JurisAgents: A Multi-Agent Framework for Legal Judgment Prediction

Anonymous ACL submission

Abstract

Legal Judgment Prediction (LJP) aims to predict the outcomes of legal cases based on factual descriptions, serving as a fundamental task to advance the development of legal systems. Traditional approaches to LJP often rely on statistical analyses of past legal judgments or propose an agent-based framework from a roleplaying perspective. However, the existing framework struggles to handle multiple allegations and diverse forms of evidence. Additionally, simplistic courtroom simulations often lead to one-sided decisions and insufficient adaptability. In this paper, we introduce Juris-Agents, a novel framework for LJP that effectively decomposes trial tasks, standardizes processes, and organizes them into distinct stages. Furthermore, considering the dynamic nature and real-time updates of legal statutes, we propose JurisMM. It comprises more than 50,000 recent legal case records derived from Chinese judicial proceedings. It includes both unimodal textual data and multimodal data that combine video and text, allowing for a comprehensive examination of the capabilities of our framework. We validate the capability of our framework on both JurisMM and the widely used legal benchmark LawBench, innovatively explore the impact of multimodal data, and achieve state-of-the-art results in multiple designed experiments. These results indicate that our framework is effective not only for LJP but also for a broader range of legal applications, offering new perspectives for the development of future legal methods and datasets.

1 Introduction

011

013

018

028

040

042

043

The legal field has emerged as a particularly promising area for the application of natural language processing (NLP) techniques, among which Legal Judgment Prediction (LJP) (Aletras et al., 2016; Xu et al., 2020; Malik et al., 2021; Feng et al., 2022; Zhao et al., 2022) stands out as a crucial and highly significant task. LJP refers to the task of forecasting court outcomes based on the facts of a legal case, including elements such as the applicable law article, charge, and term of penalty. LJP can not only enhance the efficiency of judicial processes, but also offer valuable legal advice to the general public. Various methods have been proposed and achieved promising results with the application of state-ofthe-art Neural Networks (Zhong et al., 2018; Yang et al., 2019; Yue et al., 2021; Zhang et al., 2023) and Large Language Models (LLMs) (He et al., 2024; Wang et al., 2024; Sun et al., 2024; Jiang and Yang, 2024; Chen et al., 2024a). 044

045

046

047

051

055

058

060

061

062

063

064

065

066

067

068

069

070

071

072

073

074

075

076

081

However, the unique characteristics of legal language, including its high degree of specialization, complexity, and reliance on precise terminology, pose significant challenges for LJP systems. These challenges are further compounded by the growing global population, which has led to an increase in the number of judicial cases, placing immense pressure on the legal systems. Efforts to mitigate these problems have focused on simplifying the simulation of real courtrooms (Jiang and Yang, 2024; Chen et al., 2024a), utilizing Retrieval-Augmented Generation (RAG) techniques (He et al., 2024; Wang et al., 2024), and refining prompt engineering (Sun et al., 2024). However, several challenges persist in the Legal Judgment Prediction (LJP) task:

1) *Reproduction of Real-World Scenarios*. Each legal case may involve one or more charges and statutes. However, most existing legal frameworks struggle to accurately predict multiple charges and relevant laws, making it difficult to forecast the final judicial outcomes. In addition, the existing legal framework is largely centered on supporting text-based input. However, information from other modalities, such as case-related evidence presented in court and trial recordings, also plays a vital role in LJP tasks.

2) *Multivariable Interactions*. Current legal frameworks often rely on straightforward courtroom simulations, where each agent is assigned a



Figure 1: Overview of our framework JurisAgents.

role based on real-world scenarios. However, each role in the courtroom typically assumes multiple functions. If a simulated court is built solely based on existing roles while neglecting an analysis of their shared functions and failing to implement a well-structured and procedural design for the trial, most intelligent agents will struggle to grasp the key points of the case. As a result, their conclusions are often one-sided and superficial, making it difficult for them to make sound decisions across various stages. This, in turn, can lead to chaotic and illogical trial outcomes, ultimately undermining the goal of optimizing the entire trial process.

086

090

101

102

103

104

107

111

117

120

121

To address the aforementioned challenges, we propose a novel multi-agent framework JurisAgents for LJP task. As illustrated in Figure 1, Juris-Agents leverages the advanced reasoning abilities of LLMs to emulate court proceedings and deliver high-quality outcomes.

Specifically, JurisAgents consists of six intelligent agents. Among them, five agents form the 105 courtroom debate module, which adheres to the 106 conventional trial process while detailing the proceedings based on specific tasks. We have estab-108 lished three Judges: Junior Judge, Senior Judge 109 and Chief Judge. The Junior Judge and Senior 110 Judge hold pivotal responsibilities in overseeing the case. Their duties include systematically struc-112 turing case information, distilling critical events, 113 and guaranteeing a thorough review of all pertinent 114 details. Ultimately, the Chief Judge is responsible 115 for delivering the final verdict. If the Defendant 116 is dissatisfied with the verdict, they can file an appeal, assisted by the Legal Counsel, for a secondary 118 petition, after which the court conducts a second 119 trial. We also developed a legal knowledge retrieval module to support the Chief Judge in the decision-making process. This module features an 122 intelligent Assistant that provides access to the lat-123 est case rulings, updated criminal law documents, 124

charge files, and relevant legal provisions.

Moreover, we introduce a legal dataset JurisMM. Given the dynamic and evolving nature of legal systems, existing datasets utilized in previous tasks often include outdated information that no longer aligns with the latest legal standards. Our dataset includes over 50,000 up-to-date real-world trial cases, sourced from official repositories. Furthermore, to explore the multimodal capabilities of the proposed framework, the dataset also contains 83 multimodal samples.

125

126

127

128

129

130

131

132

134

135

136

137

138

139

140

141

142

143

144

145

146

147

148

149

150

151

153

154

155

156

157

158

159

160

161

We summarize our contributions as follows:

- JurisAgents is a new multi-agent framework capable of conducting comprehensive simulations of court trials based on the provided case information.
- We propose a novel data set comprising singletext modality and multimodal video-text data, consisting of more than 50,000 judicial cases based on the latest criminal law judgments.
- We conducted extensive experiments and ablation studies. The results demonstrate that our framework outperforms existing state-ofthe-art methods in all aspects and achieves the best performance across three tasks.

The JurisAgents Framework 2

2.1 **Framework Overview**

JurisAgents integrates six distinct roles: Junior Judge (JJ), Senior Judge (SJ), Chief Judge (CJ), Assistant, Defendant, and Legal Counsel--all driven by agents powered by LLM.

Judges play a key role in court trials. In Juris-Agents, there are three judges at different levels who work collaboratively to perform the following two key tasks: 1) making factual findings: that is, the judge needs to extract, organize, and synthesize the subject matter as well as the specific details of

the case in order to identify the final legal facts; and 2) making a legal value judgement: based on the identification of the legal facts, they rely on the legal provisions, leverage their own legal reserves, and correctly apply the provisions of the law in order to make a final conviction and sentence.

162

163

164

165

166

167

168

169

171

172

173

174

175

198

201

204

205

210

211

213

To clearly demonstrate the complete case adjudication process, we assign each judge a specific role categorized into three types: Junior Judge, Senior Judge, and Chief Judge. Through differentiated prompt design schemes, each judge is allocated distinct task perspectives, which are integrated into our *JurisAgents* system as fixed functional components.

1) Junior Judge is primarily responsible for pro-176 cessing the foundational case data submitted by 177 litigants or prosecutorial authorities to the judicial 178 system. This role's core responsibility involves 179 real-time extraction and structured processing of 180 received judicial information to accurately iden-181 tify the principal elements and factual details of the case. Specifically for the LJP task, this role extracts and integrates information related to the defendant's case, focusing on analyzing behavioral 185 patterns of the defendant to provide critical textual 186 input materials for subsequent legal reasoning.

2) Senior judge undertakes in-depth analysis of 188 the structured data output by the Junior Judge and performs multidimensional comprehensive mod-190 eling of the case's legal facts based on existing 191 records in the judicial database. Specifically, this 192 role generates a global description of the case facts 193 by integrating the original case text with the struc-194 tured case text summarized by the junior judge, and thus achieves the automated extraction of key 196 judicial elements and knowledge refinement. 197

> 3) Chief Judge performs multi-level evaluation of the information outputs from both the Junior Judge and Senior Judge, integrates supplementary knowledge bases provided by legal assistants, and applies rule-based legal reasoning engines to invoke relevant legal provisions for generating final judicial decisions. This role synthesizes multi-source input features to produce judicial decision texts containing applicable legal articles, charge classifications, and sentencing predictions.

