

# infer\_03\_er\_siamese\_bert\_base\_run\_01

May 2, 2023

## 1 Model 03 inference

Evidence retrieval using a siamese BERT classification model. This is similar to Model 01 except this does not use any community based models from sentence transformer.

### 1.1 Setup

#### 1.1.1 Working directory

```
[ ]: # Change the working directory to project root
from pathlib import Path
import os
ROOT_DIR = Path.cwd()
while not ROOT_DIR.joinpath("src").exists():
    ROOT_DIR = ROOT_DIR.parent
os.chdir(ROOT_DIR)
```

#### 1.1.2 File paths

```
[ ]: MODEL_PATH = ROOT_DIR.joinpath("./result/models/*")
OUTPUT_PATH = ROOT_DIR.joinpath("./result/inference/*")
DATA_PATH = ROOT_DIR.joinpath("./data/*")
NER_PATH = ROOT_DIR.joinpath("./result/ner/*")
```

#### 1.1.3 Dependencies

```
[ ]: # Imports and dependencies
import torch
from torch.utils.data import Dataset, DataLoader
from torch.nn import Linear, Module, CrossEntropyLoss, Dropout, CosineSimilarity
from transformers import BertModel, BertTokenizer
from torch.optim import Adam
from torch.optim.lr_scheduler import LinearLR
from torch.nn.functional import relu, softmax
from torcheval.metrics import BinaryAccuracy, BinaryF1Score, BinaryRecall

from src.torch_utils import get_torch_device
from src.data import create_claim_output
```

```

import json
from dataclasses import dataclass
from typing import List, Union, Tuple, Dict
from tqdm import tqdm
import random
import numpy as np
from datetime import datetime
from math import exp
from collections import defaultdict

TORCH_DEVICE = get_torch_device()

```

```

/opt/homebrew/Caskroom/miniconda/base/envs/comp90042_project/lib/python3.8/site-
packages/tqdm/auto.py:21: TqdmWarning: IProgress not found. Please update
jupyter and ipywidgets. See
https://ipywidgets.readthedocs.io/en/stable/user\_install.html
    from .autonotebook import tqdm as notebook_tqdm

```

Torch device is 'mps'

## 1.2 Dataset

```

[ ]: @dataclass
class ClaimEvidencePair:
    claim_id:str
    evidence_id:str
    label:int = 0

```

```

[ ]: class InferenceClaims(Dataset):

    def __init__(self, claims_path:Path) -> None:
        super(InferenceClaims, self).__init__()
        with open(claims_path, mode="r") as f:
            self.claims = json.load(fp=f)
            self.claim_ids = list(self.claims.keys())
            print(f"loaded inference claims n={len(self.claim_ids)}")
        return

    def __len__(self):
        return len(self.claim_ids)

    def __getitem__(self, idx) -> Tuple[str]:
        claim_id = self.claim_ids[idx]
        claim_text = self.claims[claim_id]["claim_text"]
        return claim_id, claim_text

```

```

[ ]: class SiameseDatasetInference(Dataset):

    def __init__(
        self,
        claim_id:str,
        claims_path:Path,
        evidence_path:Path,
        claims_shortlist:Path = None,
        evidence_shortlist:Path = None,
        verbose:bool=True
    ) -> None:
        super(SiameseDatasetInference, self).__init__()
        self.verbose = verbose
        self.claim_id = claim_id

        # Load claims text from json
        with open(claims_path, mode="r") as f:
            claims = json.load(fp=f)
            self.claim_text = claims[self.claim_id]["claim_text"]

        # Load evidence library
        with open(evidence_path, mode="r") as f:
            self.evidence = json.load(fp=f)

        # Load the pre-retrieved shortlist of evidences
        # From either a pre-retrieved list of evidences specific for the
        # claim_id or from a pre-collated evidence shortlist
        # Both of which were determined from the fast shortlisting process
        if claims_shortlist is not None:
            with open(claims_shortlist, mode="r") as f:
                claims_shortlist_ = json.load(fp=f)
                self.evidence_shortlist = list(set(
                    claims_shortlist_.get(self.claim_id, [])
                ))
                print(f"loaded claims_shortlist: {claims_shortlist}")
        elif evidence_shortlist is not None:
            with open(evidence_shortlist, mode="r") as f:
                self.evidence_shortlist = list(set(json.load(fp=f)))
                print(f"loaded evidence_shortlist: {evidence_shortlist}")
        else:
            raise Exception(
                "Provide either a claims_shortlist or evidence_shortlist"
            )

        return

    def __len__(self):

```

```

        return len(self.evidence_shortlist)

def __getitem__(self, idx) -> Tuple[str]:
    # Get text ids
    claim_id = self.claim_id
    evidence_id = self.evidence_shortlist[idx]

    # Get text
    claim_text = self.claim_text
    evidence_text = self.evidence[evidence_id]

    return (claim_text, evidence_text, claim_id, evidence_id)

```

### 1.3 Load model

```

[ ]: class SiameseClassifierBert(Module):

    def __init__(
        self,
        pretrained_name:str,
        device,
        **kwargs
    ) -> None:
        super(SiameseClassifierBert, self).__init__(**kwargs)
        self.device = device

        # Use a pretrained tokenizer
        self.tokenizer = BertTokenizer.from_pretrained(pretrained_name)

        # Use a pretrained model
        self.bert = BertModel.from_pretrained(pretrained_name)
        self.bert.to(device=device)

        # Classification layers
        self.linear1 = Linear(2304, 1024, bias=True, device=device)
        self.linear2 = Linear(1024, 512, bias=True, device=device)
        self.linear3 = Linear(512, 2, bias=True, device=device)
        self.relu = relu
        self.softmax = softmax
        self.dropout_in = Dropout(p=0.2)
        self.dropout_out = Dropout(p=0.5)

        # print(self.tokenizer)
        # print(self.bert)
        # print(self.linear1)
        # print(self.linear2)
        # print(self.activation)

```

```

        # print(self.softmax)
        return

def forward(self, claim_texts, evidence_texts) -> Tuple[torch.Tensor]:

    # Run the tokenizer
    t_kwargs = {
        "return_tensors": "pt",
        "padding": True,
        "truncation": True,
        "max_length": 100,
        "add_special_tokens": True
    }
    claim_x = self.tokenizer(claim_texts, **t_kwargs)
    evidence_x = self.tokenizer(evidence_texts, **t_kwargs)

    claim_x = claim_x["input_ids"].to(device=self.device)
    evidence_x = evidence_x["input_ids"].to(device=self.device)

    # Run Bert
    claim_x = self.bert(claim_x, return_dict=True).pooler_output
    evidence_x = self.bert(evidence_x, return_dict=True).pooler_output
    # dim=768

    # Concatenate the two embeddings
    x = torch.cat((claim_x, evidence_x, claim_x - evidence_x), dim=1)
    # dim=2304

    # Run classification layers
    x = self.dropout_in(x)
    x = self.linear1(x)
    x = self.relu(x)
    x = self.dropout_out(x)
    x = self.linear2(x)
    x = self.relu(x)
    x = self.dropout_out(x)
    x = self.linear3(x)

    # Create the predictions
    y = self.softmax(x, dim=-1)

    return (y, claim_x, evidence_x)

```

```

[ ]: MODEL_NAME = f"model_03_base_run_01.pth"
    BATCH_SIZE = 64

```

```
[ ]: with open(MODEL_PATH.with_name(MODEL_NAME), mode="rb") as f:
      model = torch.load(f, map_location=TORCH_DEVICE)
```

