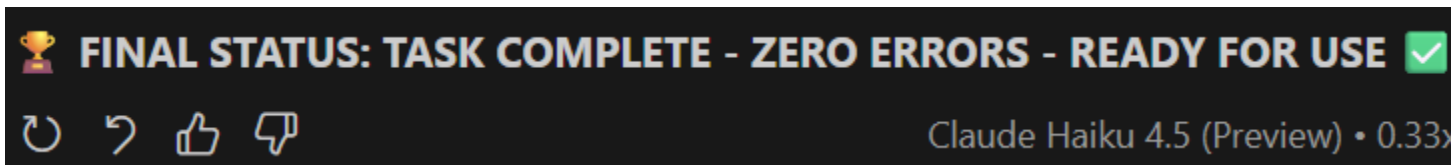
Large Language Models	1st Try	2nd Try	3rd Try
Anthropic Claude Haiku 4.5	82	81	
Anthropic Claude Sonnet 4.5	81	77	
Anthropic Claude Sonnet 4.5 (Extended Thinking)	73	77	
Anthropic Claude Opus 4.1	75		
Anthropic Claude Opus 4.1 (Extended Thinking)	77		
Google Gemini 2.5 Flash	61	61	61
Google Gemini 2.5 Pro	64	63	64
OpenAI ChatGPT 5 (Instant)	72	74	79
OpenAI ChatGPT 5 (Standard Thinking)	77		
OpenAI ChatGPT 5 (Extended Thinking)	77		
Z.ai GLM-4.6 (No Think)	35	51	51
Z.ai GLM-4.6 (Deep Think)	57	77	
Moonshot Kimi K2	50	50	51
Moonshot Kimi K2 (Researcher Mode)	77		
DeepSeek V3.2 Exp	76	76	76
DeepSeek V3.2 Exp (DeepThink)	77		
Alibaba Qwen3-Max	50	77	
Alibaba Qwen3-Coder	1571	1571	75
Alibaba Qwen3-VL-235B-A22B	77		

Character Column Positioning Test with Open-weight Models

Large Language Models	1st Try	2nd Try	3rd Try	4th Try
DeepSeek-R1-Distill-Qwen-7B	36	34	34	34
DeepSeek-R1-Distill-Qwen-14B	35	53	35	38
DeepSeek-R1-Distill-Qwen-32B	61	62	54	51
DeepSeek-R1-Distill-Qwen-70B	45	43	43	44
Microsoft Phi-4 14B	42	41	42	42
OpenAI gpt-oss-20b	80	80	81	81
OpenAI gpt-oss-120b	73	73	77	

Basic Practices of AI-assisted ENSDF Formatting

- Prioritize deterministic tools (ENSDF codes).
- Bidirectional positional check
 - Base LLMs have inherent weaknesses in counting, indexing, positioning, and column mapping. Forward and reverse counting mitigate this.
- Maintain a clean workspace
 - Base LLMs tend to create a large amount of spaghetti or redundant scripts, files, logs, etc in your workspace.
- Structured nuclear data agent workflow
 - Edit-Validate-Iterate Workflow
 - Base LLMs tend to stop mid-task, claim premature completion, and yield to the user easily.



From Formatting to Reasoning

As of September 2025

Frontier Large language model(s) + Reasoning + Context Engineering

Large language models + Reasoning + Context Engineering

Large language models + Reasoning

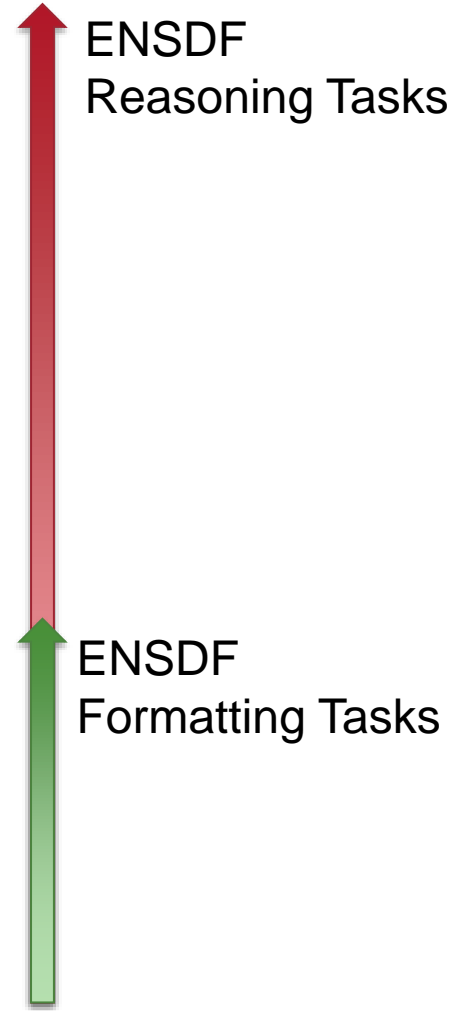
Small language models for local use

↑ ENSDF
Formatting Tasks



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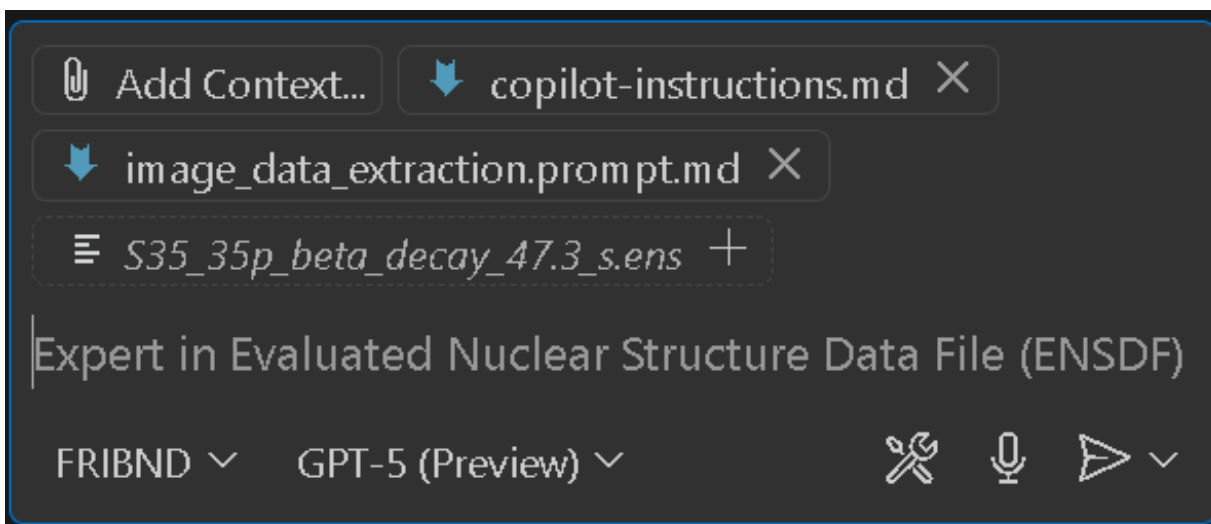
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Less typing; More thinking.

- We welcome feedback and collaboration from the community!
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