In addition to the role of the judge, we have also established auxiliary role, Assistant, as well as adversarial roles such as Defendant and Legal Counsel. By analyzing, organizing, and reviewing cases from both auxiliary and adversarial perspectives, we aim to help the judge identify gaps and address any oversights.

Assistant is regarded as the "external brain" of judges, responsible for retrieving external information and knowledge relevant to the final case judgment. In the process of adjudication, the assistant undertakes to extract, sort out and summarize the legal facts finally determined after extracting, sorting out and summarizing the main body and specific details of the case, and collects external information (including legally the content of laws, charges and referred precedence) on the basis of the legal facts, so as to prepare for the final judgment of the chief judge. 214

215

216

217

218

219

220

221

222

223

224

225

226

227

228

229

230

231

232

233

234

235

236

237

240

241

242

243

244

245

246

247

248

249

250

251

252

253

254

255

256

257

258

259

260

261

262

263

264

Defendant, as the core litigation entity, exhibits behavioral characteristics, including judicial elements such as subjective intent and objective conduct, making basis for case adjudication. Upon termination of the first-instance litigation process, this litigation entity may, in accordance with statutory authority, initiate second-instance appeal proceedings by generating and submitting standardized appeal request documentation. It should be particularly noted that the defendant's procedural choices will significantly impact the iterative evolutionary path of the entire judicial case.

Legal Counsel, functioning as a professional support entity, provides critical decision support to the defendant by leveraging domain knowledge bases and judicial practice experience. Upon system detection of first-instance judgment status updates, this professional support entity initiates the appeal assistance workflow: generating optimized second-instance procedure recommendations, formulating legal document generation strategies, and ultimately producing appeal documentation packages that comply with judicial standards.

2.2 Process Design

JurisAgents comprehensively simulates the entire process through a structured six-stage pipeline, as shown in Figure 2.

Information Extraction, Stage I. This phase corresponds to the initiation of first-instance court proceedings. The initial input consists of a comprehensive description of the criminal case process. Two judicial agents (the Junior Judge and Senior Judge) each receive this identical input and collaboratively process the case materials. The Junior Judge first extracts the defendant's key factual elements from the input text, specifically "defendant identification", "crime details", and "criminal motive". Building upon this extracted information, the



Figure 2: Our JurisAgents consists of six phases.

Senior Judge then conducts further analysis of the complete input text to synthesize a concise Case Summary document that captures the essential aspects of the full case.

265

266

267

268

Retrieval Process, Stage II. The Case Summary 269 generated by the Senior Judge is transferred to the Assistant Agent, which performs searches 271 in three legal knowledge bases (The Content of 272 Laws Database, Charges Database, and Referred 273 Precedence Database). For the Content of Laws Database and Charges Database, a dense vector retrieval approach is employed, with the top 10 276 ranked results from each serving as references. The 277 278 Referred Precedence Database utilizes a hybrid retrieval system combining sparse and dense methods, where the top 5 most relevant precedents are selected. The Assistant then consolidates these 281 retrieval results into a unified Case Information Document, incorporating legal provisions, similar cases, and relevant charges.

Decisions, Stage III. The Chief Judge receives three critical documents: 1) the Case Summary from the Junior Judge, 2) the defendant's key factual elements from the Senior Judge, and 3) the Case Information Document from the Assistant. Through comprehensive evaluation of these materials, the Chief Judge conducts an integrated assess-291 ment of the case facts. By cross-referencing the 292 retrieved external legal resources with the specific 293 details of the current litigation, the Chief Judge formulates the first-instance judicial decision. The final judgment document is then issued, which for-296 mally declares: (i) the relevant articles of the cases, 297 (ii) charges against the defendant, (iii) the term of penalty.

300Defendant Raises Objections, Stage IV. Upon301receiving the final judgment issued by the Chief302Judge, the defendant may either accept the verdict303(concluding the case) or exercise the right to appeal304if perceiving judicial errors or unfairness. As il-

lustrated in the framework, the defendant formally submits a Statement of Appeal, a legally binding document outlining the grounds for appeal and intention to challenge the verdict. This statement is prepared through systematic analysis of both the final judgment document and complete case proceedings, serving as the legal foundation for initiating appellate proceedings. 305

306

307

308

309

310

311

312

313

314

315

316

317

318

319

320

321

324

325

326

327

328

330

331

332

333

334

336

Submission Appeal, Stage V. In this stage, legal counsel plays a critical role. Based on the three key documents—the final judgment, the defendant's objection statement, and the original case summary—the legal counsel prepares an appeal brief. This brief synthesizes legal arguments, cited laws and procedural concerns, and references case details extracted in earlier phases, particularly from the transcripts and case summaries handled by JJ and SJ.

Second-instance, Stage VI. Once the appeal brief is submitted, the case enters the second-instance phase. Both the second-instance Senior Judge and the Junior Judge revisit the original transcripts and case summaries, the same documents used in the initial trial. They re-assess the case by crossreferencing the appeal materials with the original evidence and judicial reasoning. This phase is crucial, as it ensures fairness through a comprehensive review. The outcome of this second-instance trial is final, marking the end of the judicial process in a two-instance trial system.

3 The JurisMM Dataset

3.1 Data Collection

Unimodal Text Data. Previous work, such as the
CAIL2018 dataset (Xiao et al., 2018), has collected
millions of LJP texts. However, due to the real-time
nature and frequent updates of criminal law, as well
as the rapid development of LLMs, relying on out-
dated data that references superseded legal statutes337
338

may negatively impact the progress of LJP tasks. 343 To address this issue and ensure the relevance of our 344 experiments, we follow the data collection methods 345 established in prior work to gather the most recent legal documents. This updated dataset supports the 347 experimental validation and further exploration of the framework proposed in this study. We collected criminal judgment documents publicly available on China Judgments Online from 2014 to 2025, amassing approximately 150,000 cases covering all crime types listed in the criminal offense catalog. Preliminary statistics revealed a significant imbalance in the number of cases across different offense categories. To this end, we established an upper limit for the number of cases per offense cat-357 egory: if any category exceeded 2,000 cases, we retained only the most recent 2,000 cases based on judgment date. Concurrently, we implemented a lower limit: if any offense category contained 361 fewer than 100 cases, we removed all cases associated with that offense and excluded the offense from the criminal offense catalog.

> Building upon this filtered case repository, we conducted further refinement by eliminating judgments that were inconsistent with the latest provisions of the Criminal Law of the People's Republic of China (2023 Amendment) to ensure legal timeliness of all retained cases. A total of 53,415 data entries were obtained, with 46,365 used as the training set and 7,050 as the test set. For detailed data collection process, see the appendix A.1.

372

375

393

Multimodal Data. Additionally, to address the gap in multimodal data for legal judgment tasks, we collected judicial documents along with their corresponding real legal case videos, ultimately constructing a suitable multimodal legal dataset consisting of both video and text.

We propose a collaborative framework led by legal experts and supported by multimodal large language models. The process begins with extracting key frames from video footage, which are then converted into a more standardized image format. Considering the current challenges in precisely aligning legal judgments with visual evidence, legal experts must semi-automatically select a small set of key frames from relevant videos for each specific case.

As a result, we obtained 83 high-quality multimodal data samples. These multimodal criminal law cases are specifically designed to support the training and evaluation of multimodal judicial decision-making tasks.

3.2 Legal Knowledge Base.

To ensure judicial accuracy and consistency, judges must rely on a comprehensive legal knowledge foundation. Based on the Criminal Law of the People's Republic of China (2023 Amendment), we have constructed a large-scale integrated legal knowledge base comprising three core components: 1) The content of laws with Judicial Interpretations, 2) List of charges, and 3) Repository of referred precedence. All knowledge elements in this legal knowledge base are stored and indexed in a Milvus vector database for efficient retrieval and processing. More details can be found in Appendix B.1. 394

395

396

397

398

399

400

401

402

403

404

405

406

407

408

409

410

411

412

413

414

415

416

417

418

419

420

421

422

423

424

425

426

427

428

429

430

431

432

433

434

435

436

437

438

439

440

441

442

443

The Content of Laws with Judicial Interpretations. We obtained legal documents from the authoritative legal information repository. From this database, we filtered all currently effective criminal law provisions, removed repealed clauses, and eliminated articles irrelevant to criminal judgments, ultimately retaining a total of 438 provisions. Additionally, to enhance the interpretability of legal provisions and the precision of legal application, we supplemented the dataset with supporting judicial interpretations issued by the Supreme People's Court.