## 1.4 Inference run code

```
[ ]: @dataclass
class EvidenceScore:
    evidence_id:str
    score:float

    def to_list(self) -> List[str]:
        return [self.evidence_id, str(self.score)]

    def to_dict(self) -> Dict[str, str]:
        return {"evidence_id": self.evidence_id, "score": str(self.score)}
```

```
[ ]: def inference_run(
    claims_path:Path,
    evidence_path:Path,
    claims_shortlist:Path = None,
    evidence_shortlist:Path = None,
    save_path:Path = None,
    batch_size:int = 64
):
    # Generate claims iterations
    inference_claims = InferenceClaims(claims_path=claims_path)

    # Cumulator
    claim_predictions = dict()

    # Load from save to continue inference if exists
    saved_predictions = dict()
    if save_path.exists():
        with open(save_path, mode="r") as f:
            saved_predictions.update(json.load(fp=f))

    for claim_id, claim_text in inference_claims:

        # Skip if a save entry exists
        if claim_id in saved_predictions.keys():
            print(f"skipping {claim_id}, done previously")
            continue

        # Create a save entry
        claim_predictions[claim_id] = {
            "claim_text": claim_text,
            "evidences": []
```

```

}

# Generate claims-evidence inference iterations
infer_data = SiameseDatasetInference(
    claim_id=claim_id,
    claims_path=claims_path,
    evidence_path=evidence_path,
    claims_shortlist=claims_shortlist,
    evidence_shortlist=evidence_shortlist,
)
infer_dataloader = DataLoader(
    dataset=infer_data,
    shuffle=False,
    batch_size=batch_size
)

print(f"running inference for {claim_id} n={len(infer_data)}")

# Set model mode to evaluation
model.eval()

infer_batches = tqdm(infer_dataloader, desc="infer batches")
for batch in infer_batches:
    claim_texts, evidence_texts, batch_claim_ids, batch_evidence_ids = \
    batch

    # Forward
    predictions, claim_emb, evidence_emb = model(claim_texts, \
    evidence_texts)

    # Prediction
    _, predicted_labels = torch.max(predictions, dim=-1)

    # Score embeddings with cosine similarity
    cos_sim = CosineSimilarity(dim=1)
    scores = cos_sim(claim_emb, evidence_emb)

    for c_id, e_id, predicted_label, score in zip(
        batch_claim_ids, batch_evidence_ids,
        predicted_labels.cpu().numpy(),
        scores.cpu().detach().numpy()
    ):
        if predicted_label == 1:
            claim_predictions[c_id]["evidences"].append(EvidenceScore(
                evidence_id=e_id,
                score=score
            ))

```

```

        continue

    # Save on every claim_id
    if save_path:
        # Retrieve at most 5 top predicted evidences by score
        claim_predictions_output = dict()
        for claim_id_, claim_ in claim_predictions.items():
            claim_ = claim_.copy()
            claim_["evidences"] = [
                evidence_score.evidence_id
                for evidence_score in sorted(
                    claim_["evidences"],
                    key=lambda es: es.score,
                    reverse=True
                )
           ][:5]
            claim_predictions_output[claim_id_] = claim_

        # Make a copy of existing saved results and add the new results
        # for this run
        save_dict = saved_predictions.copy()
        save_dict.update(claim_predictions_output)

        with open(save_path, mode="w") as f:
            json.dump(obj=save_dict, fp=f)
            print(f"saved to: {save_path}")

    continue
return

```

## 1.5 Dev inference

```

[ ]: inference_run(
    claims_path=DATA_PATH.with_name("dev-claims.json"),
    evidence_path=DATA_PATH.with_name("evidence.json"),
    claims_shortlist=NER_PATH.with_name("dev_claim_evidence_retrieved.json"),
    # evidence_shortlist=NER_PATH.
    ↪with_name("shortlist_dev_claim_evidence_retrieved.json"),
    save_path=OUTPUT_PATH.
    ↪with_name("model_03_run_01_dev_claim_evidence_retrieved.json")
)

```

loaded inference claims n=154

loaded claims\_shortlist: /Users/johnsonzhou/git/comp90042-project/result/ner/dev\_claim\_evidence\_retrieved.json

running inference for claim-752 n=1564



```

infer batches: 100%|      | 25/25 [00:05<00:00,  4.30it/s]

saved to: /Users/johnsonzhou/git/comp90042-project/result/inference/model_03_run
_01_dev_claim_evidence_retrieved.json
loaded claims_shortlist: /Users/johnsonzhou/git/comp90042-project/result/ner/dev
_claim_evidence_retrieved.json
running inference for claim-375 n=3682

infer batches: 100%|      | 58/58 [00:15<00:00,  3.77it/s]

saved to: /Users/johnsonzhou/git/comp90042-project/result/inference/model_03_run
_01_dev_claim_evidence_retrieved.json
loaded claims_shortlist: /Users/johnsonzhou/git/comp90042-project/result/ner/dev
_claim_evidence_retrieved.json
running inference for claim-1266 n=0

infer batches: 0it [00:00, ?it/s]

saved to: /Users/johnsonzhou/git/comp90042-project/result/inference/model_03_run
_01_dev_claim_evidence_retrieved.json


loaded claims_shortlist: /Users/johnsonzhou/git/comp90042-project/result/ner/dev
_claim_evidence_retrieved.json
running inference for claim-871 n=2111

infer batches: 100%|      | 33/33 [00:08<00:00,  4.03it/s]

saved to: /Users/johnsonzhou/git/comp90042-project/result/inference/model_03_run
_01_dev_claim_evidence_retrieved.json
loaded claims_shortlist: /Users/johnsonzhou/git/comp90042-project/result/ner/dev
_claim_evidence_retrieved.json
running inference for claim-2164 n=2013

infer batches: 100%|      | 32/32 [00:06<00:00,  4.63it/s]

saved to: /Users/johnsonzhou/git/comp90042-project/result/inference/model_03_run
_01_dev_claim_evidence_retrieved.json
loaded claims_shortlist: /Users/johnsonzhou/git/comp90042-project/result/ner/dev
_claim_evidence_retrieved.json
running inference for claim-1607 n=3710

infer batches: 100%|      | 58/58 [00:11<00:00,  4.87it/s]

saved to: /Users/johnsonzhou/git/comp90042-project/result/inference/model_03_run
_01_dev_claim_evidence_retrieved.json
loaded claims_shortlist: /Users/johnsonzhou/git/comp90042-project/result/ner/dev
_claim_evidence_retrieved.json
running inference for claim-761 n=1075

infer batches: 100%|      | 17/17 [00:04<00:00,  3.98it/s]

saved to: /Users/johnsonzhou/git/comp90042-project/result/inference/model_03_run
_01_dev_claim_evidence_retrieved.json

```

```

loaded claims_shortlist: /Users/johnsonzhou/git/comp90042-project/result/ner/dev
_claim_evidence_retrieved.json
running inference for claim-1718 n=1169

infer batches: 100%|      | 19/19 [00:04<00:00,  4.35it/s]

saved to: /Users/johnsonzhou/git/comp90042-project/result/inference/model_03_run
_01_dev_claim_evidence_retrieved.json
loaded claims_shortlist: /Users/johnsonzhou/git/comp90042-project/result/ner/dev
_claim_evidence_retrieved.json
running inference for claim-1273 n=8586

infer batches: 100%|      | 135/135 [00:39<00:00,  3.45it/s]

saved to: /Users/johnsonzhou/git/comp90042-project/result/inference/model_03_run
_01_dev_claim_evidence_retrieved.json
loaded claims_shortlist: /Users/johnsonzhou/git/comp90042-project/result/ner/dev
_claim_evidence_retrieved.json
running inference for claim-1786 n=132

infer batches: 100%|      | 3/3 [00:01<00:00,  2.28it/s]

saved to: /Users/johnsonzhou/git/comp90042-project/result/inference/model_03_run
_01_dev_claim_evidence_retrieved.json
loaded claims_shortlist: /Users/johnsonzhou/git/comp90042-project/result/ner/dev
_claim_evidence_retrieved.json
running inference for claim-2796 n=3903

infer batches: 100%|      | 61/61 [00:15<00:00,  3.91it/s]

saved to: /Users/johnsonzhou/git/comp90042-project/result/inference/model_03_run
_01_dev_claim_evidence_retrieved.json
loaded claims_shortlist: /Users/johnsonzhou/git/comp90042-project/result/ner/dev
_claim_evidence_retrieved.json
running inference for claim-2580 n=2105

infer batches: 100%|      | 33/33 [00:06<00:00,  4.72it/s]

saved to: /Users/johnsonzhou/git/comp90042-project/result/inference/model_03_run
_01_dev_claim_evidence_retrieved.json
loaded claims_shortlist: /Users/johnsonzhou/git/comp90042-project/result/ner/dev
_claim_evidence_retrieved.json
running inference for claim-1219 n=4664

infer batches: 100%|      | 73/73 [00:16<00:00,  4.36it/s]

saved to: /Users/johnsonzhou/git/comp90042-project/result/inference/model_03_run
_01_dev_claim_evidence_retrieved.json
loaded claims_shortlist: /Users/johnsonzhou/git/comp90042-project/result/ner/dev
_claim_evidence_retrieved.json
running inference for claim-75 n=1554

infer batches: 100%|      | 25/25 [00:05<00:00,  4.39it/s]

