**Inventory of supplemental materials**

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| **File name** | **Specific content** | | **Corresponding parts in the manuscript** |
| Codes | Codes for evaluating LLMs’ performance | Evaluate LLMs’ article-level identification performance for each case | Section 3.3, Section 4.2 (Table 5, Fig. 6, and Fig. 7), Section 4.3 |
| Evaluate LLMs’ article-level identification performance in 8 case types | Section 3.3, Section 4.2 (Table 5, Fig. 6, and Fig. 7), Section 4.3 |
| Evaluate LLMs’ act-level identification performance | Section 4.2, Figure S1 |
| Evaluate LLMs’ total article-level identification performance | Section 3.3, Section 4.2 (Table 5, Fig. 6, and Fig. 7), and Section 4.3 (Fig.8) |
| Codes for running act-level identification LLMs | Two-stage\_act-level\_Baichuan2-7B-Chat | Section 4.2, Figure S1 |
| Two-stage\_act-level\_Baichuan2-13B-Chat | Section 4.2, Figure S1 |
| Two-stage\_act-level\_ChatGLM3-6B | Section 4.2, Figure S1 |
| Two-stage\_act-level\_Chinese-LLaMA2-7B | Section 4.2, Figure S1 |
| Two-stage\_act-level\_Deepspeek-LLM-7B-Chat | Section 4.2, Figure S1 |
| Two-stage\_act-level\_Qwen1.5-1.8B-Chat | Section 4.2, Figure S1 |
| Two-stage\_act-level\_Qwen1.5-7B-Chat | Section 4.2, Figure S1 |
| Two-stage\_act-level\_Qwen1.5-14B-Chat | Section 4.2, Figure S1 |
| Codes for running one-stage LLMs | One-stage\_Baichuan2-7B-Chat | Section 3.3, Section 4.2 (Table 5, Fig. 6, and Fig.7), Section 4.3 |
| One-stage\_Baichuan2-13B-Chat | Section 3.3, Section 4.2 (Table 5, Fig. 6, and Fig.7), Section 4.3 |
| One-stage\_ChatGLM3-6B | Section 3.3, Section 4.2 (Table 5, Fig. 6, and Fig.7), Section 4.3 |
| One-stage\_Chinese-LLaMA-7B | Section 3.3, Section 4.2 (Table 5, Fig. 6, and Fig.7), Section 4.3 |
| One-stage\_Deepspeek-LLM-7B-Chat | Section 3.3, Section 4.2 (Table 5, Fig. 6, and Fig.7), Section 4.3 |
| One-stage\_Qwen1.5-1.8B-Chat | Section 3.3, Section 4.2 (Table 5, Fig. 6, and Fig.7), Section 4.3 |
| One-stage\_Qwen1.5-7B-Chat | Section 3.3, Section 4.2 (Table 5, Fig. 6, and Fig.7), Section 4.3 |
| One-stage\_Qwen1.5-14B-Chat | Section 3.3, Section 4.2 (Table 5, Fig. 6, and Fig.7), Section 4.3 |
| Codes for running original LLMs | Original\_Baichuan2-7B-Chat | Section 3.3, Section 4.2 (Table 5, Fig. 6, and Fig.7), Section 4.3 |
| Original\_Baichuan2-13B-Chat | Section 3.3, Section 4.2 (Table 5, Fig. 6, and Fig.7), Section 4.3 |
| Original\_ChatGLM3-6B | Section 3.3, Section 4.2 (Table 5, Fig. 6, and Fig. 7), Section 4.3 |
| Original\_Chinese-LLaMA-7B | Section 3.3, Section 4.2 (Table 5, Fig. 6, and Fig. 7), Section 4.3 |
| Original\_Deepspeek-LLM-7B-Chat | Section 3.3, Section 4.2 (Table 5, Fig. 6, and Fig. 7), Section 4.3 |
| Original\_Qwen1.5-1.8B-Chat | Section 3.3, Section 4.2 (Table 5, Fig. 6, and Fig. 7), Section 4.3 |
| Original\_Qwen1.5-7B-Chat | Section 3.3, Section 4.2 (Table 5, Fig. 6, and Fig. 7), Section 4.3 |
