DeepKE: A Deep Learning Based Knowledge Extraction Toolkit for Knowledge Base Population

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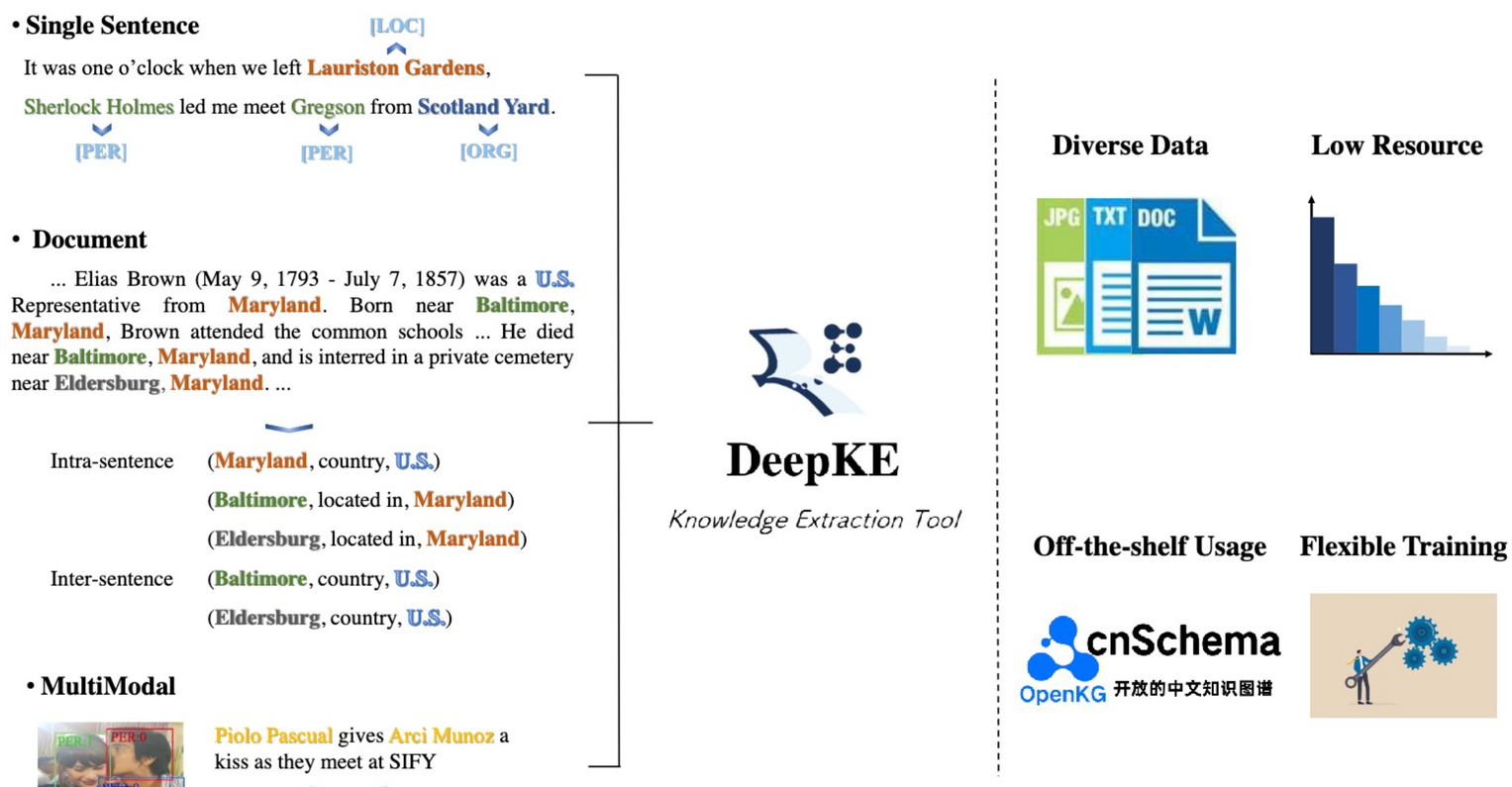
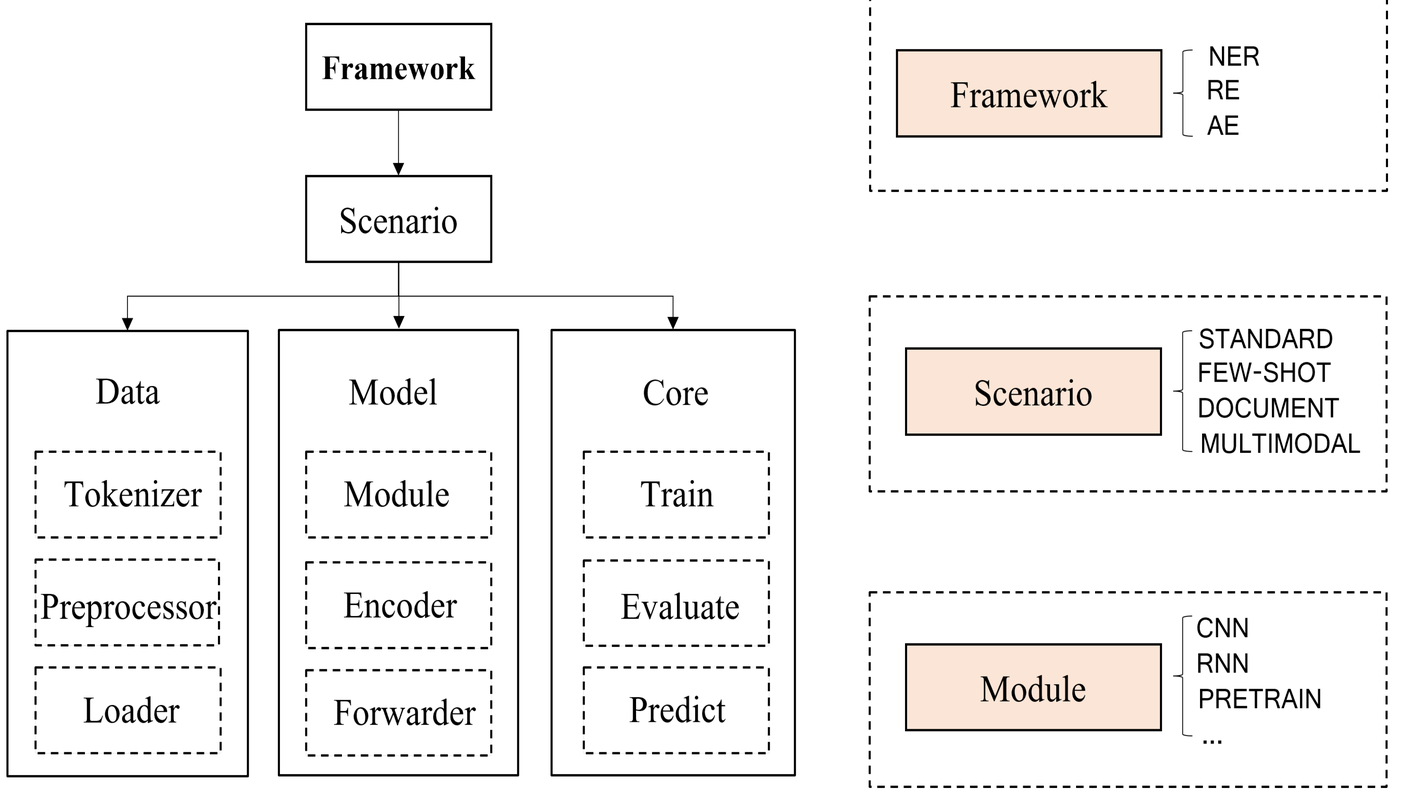
Characters of DeepKE