List of Charges. Based on the Criminal Law of the People's Republic of China, we systematically organized major charges to form a structured inventory. This inventory serves as an independent reference standard that can support downstream tasks including charge prediction, case screening, and legal retrieval.

Repository of Referred Precedence. To facilitate legal reasoning based on case similarity, we incorporated 46,365 cases from the test set into the knowledge base, which serves as authoritative references for judicial decision-making. All selected precedents maintain legal representativeness, thereby ensuring that the referenced cases in judicial proceedings are both authoritative and timely.

4 Experiments

4.1 Experimental Settings

All baselines are categorized into two types: Neural-Networks-based and LLM-based approaches.

1) For the traditional Neural-Network-based methods, training is performed using the training set from our *JurisMM-Text* dataset, while evaluation is conducted on the test set. Additional experimental details can be found in Appendix C.

Model		Law A	rticles			Cha	rges			Tern	ns of Pei	nalty	
	Acc.	MP	MR	MF	Acc.	MP	MR	MF	Acc.	MP	MR	MF	N-Id
TextCNN	0.703	0.389	0.343	0.334	0.696	0.492	0.457	0.441	0.325	0.321	0.282	0.285	
TOPJUDGE	0.768	0.455	0.411	0.400	0.751	0.516	0.519	0.491	0.373	0.358	0.364	0.342	_
MPBFN	0.755	0.467	0.391	0.391	0.707	0.427	0.416	0.387	0.324	0.343	0.267	0.263	
GLM-4V-9B	0.095	0.019	0.027	0.015	0.476	0.169	0.120	0.119	0.199	0.320	0.197	0.163	0.668
mPLUG-7B	0.094	0.027	0.035	0.019	0.319	0.093	0.060	0.058	0.100	0.250	0.168	0.067	0.507
Qwen2.5-VL-3B	0.220	0.089	0.072	0.057	0.258	0.109	0.068	0.068	0.193	0.169	0.122	0.100	0.787
Qwen2.5-VL-7B	0.271	0.133	0.121	0.092	0.134	0.061	0.021	0.026	0.188	0.135	0.119	0.096	0.799
Qwen2.5-7B	0.523	0.133	0.170	0.123	0.500	0.161	0.144	0.134	0.237	0.227	0.145	0.124	0.826
GPT-40	0.380	0.264	0.207	0.186	0.436	0.253	0.186	0.182	0.372	0.432	0.357	0.319	0.842
JurisAgents	0.872	0.604	0.645	0.602	0.882	0.600	0.642	0.603	0.409	0.520	0.393	0.361	0.848
w/o KB	0.653	0.323	0.323	0.281	0.801	0.203	0.190	0.187	0.378	0.454	0.371	0.335	0.848
w/o MA	0.767	0.592	0.607	0.569	0.773	0.581	0.599	0.566	0.303	0.475	0.304	0.272	0.803

Table 1: Overall performance on JurisMM-Text.

2) For the LLM-based approaches, experiments involving closed-source models are conducted with the temperature parameter set to 0 to ensure deterministic outputs. For open-source models, each experiment is repeated three times, and the average performance is reported. All the multi-agent systems in our framework are powered by GPT-40.

To compare the performance of the baselines and our methods, we choose four metrics that are widely used for multi-classification tasks, including accuracy (Acc.), macro-precision (MP), macrorecall (MR), and macro-F1 (F1). It is worth noting that for the sentence length prediction task, which involves predicting continuous time durations, traditional classification metrics may not fully capture the model's performance. Therefore, in addition to the above metrics, we also refer to the Normalized Log-Distance (N-Ld) metric used in the LawBench (Fei et al., 2023) benchmark. This metric allows for a more nuanced evaluation by measuring the normalized logarithmic difference between predicted and true values, thus providing a complementary perspective on model accuracy in regression-like settings.

4.2 Baselines

444

445

446

447

448

449

450

451

452

453

454

455

456

457

458

459

460

461

462

463

464

465

466

467

468

469

470

471

472

473

474

475

476

477

478

479

To extensively validate the effectiveness of the proposed framework, we employed the following baselines based on traditional neural networks for comparison. These include TextCNN, TOP-JUDGE (Zhong et al., 2018), and MPBFN (Yang et al., 2019).

We then compare several high-performing LLM models. Among the open-source models, we include GLM-4V-9B (GLM et al., 2024), mPLUG-Owl-7B (Ye et al., 2024), Qwen2.5-VL-3B/7B (Bai et al., 2025), and Qwen2.5-7B-Instruct (Qwen et al., 2025). These models are notable for their accessibility, allowing researchers and developers to inspect, modify, and fine-tune them according to specific needs, which fosters innovation and transparency in the field. For closed-source models, we utilize GPT-40 (OpenAI, 2024).

480

481

482

483

484

485

486

487

488

489

490

491

492

493

494

495

496

497

498

499

500

501

502

503

504

505

506

507

508

509

510

511

512

513

514

515

4.3 Overall Performance

Table 1 shows the comprehensive performance of each model on the three tasks of Law Articles, Charges and Terms of Penalty. It can be seen that our proposed framework *JurisAgents* has achieved a significant lead in all tasks and indicators, fully reflecting its advantages in legal text understanding and reasoning.

The performance of *JurisAgents* on multiple evaluation is also very balanced and excellent, showing that the model achieves a good balance between accuracy and recall, avoiding the bias of a single indicator. This balance performance is particularly important for the legal judgment task, because the diversity and complexity of legal texts require that the model neither omits key provisions nor produces too many misjudgments.

In the sentence prediction task, although the overall accuracy was relatively low, *JurisAgents* still outperformed other models, indicating that the task was more difficult, possibly due to the finer grain of inference and quantitative judgment involved in the sentence.

Comparison between NN and LLMs. The results reveal a clear distinction in performance between traditional Neural Network based (NN) models and LLMs on the *JurisMM-Text* dataset. Classical neural network architectures consistently outperform the LLMs across all three legal tasks. This result is consistent with our expectations. The reason is that traditional neural network models are specifically
designed for legal text classification, with both feature extraction and architecture reflecting legal domain rules and expert prior knowledge. In contrast,
the large language models evaluated, despite having a vast number of parameters and strong general language understanding, may lack sufficient
domain adaptation and detailed legal knowledge,
which are essential for accurate LJP.

525

527

528

530

532

534

539

540

542

544

546

547

550

551

552

554

555

556

557

563

564

567

Performance across Different Legal Tasks. Generally, all models achieve their highest performance on law article prediction, followed by charge prediction, with terms of penalty being the most challenging task. This pattern aligns with the inherent complexity of each task: law articles and charges are often more directly linked to textual cues and legal definitions, whereas penalty terms require nuanced understanding of sentencing guidelines, contextual factors, and legal discretion.

Our framework stands out by achieving the best results across all tasks and metrics, indicating its superior capability in capturing the multifaceted nature of LJP. Notably, its advantage is most pronounced in charge prediction, where it surpasses other models by a significant margin. This suggests that *JurisAgents* effectively integrates legal knowledge and reasoning mechanisms that are crucial for accurately identifying charges, which often involve complex legal interpretations.

In terms of penalty term prediction, although all models show relatively lower scores, *JurisAgents* still leads, demonstrating its ability to handle the most challenging aspect of legal judgment. The relatively lower performance across models in this task highlights the need for further research into modeling sentencing decisions, which may depend on subtle contextual and procedural factors beyond textual information.

Ablation Studies. To thoroughly evaluate the contributions of individual components in *JurisAgents*, we conducted ablation experiments on the test set.

Removing the knowledge base (w/o KB) results in a substantial drop in performance across all tasks, especially in law article and charge prediction. This underscores the critical role of external legal knowledge in enhancing the model's reasoning and decision-making capabilities. Without access to structured legal information, *JurisAgents* struggles to accurately map textual inputs to relevant legal concepts and outcomes.

Similarly, excluding the multi-agent collaboration mechanism (w/o MA) leads to a noticeable



Figure 3: Overall performance on LawBench.