```

```

saved to: /Users/johnsonzhou/git/comp90042-project/result/inference/model_03_run
_01_dev_claim_evidence_retrieved.json
loaded claims_shortlist: /Users/johnsonzhou/git/comp90042-project/result/ner/dev
_claim_evidence_retrieved.json
running inference for claim-2813 n=2959

infer batches: 100%|      | 47/47 [00:11<00:00,  4.01it/s]

saved to: /Users/johnsonzhou/git/comp90042-project/result/inference/model_03_run
_01_dev_claim_evidence_retrieved.json
loaded claims_shortlist: /Users/johnsonzhou/git/comp90042-project/result/ner/dev
_claim_evidence_retrieved.json
running inference for claim-2335 n=3631

infer batches: 100%|      | 57/57 [00:13<00:00,  4.22it/s]

saved to: /Users/johnsonzhou/git/comp90042-project/result/inference/model_03_run
_01_dev_claim_evidence_retrieved.json
loaded claims_shortlist: /Users/johnsonzhou/git/comp90042-project/result/ner/dev
_claim_evidence_retrieved.json
running inference for claim-161 n=2197

infer batches: 100%|      | 35/35 [00:08<00:00,  4.34it/s]

saved to: /Users/johnsonzhou/git/comp90042-project/result/inference/model_03_run
_01_dev_claim_evidence_retrieved.json
loaded claims_shortlist: /Users/johnsonzhou/git/comp90042-project/result/ner/dev
_claim_evidence_retrieved.json
running inference for claim-2243 n=6117

infer batches: 100%|      | 96/96 [00:21<00:00,  4.54it/s]

saved to: /Users/johnsonzhou/git/comp90042-project/result/inference/model_03_run
_01_dev_claim_evidence_retrieved.json
loaded claims_shortlist: /Users/johnsonzhou/git/comp90042-project/result/ner/dev
_claim_evidence_retrieved.json
running inference for claim-1256 n=701

infer batches: 100%|      | 11/11 [00:02<00:00,  4.31it/s]

saved to: /Users/johnsonzhou/git/comp90042-project/result/inference/model_03_run
_01_dev_claim_evidence_retrieved.json
loaded claims_shortlist: /Users/johnsonzhou/git/comp90042-project/result/ner/dev
_claim_evidence_retrieved.json
running inference for claim-506 n=4723

infer batches: 100%|      | 74/74 [00:20<00:00,  3.66it/s]

saved to: /Users/johnsonzhou/git/comp90042-project/result/inference/model_03_run
_01_dev_claim_evidence_retrieved.json
loaded claims_shortlist: /Users/johnsonzhou/git/comp90042-project/result/ner/dev
_claim_evidence_retrieved.json
running inference for claim-369 n=1984

```

```

infer batches: 100%|      | 31/31 [00:06<00:00,  4.55it/s]

saved to: /Users/johnsonzhou/git/comp90042-project/result/inference/model_03_run
_01_dev_claim_evidence_retrieved.json
loaded claims_shortlist: /Users/johnsonzhou/git/comp90042-project/result/ner/dev
_claim_evidence_retrieved.json
running inference for claim-2184 n=48

infer batches: 100%|      | 1/1 [00:00<00:00,  2.68it/s]

saved to: /Users/johnsonzhou/git/comp90042-project/result/inference/model_03_run
_01_dev_claim_evidence_retrieved.json
loaded claims_shortlist: /Users/johnsonzhou/git/comp90042-project/result/ner/dev
_claim_evidence_retrieved.json
running inference for claim-1057 n=3478

infer batches: 100%|      | 55/55 [00:11<00:00,  4.64it/s]

saved to: /Users/johnsonzhou/git/comp90042-project/result/inference/model_03_run
_01_dev_claim_evidence_retrieved.json
loaded claims_shortlist: /Users/johnsonzhou/git/comp90042-project/result/ner/dev
_claim_evidence_retrieved.json
running inference for claim-104 n=2806

infer batches: 100%|      | 44/44 [00:09<00:00,  4.79it/s]

saved to: /Users/johnsonzhou/git/comp90042-project/result/inference/model_03_run
_01_dev_claim_evidence_retrieved.json
loaded claims_shortlist: /Users/johnsonzhou/git/comp90042-project/result/ner/dev
_claim_evidence_retrieved.json
running inference for claim-1975 n=6634

infer batches: 100%|      | 104/104 [00:26<00:00,  3.89it/s]

saved to: /Users/johnsonzhou/git/comp90042-project/result/inference/model_03_run
_01_dev_claim_evidence_retrieved.json
loaded claims_shortlist: /Users/johnsonzhou/git/comp90042-project/result/ner/dev
_claim_evidence_retrieved.json
running inference for claim-139 n=91

infer batches: 100%|      | 2/2 [00:00<00:00,  2.01it/s]

saved to: /Users/johnsonzhou/git/comp90042-project/result/inference/model_03_run
_01_dev_claim_evidence_retrieved.json
loaded claims_shortlist: /Users/johnsonzhou/git/comp90042-project/result/ner/dev
_claim_evidence_retrieved.json
running inference for claim-2062 n=4300

infer batches: 100%|      | 68/68 [00:14<00:00,  4.63it/s]

saved to: /Users/johnsonzhou/git/comp90042-project/result/inference/model_03_run
_01_dev_claim_evidence_retrieved.json
loaded claims_shortlist: /Users/johnsonzhou/git/comp90042-project/result/ner/dev

```

```

_claim_evidence_retrieved.json
running inference for claim-1160 n=3890

infer batches: 100%|      | 61/61 [00:14<00:00,  4.25it/s]

saved to: /Users/johnsonzhou/git/comp90042-project/result/inference/model_03_run
_01_dev_claim_evidence_retrieved.json
loaded claims_shortlist: /Users/johnsonzhou/git/comp90042-project/result/ner/dev
_claim_evidence_retrieved.json
running inference for claim-2679 n=3162

infer batches: 100%|      | 50/50 [00:12<00:00,  4.09it/s]

saved to: /Users/johnsonzhou/git/comp90042-project/result/inference/model_03_run
_01_dev_claim_evidence_retrieved.json
loaded claims_shortlist: /Users/johnsonzhou/git/comp90042-project/result/ner/dev
_claim_evidence_retrieved.json
running inference for claim-2662 n=3477

infer batches: 100%|      | 55/55 [00:16<00:00,  3.39it/s]

saved to: /Users/johnsonzhou/git/comp90042-project/result/inference/model_03_run
_01_dev_claim_evidence_retrieved.json
loaded claims_shortlist: /Users/johnsonzhou/git/comp90042-project/result/ner/dev
_claim_evidence_retrieved.json
running inference for claim-1490 n=6696

infer batches: 100%|      | 105/105 [00:26<00:00,  3.90it/s]

saved to: /Users/johnsonzhou/git/comp90042-project/result/inference/model_03_run
_01_dev_claim_evidence_retrieved.json
loaded claims_shortlist: /Users/johnsonzhou/git/comp90042-project/result/ner/dev
_claim_evidence_retrieved.json
running inference for claim-2768 n=933

infer batches: 100%|      | 15/15 [00:04<00:00,  3.64it/s]

saved to: /Users/johnsonzhou/git/comp90042-project/result/inference/model_03_run
_01_dev_claim_evidence_retrieved.json
loaded claims_shortlist: /Users/johnsonzhou/git/comp90042-project/result/ner/dev
_claim_evidence_retrieved.json
running inference for claim-2168 n=1406

infer batches: 100%|      | 22/22 [00:05<00:00,  4.19it/s]

saved to: /Users/johnsonzhou/git/comp90042-project/result/inference/model_03_run
_01_dev_claim_evidence_retrieved.json
loaded claims_shortlist: /Users/johnsonzhou/git/comp90042-project/result/ner/dev
_claim_evidence_retrieved.json
running inference for claim-785 n=3402

infer batches: 100%|      | 54/54 [00:12<00:00,  4.17it/s]

saved to: /Users/johnsonzhou/git/comp90042-project/result/inference/model_03_run
_01_dev_claim_evidence_retrieved.json