| Original\_Qwen1.5-14B-Chat | Section 3.3, Section 4.2 (Table 5, Fig. 6, and Fig. 7), Section 4.3 |
| Codes for running two-stage LLMs | Two-stage\_article-level\_Baichuan2-7B-Chat | Section 3.3, Section 4.2 (Table 5, Fig. 6, and Fig. 7), Section 4.3 |
| Two-stage\_article-level\_Baichuan2-13B-Chat | Section 3.3, Section 4.2 (Table 5, Fig. 6, and Fig. 7), Section 4.3 |
| Two-stage\_article-level\_ChatGLM3-6B | Section 3.3, Section 4.2 (Table 5, Fig. 6, and Fig. 7), Section 4.3 |
| Two-stage\_article-level\_Chinese-LLaMA2-7B | Section 3.3, Section 4.2 (Table 5, Fig. 6, and Fig. 7), Section 4.3 |
| Two-stage\_article-level\_Deepspeek-LLM-7B-Chat | Section 3.3, Section 4.2 (Table 5, Fig. 6, and Fig. 7), Section 4.3 |
| Two-stage\_article-level\_Qwen1.5-1.8B-Chat | Section 3.3, Section 4.2 (Table 5, Fig. 6, and Fig. 7), Section 4.3 |
| Two-stage\_article-level\_Qwen1.5-7B-Chat | Section 3.3, Section 4.2 (Table 5, Fig. 6, and Fig. 7), Section 4.3 |
| Two-stage\_article-level\_Qwen1.5-14B-Chat | Section 3.3, Section 4.2 (Table 5, Fig. 6, and Fig. 7), Section 4.3 |
| Codes for using general-purpose LLMs to retrieval law article content | Searching the content of law article (GPT-4) | Section 5.3 |
| Searching the content of law article (ERNIE-Bot-4.0) | Section 5.3 |
| Fig. S1 | The performance of the act-level identification models | | Section 4.2 |
| Table S1 | The dataset of construction cases (Examples and Download link) | | Section 3.1.1 and Section 4.2 |
| Table S2 | The estimated cost of fine-tuning closed-source LLMs | | Section 3.2.1 and Table 3 |
| Table S3 | Task-constrained and non-task-constrained factors of selecting base LLMs for fine-tuning | | Section 3.2.1 |
| Table S4 | Parameter settings for fine-tuning and LLM generation | | Section 3.2.3 |
| Table S5 | Details for explaining matters concerning RAG, TN, token-level metrics, and article content retrieval | | Section 4 and Section 5.3 |
| Table S6 | The performance comparisons using Wilcoxon signed-rank test | | Section 4 |
| Table S7 | The answers of identified acts for the test dataset (8 selected LLMs like Qwen) | | Section 4.2 |
| Table S8 | The answers of identified articles for the test dataset (8 selected LLMs like Qwen) | | Section 4.2 (Table 5, Fig. 6, and Fig. 7) |
| Table S9 | The answers of identified articles from closed-source general-purpose and legal-domain-specific LLMs | | Section 4.4 (Fig. 8) |
| Table S10 | The answers of identified articles from open-source legal-domain-specific LLMs | | Section 4.4 (Fig. 8) |
| Table S11 | Human experimental test for article identification with and without LLM assistance | | Section 5.2 |

Due to too many materials, all supplemental materials are provided in GitHub repository (<https://github.com/Anyone0008/Smart-case-relevant-law-identification-for-construction-disputes>). Besides the GitHub repository, the all dataset is also shared in Google Drive (<https://drive.google.com/drive/folders/1T58vR0lq8g_RBs9Be_7lpeJ48dSLRPU_?usp=drive_link>).