568

569

570

571

572

573

574

575

576

577

578

579

580

581

582

583

584

585

586

587

588

589

590

591

592

593

594

595

596

597

598

599

600

601

602

603

604

605

606

607

608

609

610

decline, particularly in the terms of penalty task. This indicates that the collaborative interactions among multiple agents within the framework enable the model to incorporate diverse perspectives and legal elements, facilitating more comprehensive and detailed analysis, thereby enhancing its overall robustness. This is crucial for complex decision-making tasks, such as sentencing.

Interestingly, even with the removal of any single component, *JurisAgents* still outperforms many baseline models. This phenomenon not only confirms the reliability of our design mechanisms but also demonstrates the robustness of the *JurisAgents* architecture.

4.4 Expand Experiments

Task Extension. To evaluate the effectiveness of JurisAgents across varying data distributions and assess its suitability for legal judgment tasks, we conducted a comparative analysis against several large language models using the LawBench benchmark. LawBench is a comprehensive evaluation suite designed to measure the legal reasoning capabilities of LLMs within the context of the Chinese legal system. It encompasses a wide range of lawrelated tasks. For our experiments, we selected five representative tasks from the benchmark-three that align directly with the task types JurisAgents is designed to handle, and two additional tasks, Case Analysis (CA.) and Crime Amount Calculation (CC.), which are also prevalent in legal practice.

The results, as shown in Table 3, demonstrate that *JurisAgents* achieved the best performance across all five legal knowledge application tasks compared to five other general-purpose large language models. Specifically, in the three fundamental legal judgment tasks, namely, the prediction of law articles, the prediction of charges, and the prediction of prison terms, *JurisAgents* achieved improvements of 7.0%, 12.5%, and 6.1%, respectively. Furthermore, in the two extended tasks, case analysis and crimal damages calculation, our framework yielded improvements of 2.8% and 3.4%, respec-

Model	Law A	rticles	Cha	rges	Terms	of Penalty
mouer	Acc.	MF	Acc.	MF	N-Id	MF
GPT-40	0.518	0.165	0.325	0.183	0.724	0.114
w picture	0.518	0.180	0.337	0.177	0.779	0.164
JurisAgents	0.614	0.334	0.518	0.309	0.744	0.105
w picture	0.639	0.336	0.554	0.353	0.816	0.184

Table 2: Overall performance on JurisMM-Video.

tively. These results indicate that a multi-agent
legal system, refined through task specification
and customization, exhibits stronger adaptability to
downstream legal application tasks, enabling rapid
adjustment of execution goals for various roles to
meet diverse legal task requirements.

Modal Extension. We conducted experiments 617 on the collected set of 83 multimodal legal judg-618 ment cases, with the results presented in Table 2. 619 620 Our framework JurisAgents demonstrates consistent improvements across all three prediction tasks 621 when incorporating visual information, with accuracy and macro-F1 scores showing notable enhancement. Particularly, the sentence prediction accuracy achieves an 8.5% absolute improvement 625 over text-only conditions. The integration of multimodal data significantly enhances JurisAgents' 627 performance in legal judgment prediction. These experimental results indicate that visual information enables the model to capture more comprehensive contextual understanding of cases, thereby 631 improving both the accuracy and robustness of le-632 gal provision, charge, and sentence prediction.

5 Related Work

636

637

641

642

643

645

647

653

Legal Judgment Prediction. The task of legal judgment prediction (LJP) has undergone several significant methodological transitions. In its early stages, LJP was primarily addressed using mathematical and statistical approaches, relying on existing legal cases to predict the outcomes of specific scenarios (Ruger et al., 2004). These methods often required extensive manual feature engineering. With the rapid advancement of neural networks, researchers have proposed a wide range of models to support legal case analysis (Zhong et al., 2018; Yang et al., 2019). However, due to the rigorousness and fairness required in legal formulation, it remains challenging in practice to distinguish between charges and conviction boundaries described by similar statutes.Some studies leverage contrastive learning to capture subtle distinctions between similar law articles or charges (Gan et al., 2023; Zhang et al., 2023; Liu et al., 2023). With

the rapid advancement of LLM-based autonomous agents, their growing capability to make sophisticated decisions in real-world scenarios offers novel perspectives and opportunities for advancing legal judgment prediction. Some recent studies have begun to explore the application of novel LLM-based methods to the LJP task. (He et al., 2024; Wang et al., 2024; Sun et al., 2024; Jiang and Yang, 2024; Chen et al., 2024a). 654

655

656

657

658

659

660

661

662

663

664

665

666

667

668

669

670

671

672

673

674

675

676

677

678

679

680

681

682

683

684

685

686

687

688

689

690

691

692

693

694

695

696

697

698

699

700

701

702

703

Multi-agent framework. As the reasoning and planning capabilities of large language models continue to advance, LLM-based agents are also attracting increasing attention. These agents are capable of perceiving environments, making decisions, and taking actions (Guo et al., 2023; Liang et al., 2023; Xi et al., 2023). In complex scenarios, single agents often struggle with intricate task logic, whereas collaborative multi-agent systems can enhance task efficiency. Leveraging the collective expertise of specialized agents has shown promise in tackling challenging problems such as scientific research (Zheng et al., 2023; Chen et al., 2024b), scientific debate (Liang et al., 2024; Park et al., 2024; Du et al., 2024; Xiong et al., 2023), software development (Li et al., 2023; Dong et al., 2024; Qian et al., 2024; Hong et al., 2023; Huang et al., 2023), and so on. In the legal domain, while initial attempts have been made to apply agent-based methods, performance improvements remain limited.

6 Conclusion

We propose *JurisAgents*, a novel multi-agent framework designed to address the inherent complexities of LJP by decomposing trial tasks into structured stages and simulating realistic courtroom procedures. By leveraging the reasoning capabilities of LLMs within a carefully orchestrated multi-agent system, our framework effectively captures the multivariable interactions and procedural nuances that characterize real-world legal cases. To further support this endeavor, we introduced *JurisMM*, a largescale, up-to-date dataset comprising over 50,000 judicial cases, including both unimodal textual data and multimodal video-text samples.

Overall, our work contributes a robust framework and valuable resources that advance the state of the art in LJP and offer promising directions for future research in legal AI, including more realistic courtroom simulations, multimodal reasoning, and dynamic knowledge integration.

797

798

799

800

801

802

803

804

805

806

807

808

809

810

811

755

756

704 Limitations

719

720

721

722

723

724

727

729

730

731

733

734

735

736

737

738

740

741

742

743

744

745

747

748

749

750

751

752

754

705 First, our exploration of multimodal data in the legal domain remains preliminary. Due to the lack of effective automated methods for constructing 707 large-scale multimodal datasets, the multimodal portion of our dataset-comprising video and text data—was manually curated by legal experts. This 710 manual collection process inherently limits the 711 scale and diversity of multimodal samples, restrict-712 ing the generalizability and robustness of multi-713 modal learning in legal judgment prediction. Fu-714 ture work should focus on developing scalable and 715 automated approaches for multimodal data acqui-716 sition and annotation to better support comprehen-718 sive legal AI systems.

> Second, our current framework and dataset are primarily centered on criminal law cases derived from Chinese judicial proceedings. Legal systems vary significantly across countries in terms of procedural rules, legal codes, and trial practices. Therefore, extending our framework to accommodate multiple legal systems and constructing more universal datasets will be essential to enhance the adaptability and global relevance of our methods.

References

- Nikolaos Aletras, Dimitrios Tsarapatsanis, Daniel Preoțiuc-Pietro, and Vasileios Lampos. 2016. Predicting judicial decisions of the european court of human rights: A natural language processing perspective. *PeerJ Computer Science*, 2:99–110.
- Shuai Bai, Keqin Chen, Xuejing Liu, Jialin Wang, Wenbin Ge, Sibo Song, Kai Dang, Peng Wang, Shijie Wang, Jun Tang, Humen Zhong, Yuanzhi Zhu, Mingkun Yang, Zhaohai Li, Jianqiang Wan, Pengfei Wang, Wei Ding, Zheren Fu, Yiheng Xu, Jiabo Ye, Xi Zhang, Tianbao Xie, Zesen Cheng, Hang Zhang, Zhibo Yang, Haiyang Xu, and Junyang Lin. 2025. Qwen2.5-vl technical report.
- Guhong Chen, Liyang Fan, Zihan Gong, Nan Xie, Zixuan Li, Ziqiang Liu, Chengming Li, Qiang Qu, Shiwen Ni, and Min Yang. 2024a. Agentcourt: Simulating court with adversarial evolvable lawyer agents.
- Pei Chen, Shuai Zhang, and Boran Han. 2024b. CoMM: Collaborative multi-agent, multi-reasoningpath prompting for complex problem solving. In *Findings of the Association for Computational Linguistics: NAACL 2024*, pages 1720–1738, Mexico City, Mexico. Association for Computational Linguistics.
 - Yihong Dong, Xue Jiang, Zhi Jin, and Ge Li. 2024. Self-collaboration code generation via chatgpt. *ACM*

Transactions on Software Engineering and Methodology, 33(7):1–38.