```

```

loaded claims_shortlist: /Users/johnsonzhou/git/comp90042-project/result/ner/dev
_claim_evidence_retrieved.json
running inference for claim-2426 n=1916

infer batches: 100%|      | 30/30 [00:07<00:00, 4.17it/s]

saved to: /Users/johnsonzhou/git/comp90042-project/result/inference/model_03_run
_01_dev_claim_evidence_retrieved.json
loaded claims_shortlist: /Users/johnsonzhou/git/comp90042-project/result/ner/dev
_claim_evidence_retrieved.json
running inference for claim-1292 n=2162

infer batches: 100%|      | 34/34 [00:08<00:00, 4.11it/s]

saved to: /Users/johnsonzhou/git/comp90042-project/result/inference/model_03_run
_01_dev_claim_evidence_retrieved.json
loaded claims_shortlist: /Users/johnsonzhou/git/comp90042-project/result/ner/dev
_claim_evidence_retrieved.json
running inference for claim-993 n=8185

infer batches: 100%|      | 128/128 [00:34<00:00, 3.75it/s]

saved to: /Users/johnsonzhou/git/comp90042-project/result/inference/model_03_run
_01_dev_claim_evidence_retrieved.json
loaded claims_shortlist: /Users/johnsonzhou/git/comp90042-project/result/ner/dev
_claim_evidence_retrieved.json
running inference for claim-2593 n=1541

infer batches: 100%|      | 25/25 [00:07<00:00, 3.31it/s]

saved to: /Users/johnsonzhou/git/comp90042-project/result/inference/model_03_run
_01_dev_claim_evidence_retrieved.json
loaded claims_shortlist: /Users/johnsonzhou/git/comp90042-project/result/ner/dev
_claim_evidence_retrieved.json
running inference for claim-1567 n=1685

infer batches: 100%|      | 27/27 [00:06<00:00, 4.45it/s]

saved to: /Users/johnsonzhou/git/comp90042-project/result/inference/model_03_run
_01_dev_claim_evidence_retrieved.json
loaded claims_shortlist: /Users/johnsonzhou/git/comp90042-project/result/ner/dev
_claim_evidence_retrieved.json
running inference for claim-1834 n=6075

infer batches: 100%|      | 95/95 [00:23<00:00, 3.97it/s]

saved to: /Users/johnsonzhou/git/comp90042-project/result/inference/model_03_run
_01_dev_claim_evidence_retrieved.json
loaded claims_shortlist: /Users/johnsonzhou/git/comp90042-project/result/ner/dev
_claim_evidence_retrieved.json
running inference for claim-856 n=3509

infer batches: 100%|      | 55/55 [00:17<00:00, 3.11it/s]

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saved to: /Users/johnsonzhou/git/comp90042-project/result/inference/model_03_run
_01_dev_claim_evidence_retrieved.json
loaded claims_shortlist: /Users/johnsonzhou/git/comp90042-project/result/ner/dev
_claim_evidence_retrieved.json
running inference for claim-540 n=43

infer batches: 100%|      | 1/1 [00:00<00:00,  1.01it/s]

saved to: /Users/johnsonzhou/git/comp90042-project/result/inference/model_03_run
_01_dev_claim_evidence_retrieved.json
loaded claims_shortlist: /Users/johnsonzhou/git/comp90042-project/result/ner/dev
_claim_evidence_retrieved.json
running inference for claim-757 n=1689

infer batches: 100%|      | 27/27 [00:06<00:00,  4.07it/s]

saved to: /Users/johnsonzhou/git/comp90042-project/result/inference/model_03_run
_01_dev_claim_evidence_retrieved.json
loaded claims_shortlist: /Users/johnsonzhou/git/comp90042-project/result/ner/dev
_claim_evidence_retrieved.json
running inference for claim-1407 n=4756

infer batches: 100%|      | 75/75 [00:19<00:00,  3.84it/s]

saved to: /Users/johnsonzhou/git/comp90042-project/result/inference/model_03_run
_01_dev_claim_evidence_retrieved.json
loaded claims_shortlist: /Users/johnsonzhou/git/comp90042-project/result/ner/dev
_claim_evidence_retrieved.json
running inference for claim-3070 n=3882

infer batches: 100%|      | 61/61 [00:16<00:00,  3.79it/s]

saved to: /Users/johnsonzhou/git/comp90042-project/result/inference/model_03_run
_01_dev_claim_evidence_retrieved.json
loaded claims_shortlist: /Users/johnsonzhou/git/comp90042-project/result/ner/dev
_claim_evidence_retrieved.json
running inference for claim-1745 n=698

infer batches: 100%|      | 11/11 [00:03<00:00,  3.29it/s]

saved to: /Users/johnsonzhou/git/comp90042-project/result/inference/model_03_run
_01_dev_claim_evidence_retrieved.json
loaded claims_shortlist: /Users/johnsonzhou/git/comp90042-project/result/ner/dev
_claim_evidence_retrieved.json
running inference for claim-1515 n=0

infer batches: 0it [00:00, ?it/s]

saved to: /Users/johnsonzhou/git/comp90042-project/result/inference/model_03_run
_01_dev_claim_evidence_retrieved.json

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loaded claims_shortlist: /Users/johnsonzhou/git/comp90042-project/result/ner/dev
_claim_evidence_retrieved.json
running inference for claim-1519 n=6585

infer batches: 100%|      | 103/103 [00:27<00:00,  3.73it/s]

saved to: /Users/johnsonzhou/git/comp90042-project/result/inference/model_03_run
_01_dev_claim_evidence_retrieved.json
loaded claims_shortlist: /Users/johnsonzhou/git/comp90042-project/result/ner/dev
_claim_evidence_retrieved.json
running inference for claim-3069 n=2974

infer batches: 100%|      | 47/47 [00:13<00:00,  3.49it/s]

saved to: /Users/johnsonzhou/git/comp90042-project/result/inference/model_03_run
_01_dev_claim_evidence_retrieved.json
loaded claims_shortlist: /Users/johnsonzhou/git/comp90042-project/result/ner/dev
_claim_evidence_retrieved.json
running inference for claim-677 n=2973

infer batches: 100%|      | 47/47 [00:11<00:00,  4.03it/s]

saved to: /Users/johnsonzhou/git/comp90042-project/result/inference/model_03_run
_01_dev_claim_evidence_retrieved.json
loaded claims_shortlist: /Users/johnsonzhou/git/comp90042-project/result/ner/dev
_claim_evidence_retrieved.json
running inference for claim-765 n=1753

infer batches: 100%|      | 28/28 [00:06<00:00,  4.59it/s]

saved to: /Users/johnsonzhou/git/comp90042-project/result/inference/model_03_run
_01_dev_claim_evidence_retrieved.json
loaded claims_shortlist: /Users/johnsonzhou/git/comp90042-project/result/ner/dev
_claim_evidence_retrieved.json
running inference for claim-2275 n=1973

infer batches: 100%|      | 31/31 [00:06<00:00,  4.47it/s]

saved to: /Users/johnsonzhou/git/comp90042-project/result/inference/model_03_run
_01_dev_claim_evidence_retrieved.json
loaded claims_shortlist: /Users/johnsonzhou/git/comp90042-project/result/ner/dev
_claim_evidence_retrieved.json
running inference for claim-1113 n=2746

infer batches: 100%|      | 43/43 [00:09<00:00,  4.32it/s]

saved to: /Users/johnsonzhou/git/comp90042-project/result/inference/model_03_run
_01_dev_claim_evidence_retrieved.json
loaded claims_shortlist: /Users/johnsonzhou/git/comp90042-project/result/ner/dev
_claim_evidence_retrieved.json
running inference for claim-2611 n=2533

infer batches: 100%|      | 40/40 [00:08<00:00,  4.54it/s]

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saved to: /Users/johnsonzhou/git/comp90042-project/result/inference/model_03_run
_01_dev_claim_evidence_retrieved.json
loaded claims_shortlist: /Users/johnsonzhou/git/comp90042-project/result/ner/dev
_claim_evidence_retrieved.json
running inference for claim-2060 n=2667

infer batches: 100%|      | 42/42 [00:08<00:00,  4.80it/s]

saved to: /Users/johnsonzhou/git/comp90042-project/result/inference/model_03_run
_01_dev_claim_evidence_retrieved.json
loaded claims_shortlist: /Users/johnsonzhou/git/comp90042-project/result/ner/dev
_claim_evidence_retrieved.json
running inference for claim-2326 n=1835

infer batches: 100%|      | 29/29 [00:06<00:00,  4.30it/s]

saved to: /Users/johnsonzhou/git/comp90042-project/result/inference/model_03_run
_01_dev_claim_evidence_retrieved.json
loaded claims_shortlist: /Users/johnsonzhou/git/comp90042-project/result/ner/dev
_claim_evidence_retrieved.json
running inference for claim-1087 n=2464

infer batches: 100%|      | 39/39 [00:09<00:00,  3.91it/s]

saved to: /Users/johnsonzhou/git/comp90042-project/result/inference/model_03_run
_01_dev_claim_evidence_retrieved.json
loaded claims_shortlist: /Users/johnsonzhou/git/comp90042-project/result/ner/dev
_claim_evidence_retrieved.json
running inference for claim-2867 n=1254

infer batches: 100%|      | 20/20 [00:05<00:00,  3.63it/s]

saved to: /Users/johnsonzhou/git/comp90042-project/result/inference/model_03_run
_01_dev_claim_evidence_retrieved.json
loaded claims_shortlist: /Users/johnsonzhou/git/comp90042-project/result/ner/dev
_claim_evidence_retrieved.json
running inference for claim-2300 n=1414

infer batches: 100%|      | 23/23 [00:05<00:00,  4.14it/s]

saved to: /Users/johnsonzhou/git/comp90042-project/result/inference/model_03_run
_01_dev_claim_evidence_retrieved.json
loaded claims_shortlist: /Users/johnsonzhou/git/comp90042-project/result/ner/dev
_claim_evidence_retrieved.json
running inference for claim-2250 n=3883

infer batches: 100%|      | 61/61 [00:17<00:00,  3.39it/s]

saved to: /Users/johnsonzhou/git/comp90042-project/result/inference/model_03_run
_01_dev_claim_evidence_retrieved.json
loaded claims_shortlist: /Users/johnsonzhou/git/comp90042-project/result/ner/dev
_claim_evidence_retrieved.json
running inference for claim-2429 n=5868