- An open-source and extensible knowledge extraction toolkit
- Implements various information extraction tasks, including **named entity recognition** (NER), **relation extraction** (RE) and **attribute extraction** (AE)
- Compatible with diverse English and Chinese relation extraction datasets
- Support many classic neural network models and advanced methods



- Contain **cnSchema-based Off-the-shelf Models (Chinese)**: DeepKE-cnSchema (NER / RE)
- Provide the online demo system, detailed tutorials and documentation

Design of DeepKE



- Three modules with one unified framework : Data, Model and Core
- **Data**: preprocessing and loading input data; a bridge between data files and models
- **Model**: including submodules of diverse NNs, encoders and forwarders; implementing NNs in special tasks and scenarios
- **Core**: model training, evaluation, prediction and different loss functions

Usage of DeepKE

- Different tasks and scenarios with a unified API including standard supervised RE, few-shot RE (*KnowPrompt* [1]), standard supervised NER, few-shot NER (*LightNER* [2]), document-level RE (*DocuNet* [3]) , multimodal NER and RE (*IFAformer*)
- **Step1:** Go to the *example* folder in the DeepKE GitHub Repo.
  Step2: Modify **yaml* to customize hyperparameters
  Step3: Run *train.py* for training and *predict.py* for prediction
- Execute real-time extraction in the online demo system and show results as knowledge graphs and tabels

GitHub

Demo

DeepKE
Knowledge Extraction Tool

[1] Chen X, Zhang N, Xie X, et al. Knowprompt: Knowledge-aware prompt-tuning with synergistic optimization for relation extraction [C]. WWW 2022.
[2] Chen X, Lei L, Shumin D, et al. LightNER: A Lightweight Tuning Paradigm for Low-resource NER via Pluggable Prompting [C]. COLING 2022.
[3] Zhang N, Chen X, Xie X, et al. Document-level relation extraction as semantic segmentation [C]. IJCAI 2021.