- Yilun Du, Shuang Li, Antonio Torralba, Joshua B. Tenenbaum, and Igor Mordatch. 2024. Improving factuality and reasoning in language models through multiagent debate. In *Forty-first International Conference on Machine Learning*.
- Zhiwei Fei, Xiaoyu Shen, Dawei Zhu, Fengzhe Zhou, Zhuo Han, Songyang Zhang, Kai Chen, Zongwen Shen, and Jidong Ge. 2023. Lawbench: Benchmarking legal knowledge of large language models. *arXiv preprint arXiv:2309.16289*.
- Yi Feng, Chuanyi Li, and Vincent Ng. 2022. Legal judgment prediction via event extraction with constraints. In *Proceedings of the 60th Annual Meeting of the Association for Computational Linguistics (Volume 1: Long Papers)*, pages 648–664, Dublin, Ireland. Association for Computational Linguistics.
- Leilei Gan, Baokui Li, Kun Kuang, Yating Zhang, Lei Wang, Anh Luu, Yi Yang, and Fei Wu. 2023. Exploiting contrastive learning and numerical evidence for confusing legal judgment prediction. In *Findings of the Association for Computational Linguistics: EMNLP 2023*, pages 12174–12185, Singapore. Association for Computational Linguistics.
- Team GLM, :, Aohan Zeng, Bin Xu, Bowen Wang, Chenhui Zhang, Da Yin, Dan Zhang, Diego Rojas, Guanyu Feng, Hanlin Zhao, Hanyu Lai, Hao Yu, Hongning Wang, Jiadai Sun, Jiajie Zhang, Jiale Cheng, Jiayi Gui, Jie Tang, Jing Zhang, Jingyu Sun, Juanzi Li, Lei Zhao, Lindong Wu, Lucen Zhong, Mingdao Liu, Minlie Huang, Peng Zhang, Qinkai Zheng, Rui Lu, Shuaiqi Duan, Shudan Zhang, Shulin Cao, Shuxun Yang, Weng Lam Tam, Wenyi Zhao, Xiao Liu, Xiao Xia, Xiaohan Zhang, Xiaotao Gu, Xin Lv, Xinghan Liu, Xinyi Liu, Xinyue Yang, Xixuan Song, Xunkai Zhang, Yifan An, Yifan Xu, Yilin Niu, Yuantao Yang, Yueyan Li, Yushi Bai, Yuxiao Dong, Zehan Qi, Zhaoyu Wang, Zhen Yang, Zhengxiao Du, Zhenyu Hou, and Zihan Wang. 2024. Chatglm: A family of large language models from glm-130b to glm-4 all tools.
- Taicheng Guo, Kehan Guo, Bozhao Nan, Zhenwen Liang, Zhichun Guo, Nitesh V. Chawla, Olaf Wiest, and Xiangliang Zhang. 2023. What can large language models do in chemistry? a comprehensive benchmark on eight tasks.
- Zhitao He, Pengfei Cao, Chenhao Wang, Zhuoran Jin, Yubo Chen, Jiexin Xu, Huaijun Li, Kang Liu, and Jun Zhao. 2024. AgentsCourt: Building judicial decisionmaking agents with court debate simulation and legal knowledge augmentation. In *Findings of the Association for Computational Linguistics: EMNLP 2024*, pages 9399–9416, Miami, Florida, USA. Association for Computational Linguistics.
- Sirui Hong, Xiawu Zheng, Jonathan Chen, Yuheng Cheng, Jinlin Wang, Ceyao Zhang, Zili Wang, Steven

920

921

922

923

924

925

926

869

Ka Shing Yau, Zijuan Lin, Liyang Zhou, et al. 2023. Metagpt: Meta programming for multi-agent collaborative framework. *arXiv preprint arXiv:2308.00352*, 3(4):6.

812

813

814

817

818

821

822

823

824

825

829

833

834

835

836

837

857

859

864

- Dong Huang, Jie M Zhang, Michael Luck, Qingwen Bu, Yuhao Qing, and Heming Cui. 2023. Agent-coder: Multi-agent-based code generation with iterative testing and optimisation. *arXiv preprint arXiv:2312.13010*.
- Cong Jiang and Xiaolei Yang. 2024. Agents on the bench: Large language model based multi agent framework for trustworthy digital justice. *ArXiv*, abs/2412.18697.
- Guohao Li, Hasan Abed Al Kader Hammoud, Hani Itani, Dmitrii Khizbullin, and Bernard Ghanem. 2023. Camel: Communicative agents for" mind" exploration of large scale language model society.
- Tian Liang, Zhiwei He, Wenxiang Jiao, Xing Wang, Yan Wang, Rui Wang, Yujiu Yang, Shuming Shi, and Zhaopeng Tu. 2024. Encouraging divergent thinking in large language models through multi-agent debate. In *Proceedings of the 2024 Conference on Empirical Methods in Natural Language Processing*, pages 17889–17904, Miami, Florida, USA. Association for Computational Linguistics.
- Zhenwen Liang, Wenhao Yu, Tanmay Rajpurohit, Peter Clark, Xiangliang Zhang, and Ashwin Kalyan. 2023. Let GPT be a math tutor: Teaching math word problem solvers with customized exercise generation. In *Proceedings of the 2023 Conference on Empirical Methods in Natural Language Processing*, pages 14384–14396, Singapore. Association for Computational Linguistics.
- Yifei Liu, Yiquan Wu, Yating Zhang, Changlong Sun, Weiming Lu, Fei Wu, and Kun Kuang. 2023. Mlljp: Multi-law aware legal judgment prediction. In Proceedings of the 46th International ACM SIGIR Conference on Research and Development in Information Retrieval, SIGIR '23, page 1023–1034, New York, NY, USA. Association for Computing Machinery.
- Vijit Malik, Rishabh Sanjay, Shubham Kumar Nigam, Kripabandhu Ghosh, Shouvik Kumar Guha, Arnab Bhattacharya, and Ashutosh Modi. 2021. ILDC for CJPE: Indian legal documents corpus for court judgment prediction and explanation. In Proceedings of the 59th Annual Meeting of the Association for Computational Linguistics and the 11th International Joint Conference on Natural Language Processing (Volume 1: Long Papers), pages 4046–4062, Online. Association for Computational Linguistics.
 - Tomas Mikolov, Ilya Sutskever, Kai Chen, Greg S Corrado, and Jeff Dean. 2013. Distributed representations of words and phrases and their compositionality. In Advances in Neural Information Processing Systems, volume 26. Curran Associates, Inc.
- OpenAI. 2024. Gpt-4o system card.