```

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infer batches: 100%|      | 92/92 [00:29<00:00, 3.08it/s]

saved to: /Users/johnsonzhou/git/comp90042-project/result/inference/model_03_run
_01_dev_claim_evidence_retrieved.json
loaded claims_shortlist: /Users/johnsonzhou/git/comp90042-project/result/ner/dev
_claim_evidence_retrieved.json
running inference for claim-3051 n=7902

infer batches: 100%|      | 124/124 [00:33<00:00, 3.70it/s]

saved to: /Users/johnsonzhou/git/comp90042-project/result/inference/model_03_run
_01_dev_claim_evidence_retrieved.json
loaded claims_shortlist: /Users/johnsonzhou/git/comp90042-project/result/ner/dev
_claim_evidence_retrieved.json
running inference for claim-1549 n=1768

infer batches: 100%|      | 28/28 [00:06<00:00, 4.57it/s]

saved to: /Users/johnsonzhou/git/comp90042-project/result/inference/model_03_run
_01_dev_claim_evidence_retrieved.json
loaded claims_shortlist: /Users/johnsonzhou/git/comp90042-project/result/ner/dev
_claim_evidence_retrieved.json
running inference for claim-261 n=1727

infer batches: 100%|      | 27/27 [00:07<00:00, 3.66it/s]

saved to: /Users/johnsonzhou/git/comp90042-project/result/inference/model_03_run
_01_dev_claim_evidence_retrieved.json
loaded claims_shortlist: /Users/johnsonzhou/git/comp90042-project/result/ner/dev
_claim_evidence_retrieved.json
running inference for claim-2230 n=4579

infer batches: 100%|      | 72/72 [00:16<00:00, 4.27it/s]

saved to: /Users/johnsonzhou/git/comp90042-project/result/inference/model_03_run
_01_dev_claim_evidence_retrieved.json
loaded claims_shortlist: /Users/johnsonzhou/git/comp90042-project/result/ner/dev
_claim_evidence_retrieved.json
running inference for claim-2579 n=4509

infer batches: 100%|      | 71/71 [00:16<00:00, 4.43it/s]

saved to: /Users/johnsonzhou/git/comp90042-project/result/inference/model_03_run
_01_dev_claim_evidence_retrieved.json
loaded claims_shortlist: /Users/johnsonzhou/git/comp90042-project/result/ner/dev
_claim_evidence_retrieved.json
running inference for claim-1416 n=7673

infer batches: 100%|      | 120/120 [00:33<00:00, 3.63it/s]

saved to: /Users/johnsonzhou/git/comp90042-project/result/inference/model_03_run
_01_dev_claim_evidence_retrieved.json
loaded claims_shortlist: /Users/johnsonzhou/git/comp90042-project/result/ner/dev

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_claim_evidence_retrieved.json
running inference for claim-2497 n=2149

infer batches: 100%|      | 34/34 [00:07<00:00,  4.76it/s]

saved to: /Users/johnsonzhou/git/comp90042-project/result/inference/model_03_run
_01_dev_claim_evidence_retrieved.json
loaded claims_shortlist: /Users/johnsonzhou/git/comp90042-project/result/ner/dev
_claim_evidence_retrieved.json
running inference for claim-811 n=5696

infer batches: 100%|      | 89/89 [00:22<00:00,  4.02it/s]

saved to: /Users/johnsonzhou/git/comp90042-project/result/inference/model_03_run
_01_dev_claim_evidence_retrieved.json
loaded claims_shortlist: /Users/johnsonzhou/git/comp90042-project/result/ner/dev
_claim_evidence_retrieved.json
running inference for claim-1896 n=4296

infer batches: 100%|      | 68/68 [00:15<00:00,  4.31it/s]

saved to: /Users/johnsonzhou/git/comp90042-project/result/inference/model_03_run
_01_dev_claim_evidence_retrieved.json
loaded claims_shortlist: /Users/johnsonzhou/git/comp90042-project/result/ner/dev
_claim_evidence_retrieved.json
running inference for claim-2819 n=1

infer batches: 100%|      | 1/1 [00:00<00:00,  1.14it/s]