- Someen Park, Jaehoon Kim, Seungwan Jin, Sohyun Park, and Kyungsik Han. 2024. PREDICT: Multiagent-based debate simulation for generalized hate speech detection. In *Proceedings of the 2024 Conference on Empirical Methods in Natural Language Processing*, pages 20963–20987, Miami, Florida, USA. Association for Computational Linguistics.
- Chen Qian, Wei Liu, Hongzhang Liu, Nuo Chen, Yufan Dang, Jiahao Li, Cheng Yang, Weize Chen, Yusheng Su, Xin Cong, Juyuan Xu, Dahai Li, Zhiyuan Liu, and Maosong Sun. 2024. ChatDev: Communicative agents for software development. In *Proceedings of the 62nd Annual Meeting of the Association for Computational Linguistics (Volume 1: Long Papers)*, pages 15174–15186, Bangkok, Thailand. Association for Computational Linguistics.
- Qwen, :, An Yang, Baosong Yang, Beichen Zhang, Binyuan Hui, Bo Zheng, Bowen Yu, Chengyuan Li, Dayiheng Liu, Fei Huang, Haoran Wei, Huan Lin, Jian Yang, Jianhong Tu, Jianwei Zhang, Jianxin Yang, Jiaxi Yang, Jingren Zhou, Junyang Lin, Kai Dang, Keming Lu, Keqin Bao, Kexin Yang, Le Yu, Mei Li, Mingfeng Xue, Pei Zhang, Qin Zhu, Rui Men, Runji Lin, Tianhao Li, Tianyi Tang, Tingyu Xia, Xingzhang Ren, Xuancheng Ren, Yang Fan, Yang Su, Yichang Zhang, Yu Wan, Yuqiong Liu, Zeyu Cui, Zhenru Zhang, and Zihan Qiu. 2025. Qwen2.5 technical report.
- Theodore W Ruger, Pauline T Kim, Andrew D Martin, and Kevin M Quinn. 2004. The supreme court forecasting project: legal and political science approaches to predicting supreme court decisionmaking. *Colum. L. Rev.*, 104:1150.
- Jingyun Sun, Shaobin Huang, and Chi Wei. 2024. Chinese legal judgment prediction via knowledgeable prompt learning. *Expert Systems with Applications*, 238:122177.
- Maosong Sun, Xinxiong Chen, Kaixu Zhang, Zhipeng Guo, and Zhiyuan Liu. 2016. Thulac: An efficient lexical analyzer for chinese. Technical report, Technical Report.
- Xuran Wang, Xinguang Zhang, Vanessa Hoo, Zhouhang Shao, and Xuguang Zhang. 2024. Legalreasoner: A multi-stage framework for legal judgment prediction via large language models and knowledge integration. *IEEE Access*, 12:166843–166854.
- Zhiheng Xi, Wenxiang Chen, Xin Guo, Wei He, Yiwen Ding, Boyang Hong, Ming Zhang, Junzhe Wang, Senjie Jin, Enyu Zhou, Rui Zheng, Xiaoran Fan, Xiao Wang, Limao Xiong, Yuhao Zhou, Weiran Wang, Changhao Jiang, Yicheng Zou, Xiangyang Liu, Zhangyue Yin, Shihan Dou, Rongxiang Weng, Wensen Cheng, Qi Zhang, Wenjuan Qin, Yongyan Zheng, Xipeng Qiu, Xuanjing Huang, and Tao Gui. 2023. The rise and potential of large language model based agents: A survey.
- Chaojun Xiao, Haoxi Zhong, Zhipeng Guo, Cunchao Tu, Zhiyuan Liu, Maosong Sun, Yansong Feng, Xianpei

- 927 928

- 935
- 936
- 937 938
- 939
- 943

- 947
- 950 951
- 952
- 955 957
- 959 960 961
- 962 963 964
- 965

- 970 971
- 972
- 973 974
- 975 976 977

978

979

983

Han, Zhen Hu, Heng Wang, and Jianfeng Xu. 2018. CAIL2018: A large-scale legal dataset for judgment prediction. CoRR, abs/1807.02478.

- Kai Xiong, Xiao Ding, Yixin Cao, Ting Liu, and Bing Qin. 2023. Examining inter-consistency of large language models collaboration: An in-depth analysis via debate. In Findings of the Association for Computational Linguistics: EMNLP 2023, pages 7572–7590, Singapore. Association for Computational Linguistics.
- Nuo Xu, Pinghui Wang, Long Chen, Li Pan, Xiaoyan Wang, and Junzhou Zhao. 2020. Distinguish confusing law articles for legal judgment prediction. In Proceedings of the 58th Annual Meeting of the Association for Computational Linguistics, pages 3086-3095, Online. Association for Computational Linguistics.
 - Wenmian Yang, Weijia Jia, Xiaojie Zhou, and Yutao Luo. 2019. Legal judgment prediction via multiperspective bi-feedback network. In Proceedings of the Twenty-Eighth International Joint Conference on Artificial Intelligence, IJCAI-19, pages 4085-4091. International Joint Conferences on Artificial Intelligence Organization.
- Qinghao Ye, Haiyang Xu, Guohai Xu, Jiabo Ye, Ming Yan, Yiyang Zhou, Junyang Wang, Anwen Hu, Pengcheng Shi, Yaya Shi, Chenliang Li, Yuanhong Xu, Hehong Chen, Junfeng Tian, Qi Qian, Ji Zhang, Fei Huang, and Jingren Zhou. 2024. mplug-owl: Modularization empowers large language models with multimodality.
- Linan Yue, Qi Liu, Binbin Jin, Han Wu, Kai Zhang, Yanqing An, Mingyue Cheng, Biao Yin, and Dayong Wu. 2021. Neurjudge: A circumstance-aware neural framework for legal judgment prediction. Proceedings of the 44th International ACM SIGIR Conference on Research and Development in Information Retrieval, pages 973-982. ACM.
- Han Zhang, Zhicheng Dou, Yutao Zhu, and Ji-Rong Wen. 2023. Contrastive learning for legal judgment prediction. ACM Trans. Inf. Syst., 41(4).
- Jie Zhao, Ziyu Guan, Cai Xu, Wei Zhao, and Enze Chen. 2022. Charge prediction by constitutive elements matching of crimes. Proceedings of the Thirty-First International Joint Conference on Artificial Intelligence, pages 4517-4523.
- Zhiling Zheng, Oufan Zhang, Ha L Nguyen, Nakul Rampal, Ali H Alawadhi, Zichao Rong, Teresa Head-Gordon, Christian Borgs, Jennifer T Chayes, and Omar M Yaghi. 2023. Chatgpt research group for optimizing the crystallinity of mofs and cofs. ACS Central Science, 9(11):2161-2170.
- Haoxi Zhong, Zhipeng Guo, Cunchao Tu, Chaojun Xiao, Zhiyuan Liu, and Maosong Sun. 2018. Legal judgment prediction via topological learning. In Proceedings of the 2018 Conference on Empirical Methods in Natural Language Processing, pages 3540-3549,

Brussels, Belgium. Association for Computational Linguistics.

984 985

995

997

999

1000

1001

1003

1004

1005

1006

1007

1008

1009

1010

1011

1012

1013

1014

1015

1016

1017

1018

1019

1020

1021

1022

1023

1025

A JurisMM Details

A.1 Date Collection Process

Building upon this filtered case repository, we conducted further refinement by eliminating judgments that were inconsistent with the latest provisions of the Criminal Law of the People's Republic of China (2023 Amendment) to ensure legal timeliness of all retained cases.

We implemented a phased data screening methodology with the following procedure: First, we performed a systematic comparison between the 2023 version (effective from March 1, 2024) and four previous editions of the Criminal Law implemented during 2014-2025. This comparative analysis identified all modified legal articles between the 2023 version and each preceding edition. Subsequently, we examined cases published during each version's effective period and removed those involving any modified legal provisions.For concrete illustration, taking the 2020 edition as an example: our comparison with the 2023 version revealed seven modified articles. Since the 2020 edition was effective from March 1, 2021 to March 1, 2024, we accordingly removed all cases involving these seven modified articles that were published during this period.

A.2 Statistics

_

We conducted a comprehensive statistical analysis of the charge categories, including the overall quantitative distribution and frequency statistics in the test set, with the detailed distribution characteristics presented in Table 3 and Figure 4.

Category	Total Kinds	Average
The Content of Laws	132	921.70
Charges	115	907.18
Terms of Penalty	-	23.05

Table 3: Summary of Relevant Articles, charges, andTerms of Penalty.

B JurisAgents Details

B.1 The Details of Legal Knowledge Base

For the retrieval process, we implemented a hybrid approach that combines:

• **Dense retrieval**: Captures semantic information through vector embeddings using inner product similarity metrics • **Sparse retrieval**: Employs keyword matching based on BM25 scoring

1026

1027

1028

1029

1030

1032

1033

1034

1035

1036

1037

1038

1039

1040

1041

1042

1043

1044

1045

1046

1047

1048

1050

1051

1052

1054

1055

1056

1057

1058

1059

1060

1062

1063

1064

1066

1067

The final results primarily utilize dense retrieval outputs, with sparse retrieval results serving as supplementary information, followed by reranking through reciprocal rank fusion.

C Experimental Setup

All baselines are categorized into two types: Neural-Networks-based and LLM-based approaches.

1) For the Neural-Network-based methods, since our *JurisMM* dataset consists of continuous Chinese text without explicit word boundaries, we first apply THULAC (Sun et al., 2016) to perform word segmentation on the factual descriptions of the cases. After segmentation, we pretrain word embeddings using word2vec (Mikolov et al., 2013) with an embedding dimension of 200.

We implement the NN-based methods using Py-Torch. In the CNN-based baseline models, the maximum document length is configured to 512 tokens. For the LSTM-based baselines, we define the maximum sentence length as 128 tokens, with each document limited to 32 sentences.

The hidden state dimension d_s is set to 256. For the CNN encoder, the number of filters d_c is set to 256, and the window sizes h are set to 2,3,4,5 with 64 filters for each window size. During the training part, we use the Adam optimizer with a learning rate of 10^{-3} and a dropout rate of 0.5. All models are trained for 16 epochs on an RTX 4090 GPU with a batch size of 512. Then we evaluate the final model on the testing set.

2) For the LLM-based approaches, experiments involving closed-source models are conducted with the temperature parameter set to 0 to ensure deterministic outputs. For open-source models, each experiment is repeated three times, and the average performance is reported.

Table 5 presents the detailed experimental results corresponding to Figure 3.

D Prompts

As shown in the following Tables, we present the specific prompts corresponding to each individual role. 1069

Charge	Count	Charge	Count	Charge	Count
Abandonment	12	Abuse	1	Abuse of Power	142
Accepting Bribes	65	Accident Involving Dangerous Substances	1	Arson	179
Assaulting Police	9	Assisting Criminals to Evade Punishment	25	Bid Rigging	10
Bigamy	15	Bill Fraud	6	Bribery	149
Bribery by Leveraging Influence	7	Bribery of Corporations	2	Bribery of Non-State Personnel	62
Bribery to Non-State Personnel	2	Child Abduction	15	Child Molestation	78
Contract Fraud	137	Copyright Infringement	20	Corporate Acceptance of Bribes	4
Corporate Bribery	21	Corruption	117	Counterfeiting Currency	1
Counterfeiting Registered Trademark	78	Credit Card Fraud	106	Damaging Computer Information Systems	10
Damaging Flammable or Explosive Equipment	53	Damaging Power Equipment	45	Damaging Traffic Facilities	5
Damaging Transportation Vehicles	1	Dangerous Driving	35	Defamation	3
Dereliction of Duty	115	Disrupting Production and Operation	23	Disrupting Regulatory Order	6
Distributing Obscene Materials	1	Embezzlement of Funds	189	Embezzlement of Public Funds	158
Endangering Public Safety with Dangerous Means	85	Environmental Pollution	11	Escape	1
Excessive Logging	37	Explosion	4	Extortion	109
Facilitating Bribery	19	False Accusation	15	False Reporting of Registered Capital	3
Forced Labor	1	Forced Transactions	25	Forcing Others to Use Drugs	2
Fraud	130	Fundraising Fraud	52	Gambling	20
Gathering to Disturb Social Order	9	Gathering to Fight	121	Gathering to Loot	3
Harboring Drug Users	23	Harming Rare or Endangered Wildlife	9	Illegal Absorption of Public Deposits	145
Illegal Business Operation	161	Illegal Cultivation of Narcotic Plants	104	Illegal Detention	104
Illegal Drug Possession	474	Illegal Entry into Residence	311	Illegal Fishing of Aquatic Products	35
Illegal Loan Issuance	16	Illegal Logging	64	Illegal Medical Practice	30
Illegal Mining	63	Illegal Occupation of Agricultural Land	43	Illegal Organization of Blood Selling	1
Illegal Sale of Invoices	8	Impersonating Military Personnel for Fraud	36	Impersonation Fraud	54
Insult	9	Insurance Fraud	31	Intentional Destruction of Property	145
Intentional Homicide	360	Intentional Injury	94	Interfering with Credit Card Management	72
Issuing False Invoices	1	Kidnapping	40	Loan Fraud	31
Major Liability Accident	65	Misappropriation	11	Misappropriation of Designated Funds	1
Money Laundering	3	Negligent Homicide	537	Negligent Serious Injury	247
Obstructing Public Duties	80	Obstructing Testimony	12	Occupational Embezzlement	172
Operating a Gambling House	37	Organizing Prostitution	1	Perjury	2
Perverting the Course of Justice	4	Picking Quarrels and Provoking Trouble	33	Possession of Forged Invoices	24
Private Division of State Assets	11	Rape	14	Refusal to Pay Labor Remuneration	77
Releasing Dangerous Substances	35	Retaliating Against Witnesses	2	Robbery	41
Selling Counterfeit Trademark Goods	410	Smuggling Waste	3	Snatching	225
Spreading Sexually Transmitted Diseases	2	Tax Evasion	9	Teaching Criminal Methods	4
Theft	69	Throwing Objects from Heights	4	Traffic Accident	45
Usurious Relending	2		-		

Table 4: Distribution of Charges in test date of JurisMM-Text .



Figure 4: Distribution of Charges of JurisMM-Text.

Model	LA. MF	Cg. MF	TP. N-ld	*CA. Acc.	*CC. Acc.
Internlm-chat-7b	0.389	0.423	0.632	0.362	0.440
StableBeluga2	0.169	0.231	0.767	0.330	0.560
Qwen-7b-chat	0.529	0.399	0.761	0.268	0.446
GPT-3.5-turbo	0.308	0.346	0.788	0.316	0.664
GPT-4	0.532	0.413	0.826	0.496	0.770
JurisAgents	0.602	0.548	0.887	0.524	0.804

|--|

E Cases

Chen Case of Illegal Hunting



Sha Case of Intentional Injury



Prompt for Junior Judge

Case Description and Facts

{ Fact }

Task

Based on the Criminal Law of the People's Republic of China (amended on December 29, 2023), act as a senior judge to analyze the case description and facts provided in the criminal legal document and complete the following tasks.

Task Requirements

1. The case may involve multiple defendants; analyze only the primary defendant explicitly specified in the document and clearly state their name.

2. Summarize the defendant's criminal acts, listing the specific actions, resulting consequences, and subjective intent (negligence or intent).

3. Do not make a final conviction or sentencing decision; focus solely on analyzing the criminal acts and their nature.

4. Strictly adhere to the output format, listing criminal acts as separate items. If there is only one act, list only that item.

5. Base the analysis solely on the Criminal Law and the facts provided, without considering other laws or unmentioned circumstances (e.g., voluntary surrender, recidivism).

Output Format

Defendant: [Name]

Defendant's Criminal Acts:

1. [Action and consequence] [Negligence/Intent]

2. [Action and consequence] [Negligence/Intent]

One act listed if applicable, no blanks.

Table 6: Prompt for Junior Judge in *JurisAgents*.

Prompt for Senior Judge

Case Description and Facts { Fact }

{ ract }

Defendant Information

{ Response from Junior Judge }

Task

Based on the Criminal Law of the People's Republic of China (amended on December 29, 2023), act as a senior judge to analyze the case description, facts, and defendant information provided in the criminal legal document. Extract and summarize key case information to serve as the basis for subsequent predictions of charges, applicable legal provisions, and sentencing.

Task Requirements

1. The case may involve multiple defendants; analyze only the primary defendant explicitly specified in the document, clearly stating their name.

2. Summarize key case information, including the defendant's specific actions, consequences, subjective intent (negligence or intent), time, location, and relevant evidence or statements.

3. Do not predict charges, cite legal provisions, or predict sentencing; focus solely on extracting and summarizing facts and information.

4. Output as a single paragraph, concise yet detailed, emphasizing key information and avoiding verbatim reproduction of the original text.

5. Base the analysis solely on the Criminal Law and the provided facts and defendant information, without considering other laws or unmentioned circumstances (e.g., voluntary surrender, recidivism).

6. Do not include the thought process; strictly adhere to the output format.

Output Format

[A single paragraph summarizing the case facts and information in detail.]

Table 7: Prompt for Senior Judge in JurisAgents.

Prompt for Chief Judge

Defendant Information

{ Response from Junior Judge }

Case Summary

{ Response from Senior Judge }

Candidate Charges

{ top10_rel_accu }

Candidate Legal Provisions { top10_rel_rules }

{ top10_tet_tutes

Similar Cases

{ top5_rel}

Task

As a senior presiding judge, based on the Criminal Law of the People's Republic of China (amended on December 29, 2023), determine the defendant's charges, relevant legal provisions, and penalty according to the defendant information, case summary, candidate charges, and legal provisions. Prioritize selecting from the candidate charges and legal provisions; if the case requires, other applicable charges or legal provisions may be chosen.

Task Requirements

1. Output a single line in JSON format for the judgment result, strictly adhering to the specified format.

2. Do not output the thought process or judgment analysis.

3. Charges ('charge') should not include the word "crime," e.g., "intentional homicide crime" should be output as "intentional homicide."