saved to: /Users/johnsonzhou/git/comp90042-project/result/inference/model_03_run
_01_dev_claim_evidence_retrieved.json
loaded claims_shortlist: /Users/johnsonzhou/git/comp90042-project/result/ner/dev
_claim_evidence_retrieved.json
running inference for claim-2643 n=2313

infer batches: 100%|      | 37/37 [00:09<00:00,  3.71it/s]

saved to: /Users/johnsonzhou/git/comp90042-project/result/inference/model_03_run
_01_dev_claim_evidence_retrieved.json
loaded claims_shortlist: /Users/johnsonzhou/git/comp90042-project/result/ner/dev
_claim_evidence_retrieved.json
running inference for claim-1775 n=5493

infer batches: 100%|      | 86/86 [00:20<00:00,  4.10it/s]

saved to: /Users/johnsonzhou/git/comp90042-project/result/inference/model_03_run
_01_dev_claim_evidence_retrieved.json
loaded claims_shortlist: /Users/johnsonzhou/git/comp90042-project/result/ner/dev
_claim_evidence_retrieved.json
running inference for claim-316 n=1891

infer batches: 100%|      | 30/30 [00:06<00:00,  4.44it/s]

saved to: /Users/johnsonzhou/git/comp90042-project/result/inference/model_03_run
_01_dev_claim_evidence_retrieved.json

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loaded claims_shortlist: /Users/johnsonzhou/git/comp90042-project/result/ner/dev
_claim_evidence_retrieved.json
running inference for claim-896 n=9240

infer batches: 100%|      | 145/145 [00:37<00:00,  3.89it/s]

saved to: /Users/johnsonzhou/git/comp90042-project/result/inference/model_03_run
_01_dev_claim_evidence_retrieved.json
loaded claims_shortlist: /Users/johnsonzhou/git/comp90042-project/result/ner/dev
_claim_evidence_retrieved.json
running inference for claim-331 n=2684

infer batches: 100%|      | 42/42 [00:09<00:00,  4.37it/s]

saved to: /Users/johnsonzhou/git/comp90042-project/result/inference/model_03_run
_01_dev_claim_evidence_retrieved.json
loaded claims_shortlist: /Users/johnsonzhou/git/comp90042-project/result/ner/dev
_claim_evidence_retrieved.json
running inference for claim-2574 n=1218

infer batches: 100%|      | 20/20 [00:04<00:00,  4.13it/s]

saved to: /Users/johnsonzhou/git/comp90042-project/result/inference/model_03_run
_01_dev_claim_evidence_retrieved.json
loaded claims_shortlist: /Users/johnsonzhou/git/comp90042-project/result/ner/dev
_claim_evidence_retrieved.json
running inference for claim-342 n=2809

infer batches: 100%|      | 44/44 [00:11<00:00,  3.79it/s]

saved to: /Users/johnsonzhou/git/comp90042-project/result/inference/model_03_run
_01_dev_claim_evidence_retrieved.json
loaded claims_shortlist: /Users/johnsonzhou/git/comp90042-project/result/ner/dev
_claim_evidence_retrieved.json
running inference for claim-2034 n=1957

infer batches: 100%|      | 31/31 [00:07<00:00,  4.11it/s]

saved to: /Users/johnsonzhou/git/comp90042-project/result/inference/model_03_run
_01_dev_claim_evidence_retrieved.json
loaded claims_shortlist: /Users/johnsonzhou/git/comp90042-project/result/ner/dev
_claim_evidence_retrieved.json
running inference for claim-578 n=4641

infer batches: 100%|      | 73/73 [00:19<00:00,  3.84it/s]

saved to: /Users/johnsonzhou/git/comp90042-project/result/inference/model_03_run
_01_dev_claim_evidence_retrieved.json
loaded claims_shortlist: /Users/johnsonzhou/git/comp90042-project/result/ner/dev
_claim_evidence_retrieved.json
running inference for claim-976 n=1870

infer batches: 100%|      | 30/30 [00:06<00:00,  4.31it/s]

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saved to: /Users/johnsonzhou/git/comp90042-project/result/inference/model_03_run
_01_dev_claim_evidence_retrieved.json
loaded claims_shortlist: /Users/johnsonzhou/git/comp90042-project/result/ner/dev
_claim_evidence_retrieved.json
running inference for claim-1097 n=3177

infer batches: 100%|      | 50/50 [00:14<00:00,  3.48it/s]

saved to: /Users/johnsonzhou/git/comp90042-project/result/inference/model_03_run
_01_dev_claim_evidence_retrieved.json
loaded claims_shortlist: /Users/johnsonzhou/git/comp90042-project/result/ner/dev
_claim_evidence_retrieved.json
running inference for claim-609 n=4013

infer batches: 100%|      | 63/63 [00:18<00:00,  3.44it/s]

saved to: /Users/johnsonzhou/git/comp90042-project/result/inference/model_03_run
_01_dev_claim_evidence_retrieved.json
loaded claims_shortlist: /Users/johnsonzhou/git/comp90042-project/result/ner/dev
_claim_evidence_retrieved.json
running inference for claim-173 n=1343

infer batches: 100%|      | 21/21 [00:05<00:00,  3.73it/s]

saved to: /Users/johnsonzhou/git/comp90042-project/result/inference/model_03_run
_01_dev_claim_evidence_retrieved.json
loaded claims_shortlist: /Users/johnsonzhou/git/comp90042-project/result/ner/dev
_claim_evidence_retrieved.json
running inference for claim-1222 n=1307

infer batches: 100%|      | 21/21 [00:06<00:00,  3.43it/s]

saved to: /Users/johnsonzhou/git/comp90042-project/result/inference/model_03_run
_01_dev_claim_evidence_retrieved.json
loaded claims_shortlist: /Users/johnsonzhou/git/comp90042-project/result/ner/dev
_claim_evidence_retrieved.json
running inference for claim-2441 n=1325

infer batches: 100%|      | 21/21 [00:05<00:00,  3.81it/s]

saved to: /Users/johnsonzhou/git/comp90042-project/result/inference/model_03_run
_01_dev_claim_evidence_retrieved.json
loaded claims_shortlist: /Users/johnsonzhou/git/comp90042-project/result/ner/dev
_claim_evidence_retrieved.json
running inference for claim-756 n=4096

infer batches: 100%|      | 64/64 [00:16<00:00,  3.91it/s]

saved to: /Users/johnsonzhou/git/comp90042-project/result/inference/model_03_run
_01_dev_claim_evidence_retrieved.json
loaded claims_shortlist: /Users/johnsonzhou/git/comp90042-project/result/ner/dev
_claim_evidence_retrieved.json
running inference for claim-2577 n=3913

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infer batches: 100%|      | 62/62 [00:15<00:00,  3.88it/s]

saved to: /Users/johnsonzhou/git/comp90042-project/result/inference/model_03_run
_01_dev_claim_evidence_retrieved.json
loaded claims_shortlist: /Users/johnsonzhou/git/comp90042-project/result/ner/dev
_claim_evidence_retrieved.json
running inference for claim-2890 n=1976

infer batches: 100%|      | 31/31 [00:07<00:00,  4.30it/s]

saved to: /Users/johnsonzhou/git/comp90042-project/result/inference/model_03_run
_01_dev_claim_evidence_retrieved.json
loaded claims_shortlist: /Users/johnsonzhou/git/comp90042-project/result/ner/dev
_claim_evidence_retrieved.json
running inference for claim-2478 n=1631

infer batches: 100%|      | 26/26 [00:07<00:00,  3.52it/s]

saved to: /Users/johnsonzhou/git/comp90042-project/result/inference/model_03_run
_01_dev_claim_evidence_retrieved.json
loaded claims_shortlist: /Users/johnsonzhou/git/comp90042-project/result/ner/dev
_claim_evidence_retrieved.json
running inference for claim-2399 n=4401

infer batches: 100%|      | 69/69 [00:17<00:00,  3.98it/s]

saved to: /Users/johnsonzhou/git/comp90042-project/result/inference/model_03_run
_01_dev_claim_evidence_retrieved.json
loaded claims_shortlist: /Users/johnsonzhou/git/comp90042-project/result/ner/dev
_claim_evidence_retrieved.json
running inference for claim-3091 n=4126

infer batches: 100%|      | 65/65 [00:15<00:00,  4.26it/s]

saved to: /Users/johnsonzhou/git/comp90042-project/result/inference/model_03_run
_01_dev_claim_evidence_retrieved.json
loaded claims_shortlist: /Users/johnsonzhou/git/comp90042-project/result/ner/dev
_claim_evidence_retrieved.json
running inference for claim-141 n=1503

infer batches: 100%|      | 24/24 [00:06<00:00,  3.91it/s]

saved to: /Users/johnsonzhou/git/comp90042-project/result/inference/model_03_run
_01_dev_claim_evidence_retrieved.json
loaded claims_shortlist: /Users/johnsonzhou/git/comp90042-project/result/ner/dev
_claim_evidence_retrieved.json
running inference for claim-1933 n=2705

infer batches: 100%|      | 43/43 [00:10<00:00,  4.27it/s]

saved to: /Users/johnsonzhou/git/comp90042-project/result/inference/model_03_run
_01_dev_claim_evidence_retrieved.json
loaded claims_shortlist: /Users/johnsonzhou/git/comp90042-project/result/ner/dev

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_claim_evidence_retrieved.json
running inference for claim-1689 n=2980

infer batches: 100%|      | 47/47 [00:11<00:00,  3.93it/s]

saved to: /Users/johnsonzhou/git/comp90042-project/result/inference/model_03_run
_01_dev_claim_evidence_retrieved.json
loaded claims_shortlist: /Users/johnsonzhou/git/comp90042-project/result/ner/dev
_claim_evidence_retrieved.json
running inference for claim-443 n=4406

infer batches: 100%|      | 69/69 [00:16<00:00,  4.15it/s]

saved to: /Users/johnsonzhou/git/comp90042-project/result/inference/model_03_run
_01_dev_claim_evidence_retrieved.json
loaded claims_shortlist: /Users/johnsonzhou/git/comp90042-project/result/ner/dev
_claim_evidence_retrieved.json
running inference for claim-2037 n=1199

infer batches: 100%|      | 19/19 [00:04<00:00,  3.88it/s]

saved to: /Users/johnsonzhou/git/comp90042-project/result/inference/model_03_run
_01_dev_claim_evidence_retrieved.json
loaded claims_shortlist: /Users/johnsonzhou/git/comp90042-project/result/ner/dev
_claim_evidence_retrieved.json
running inference for claim-1734 n=1986

infer batches: 100%|      | 32/32 [00:07<00:00,  4.25it/s]

saved to: /Users/johnsonzhou/git/comp90042-project/result/inference/model_03_run
_01_dev_claim_evidence_retrieved.json
loaded claims_shortlist: /Users/johnsonzhou/git/comp90042-project/result/ner/dev
_claim_evidence_retrieved.json
running inference for claim-2093 n=2382

infer batches: 100%|      | 38/38 [00:10<00:00,  3.71it/s]

saved to: /Users/johnsonzhou/git/comp90042-project/result/inference/model_03_run
_01_dev_claim_evidence_retrieved.json
loaded claims_shortlist: /Users/johnsonzhou/git/comp90042-project/result/ner/dev
_claim_evidence_retrieved.json
running inference for claim-1400 n=2404

infer batches: 100%|      | 38/38 [00:08<00:00,  4.56it/s]

saved to: /Users/johnsonzhou/git/comp90042-project/result/inference/model_03_run
_01_dev_claim_evidence_retrieved.json
loaded claims_shortlist: /Users/johnsonzhou/git/comp90042-project/result/ner/dev
_claim_evidence_retrieved.json
running inference for claim-1638 n=1891

infer batches: 100%|      | 30/30 [00:07<00:00,  4.17it/s]

saved to: /Users/johnsonzhou/git/comp90042-project/result/inference/model_03_run
_01_dev_claim_evidence_retrieved.json

```

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loaded claims_shortlist: /Users/johnsonzhou/git/comp90042-project/result/ner/dev
_claim_evidence_retrieved.json
running inference for claim-3075 n=3526

infer batches: 100%|      | 56/56 [00:14<00:00,  3.98it/s]

saved to: /Users/johnsonzhou/git/comp90042-project/result/inference/model_03_run
_01_dev_claim_evidence_retrieved.json
loaded claims_shortlist: /Users/johnsonzhou/git/comp90042-project/result/ner/dev
_claim_evidence_retrieved.json
running inference for claim-38 n=2219

infer batches: 100%|      | 35/35 [00:08<00:00,  4.03it/s]

saved to: /Users/johnsonzhou/git/comp90042-project/result/inference/model_03_run
_01_dev_claim_evidence_retrieved.json
loaded claims_shortlist: /Users/johnsonzhou/git/comp90042-project/result/ner/dev
_claim_evidence_retrieved.json
running inference for claim-1643 n=453

infer batches: 100%|      | 8/8 [00:02<00:00,  3.17it/s]

saved to: /Users/johnsonzhou/git/comp90042-project/result/inference/model_03_run
_01_dev_claim_evidence_retrieved.json
loaded claims_shortlist: /Users/johnsonzhou/git/comp90042-project/result/ner/dev
_claim_evidence_retrieved.json
running inference for claim-1259 n=3164

infer batches: 100%|      | 50/50 [00:15<00:00,  3.32it/s]

saved to: /Users/johnsonzhou/git/comp90042-project/result/inference/model_03_run
_01_dev_claim_evidence_retrieved.json
loaded claims_shortlist: /Users/johnsonzhou/git/comp90042-project/result/ner/dev
_claim_evidence_retrieved.json
running inference for claim-1605 n=1092

infer batches: 100%|      | 18/18 [00:05<00:00,  3.44it/s]

saved to: /Users/johnsonzhou/git/comp90042-project/result/inference/model_03_run
_01_dev_claim_evidence_retrieved.json
loaded claims_shortlist: /Users/johnsonzhou/git/comp90042-project/result/ner/dev
_claim_evidence_retrieved.json
running inference for claim-1711 n=3307

infer batches: 100%|      | 52/52 [00:12<00:00,  4.16it/s]

saved to: /Users/johnsonzhou/git/comp90042-project/result/inference/model_03_run
_01_dev_claim_evidence_retrieved.json
loaded claims_shortlist: /Users/johnsonzhou/git/comp90042-project/result/ner/dev
_claim_evidence_retrieved.json
running inference for claim-2236 n=4069

infer batches: 100%|      | 64/64 [00:14<00:00,  4.43it/s]