4. Legal provisions ('relevant_articles') are represented by integer numbers, sourced from the Criminal Law of 2023, amended on December 29.

5. The term of imprisonment ('imprisonment') is expressed in months as an integer, e.g., 1 year is 12, 3.5 years is 42; for death penalty or life imprisonment, 'imprisonment' is 0.

6. In 'term_of_imprisonment', 'death_penalty' and 'life_imprisonment' are boolean values; a suspended death sentence is treated as a death penalty ('death_penalty: true').

7. Do not use code blocks (e.g., "'json) for output; directly output the JSON string.

Output Format

{"relevant_articles": [Number1, Number2, ...], "charge": ["Charge1", "Charge2", ...], "term_of_imprisonment": {"death_penalty": true/false, "imprisonment": Integer, "life_imprisonment": true/false}}

Table 8: Prompt for Chief Judge in JurisAgents.

Prompt for Defendant

Case Description and Facts

{ Fact }

First-Instance Verdict

{ Response from Junior Judge }

Task

You are a defendant in a criminal case. Based on the provided case description, facts, and first instance judgment (charges and penalty), decide whether to accept the first instance judgment. If you accept, it indicates no objections to both the charges and penalty; if you do not accept, you must clearly state your objection to the charges or penalty and provide reasons.

Task Requirements

1. Strictly adhere to Output Format 1 (accept) or Output Format 2 (do not accept) for your response.

2. When not accepting, clearly specify whether the objection is to the charges or penalty, and provide reasonable reasons based on the case facts.

3. When accepting, output only "accept" without any additional text, spaces, or newlines.

4. Do not output the thought process.

Output Format 1 (Accepting the First Instance Judgment)

accept

Output Format 2 (Not Accepting the First Instance Judgment)

not accept, because [clearly state the objection to the charges or penalty, and provide reasons based on the case facts]

Table 9: Prompt for Defendant in JurisAgents.

Prompt for Legal Counsel

Case Description and Facts

{ Fact }

First-Instance Verdict

{ Result From Chief Judge }

Defendant's Grounds for Appeal

{ Response from Defendant }

Task

As a professional criminal defense lawyer, based on the Criminal Law of the People's Republic of China (amended on December 29, 2023), draft an appeal petition on behalf of the defendant using the provided case description, first-instance verdict, and defendant's grounds for appeal. Present the appeal request, combining facts, evidence, and legal arguments to challenge the impropriety of the first-instance verdict and advocate for a revised judgment or reduced penalty.

Task Requirements

1. The case may involve multiple defendants; draft the appeal petition only for the primary defendant explicitly specified, clearly stating their name.

2. The appeal petition must include the following elements: appellant information, appeal request, facts and reasons (integrating case details, defendant's grounds, evidence, and legal analysis), legal basis, and concluding request.

3. If the defendant's grounds are insufficient or absent, supplement with reasonable legal arguments based on the case and verdict (e.g., errors in fact-finding, insufficient evidence, or excessive sentencing).

4. Output only the complete appeal petition text, excluding any other text or reasoning process.

5. Legal arguments should primarily rely on the Criminal Law of the People's Republic of China (amended on December 29, 2023).

6. Do not consider unmentioned circumstances (e.g., voluntary surrender, recidivism); base the petition solely on the provided facts, verdict, and grounds.

Output Format

[Complete appeal petition text, including appellant information, appeal request, facts and reasons, legal basis, and concluding request, with no additional text.]

Table 10: Prompt for Junior Judge in JurisAgents.

Prompt for Junior Judge (Second Instance)

Case Description and Facts

{ Fact }

Appeal Petition

* A legal sentencing task is now underway, based on the Criminal Law of the People's Republic of China (amended on December 29, 2023). A first-instance verdict has been issued, but the defendant has chosen to appeal. The appeal petition is as follows: *

{ Appeal }

Task

Based on the Criminal Law of the People's Republic of China (amended on December 29, 2023), act as a senior judge to analyze the case description and facts provided in the criminal legal document and complete the following tasks.

Task Requirements

1. The case may involve multiple defendants; analyze only the primary defendant explicitly specified in the document and clearly state their name.

2. Summarize the defendant's criminal acts, listing the specific actions, resulting consequences, and subjective intent (negligence or intent).

3. Do not make a final conviction or sentencing decision; focus solely on analyzing the criminal acts and their nature.

Strictly adhere to the output format, listing criminal acts as separate items. If there is only one act, list only that item.
 Base the analysis solely on the Criminal Law and the facts provided, without considering other laws or unmentioned circumstances (e.g., voluntary surrender, recidivism).

6. You may assess the reasonableness of the appeal based on the case description. If the appeal is deemed unreasonable, you can disregard the appeal petition and uphold your original judgment.

Output Format

Defendant: [Name]

Defendant's Criminal Acts:

1. [Action and consequence] [Negligence/Intent]

2. [Action and consequence] [Negligence/Intent]

One act listed if applicable, no blanks.

Table 11: Prompt for Junior Judge (Second Instance) in JurisAgents.

Prompt for Senior Judge (Second Instance)

Case Description and Facts { Fact }

{ ract }

Defendant Information

{ Response from Junior Judge }

Appeal Petition

* A legal sentencing task is now underway, based on the Criminal Law of the People's Republic of China (amended on December 29, 2023). A first-instance verdict has been issued, but the defendant has chosen to appeal. The appeal petition is as follows: *

{ Appeal }

Task

Based on the Criminal Law of the People's Republic of China (amended on December 29, 2023), act as a senior judge to analyze the case description, facts, and defendant information provided in the criminal legal document. Extract and summarize key case information to serve as the basis for subsequent predictions of charges, applicable legal provisions, and sentencing.

Task Requirements

1. The case may involve multiple defendants; analyze only the primary defendant explicitly specified in the document, clearly stating their name.

2. Summarize key case information, including the defendant's specific actions, consequences, subjective intent (negligence or intent), time, location, and relevant evidence or statements.

3. Do not predict charges, cite legal provisions, or predict sentencing; focus solely on extracting and summarizing facts and information.

4. Output as a single paragraph, concise yet detailed, emphasizing key information and avoiding verbatim reproduction of the original text.

5. Base the analysis solely on the Criminal Law and the provided facts and defendant information, without considering other laws or unmentioned circumstances (e.g., voluntary surrender, recidivism).

6. Do not include the thought process; strictly adhere to the output format.

7. You may assess the reasonableness of the appeal based on the case description. If the appeal is deemed unreasonable, you can disregard the appeal petition and uphold your original judgment.

Output Format

[A single paragraph summarizing the case facts and information in detail.]

Table 12: Prompt for Senior Judge (Second Instance) in JurisAgents.

Prompt for Chief Judge (Second Instance)

Defendant Information

{ Response from Junior Judge }

Case Summary

{ Response from Senior Judge }

Appeal Petition

{ Appeal } Candidate Charges { top10_rel_accu }

Candidate Legal Provisions { top10_rel_rules }

Similar Cases

{ top5_rel}

Task

As a senior presiding judge, based on the Criminal Law of the People's Republic of China (amended on December 29, 2023), determine the defendant's charges, relevant legal provisions, and penalty according to the defendant information, case summary, candidate charges, and legal provisions. Prioritize selecting from the candidate charges and legal provisions; if the case requires, other applicable charges or legal provisions may be chosen.

Task Requirements

1. Output a single line in JSON format for the judgment result, strictly adhering to the specified format.

2. Do not output the thought process or judgment analysis.

3. Charges ('charge') should not include the word "crime," e.g., "intentional homicide crime" should be output as "intentional homicide."

4. Legal provisions ('relevant_articles') are represented by integer numbers, sourced from the Criminal Law of 2023, amended on December 29.

5. The term of imprisonment ('imprisonment') is expressed in months as an integer, e.g., 1 year is 12, 3.5 years is 42; for death penalty or life imprisonment, 'imprisonment' is 0.

6. In 'term_of_imprisonment', 'death_penalty' and 'life_imprisonment' are boolean values; a suspended death sentence is treated as a death penalty ('death_penalty: true').

7. Do not use code blocks (e.g., "'json) for output; directly output the JSON string.

Output Format

{"relevant_articles": [Number1, Number2, ...], "charge": ["Charge1", "Charge2", ...], "term_of_imprisonment": {"death_penalty": true/false, "imprisonment": Integer, "life_imprisonment": true/false}}

Table 13: Prompt for Chief Judge (Second Instance) in JurisAgents.