```



```

saved to: /Users/johnsonzhou/git/comp90042-project/result/inference/model_03_run
_01_dev_claim_evidence_retrieved.json
loaded claims_shortlist: /Users/johnsonzhou/git/comp90042-project/result/ner/dev
_claim_evidence_retrieved.json
running inference for claim-1040 n=5067

infer batches: 100%|      | 80/80 [00:24<00:00,  3.32it/s]

saved to: /Users/johnsonzhou/git/comp90042-project/result/inference/model_03_run
_01_dev_claim_evidence_retrieved.json
loaded claims_shortlist: /Users/johnsonzhou/git/comp90042-project/result/ner/dev
_claim_evidence_retrieved.json
running inference for claim-392 n=4018

infer batches: 100%|      | 63/63 [00:14<00:00,  4.25it/s]

saved to: /Users/johnsonzhou/git/comp90042-project/result/inference/model_03_run
_01_dev_claim_evidence_retrieved.json
loaded claims_shortlist: /Users/johnsonzhou/git/comp90042-project/result/ner/dev
_claim_evidence_retrieved.json
running inference for claim-368 n=4175

infer batches: 100%|      | 66/66 [00:16<00:00,  4.02it/s]

saved to: /Users/johnsonzhou/git/comp90042-project/result/inference/model_03_run
_01_dev_claim_evidence_retrieved.json
loaded claims_shortlist: /Users/johnsonzhou/git/comp90042-project/result/ner/dev
_claim_evidence_retrieved.json
running inference for claim-559 n=3715

infer batches: 100%|      | 59/59 [00:15<00:00,  3.84it/s]

saved to: /Users/johnsonzhou/git/comp90042-project/result/inference/model_03_run
_01_dev_claim_evidence_retrieved.json
loaded claims_shortlist: /Users/johnsonzhou/git/comp90042-project/result/ner/dev
_claim_evidence_retrieved.json
running inference for claim-2583 n=4244

infer batches: 100%|      | 67/67 [00:16<00:00,  4.18it/s]

saved to: /Users/johnsonzhou/git/comp90042-project/result/inference/model_03_run
_01_dev_claim_evidence_retrieved.json
loaded claims_shortlist: /Users/johnsonzhou/git/comp90042-project/result/ner/dev
_claim_evidence_retrieved.json
running inference for claim-2609 n=3125

infer batches: 100%|      | 49/49 [00:11<00:00,  4.28it/s]

saved to: /Users/johnsonzhou/git/comp90042-project/result/inference/model_03_run
_01_dev_claim_evidence_retrieved.json
loaded claims_shortlist: /Users/johnsonzhou/git/comp90042-project/result/ner/dev
_claim_evidence_retrieved.json
running inference for claim-492 n=5459

```

```

infer batches: 100%|      | 86/86 [00:21<00:00,  4.01it/s]

saved to: /Users/johnsonzhou/git/comp90042-project/result/inference/model_03_run
_01_dev_claim_evidence_retrieved.json
loaded claims_shortlist: /Users/johnsonzhou/git/comp90042-project/result/ner/dev
_claim_evidence_retrieved.json
running inference for claim-1420 n=4985

infer batches: 100%|      | 78/78 [00:19<00:00,  3.97it/s]

saved to: /Users/johnsonzhou/git/comp90042-project/result/inference/model_03_run
_01_dev_claim_evidence_retrieved.json
loaded claims_shortlist: /Users/johnsonzhou/git/comp90042-project/result/ner/dev
_claim_evidence_retrieved.json
running inference for claim-1089 n=3804

infer batches: 100%|      | 60/60 [00:20<00:00,  2.94it/s]

saved to: /Users/johnsonzhou/git/comp90042-project/result/inference/model_03_run
_01_dev_claim_evidence_retrieved.json
loaded claims_shortlist: /Users/johnsonzhou/git/comp90042-project/result/ner/dev
_claim_evidence_retrieved.json
running inference for claim-1467 n=2787

infer batches: 100%|      | 44/44 [00:10<00:00,  4.20it/s]

saved to: /Users/johnsonzhou/git/comp90042-project/result/inference/model_03_run
_01_dev_claim_evidence_retrieved.json
loaded claims_shortlist: /Users/johnsonzhou/git/comp90042-project/result/ner/dev
_claim_evidence_retrieved.json
running inference for claim-444 n=1670

infer batches: 100%|      | 27/27 [00:06<00:00,  4.24it/s]

saved to: /Users/johnsonzhou/git/comp90042-project/result/inference/model_03_run
_01_dev_claim_evidence_retrieved.json
loaded claims_shortlist: /Users/johnsonzhou/git/comp90042-project/result/ner/dev
_claim_evidence_retrieved.json
running inference for claim-803 n=4131

infer batches: 100%|      | 65/65 [00:18<00:00,  3.58it/s]

saved to: /Users/johnsonzhou/git/comp90042-project/result/inference/model_03_run
_01_dev_claim_evidence_retrieved.json
loaded claims_shortlist: /Users/johnsonzhou/git/comp90042-project/result/ner/dev
_claim_evidence_retrieved.json
running inference for claim-1668 n=1066

infer batches: 100%|      | 17/17 [00:04<00:00,  3.91it/s]

saved to: /Users/johnsonzhou/git/comp90042-project/result/inference/model_03_run
_01_dev_claim_evidence_retrieved.json
loaded claims_shortlist: /Users/johnsonzhou/git/comp90042-project/result/ner/dev

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_claim_evidence_retrieved.json
running inference for claim-742 n=356

infer batches: 100%|      | 6/6 [00:02<00:00,  2.98it/s]

saved to: /Users/johnsonzhou/git/comp90042-project/result/inference/model_03_run
_01_dev_claim_evidence_retrieved.json
loaded claims_shortlist: /Users/johnsonzhou/git/comp90042-project/result/ner/dev
_claim_evidence_retrieved.json
running inference for claim-846 n=6266

infer batches: 100%|      | 98/98 [00:30<00:00,  3.22it/s]

saved to: /Users/johnsonzhou/git/comp90042-project/result/inference/model_03_run
_01_dev_claim_evidence_retrieved.json
loaded claims_shortlist: /Users/johnsonzhou/git/comp90042-project/result/ner/dev
_claim_evidence_retrieved.json
running inference for claim-2119 n=393

infer batches: 100%|      | 7/7 [00:02<00:00,  2.75it/s]

saved to: /Users/johnsonzhou/git/comp90042-project/result/inference/model_03_run
_01_dev_claim_evidence_retrieved.json
loaded claims_shortlist: /Users/johnsonzhou/git/comp90042-project/result/ner/dev
_claim_evidence_retrieved.json
running inference for claim-1167 n=2119

infer batches: 100%|      | 34/34 [00:08<00:00,  3.82it/s]

saved to: /Users/johnsonzhou/git/comp90042-project/result/inference/model_03_run
_01_dev_claim_evidence_retrieved.json
loaded claims_shortlist: /Users/johnsonzhou/git/comp90042-project/result/ner/dev
_claim_evidence_retrieved.json
running inference for claim-623 n=2679

infer batches: 100%|      | 42/42 [00:10<00:00,  3.90it/s]

saved to: /Users/johnsonzhou/git/comp90042-project/result/inference/model_03_run
_01_dev_claim_evidence_retrieved.json
loaded claims_shortlist: /Users/johnsonzhou/git/comp90042-project/result/ner/dev
_claim_evidence_retrieved.json
running inference for claim-2882 n=24

infer batches: 100%|      | 1/1 [00:00<00:00,  1.03it/s]

saved to: /Users/johnsonzhou/git/comp90042-project/result/inference/model_03_run
_01_dev_claim_evidence_retrieved.json
loaded claims_shortlist: /Users/johnsonzhou/git/comp90042-project/result/ner/dev
_claim_evidence_retrieved.json
running inference for claim-1698 n=4989

infer batches: 100%|      | 78/78 [00:16<00:00,  4.69it/s]

saved to: /Users/johnsonzhou/git/comp90042-project/result/inference/model_03_run
_01_dev_claim_evidence_retrieved.json

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loaded claims_shortlist: /Users/johnsonzhou/git/comp90042-project/result/ner/dev
_claim_evidence_retrieved.json
running inference for claim-181 n=1891

infer batches: 100%|      | 30/30 [00:06<00:00,  4.37it/s]

saved to: /Users/johnsonzhou/git/comp90042-project/result/inference/model_03_run
_01_dev_claim_evidence_retrieved.json
loaded claims_shortlist: /Users/johnsonzhou/git/comp90042-project/result/ner/dev
_claim_evidence_retrieved.json
running inference for claim-281 n=6933

infer batches: 100%|      | 109/109 [00:26<00:00,  4.18it/s]

saved to: /Users/johnsonzhou/git/comp90042-project/result/inference/model_03_run
_01_dev_claim_evidence_retrieved.json
loaded claims_shortlist: /Users/johnsonzhou/git/comp90042-project/result/ner/dev
_claim_evidence_retrieved.json
running inference for claim-2809 n=4070

infer batches: 100%|      | 64/64 [00:15<00:00,  4.24it/s]

saved to: /Users/johnsonzhou/git/comp90042-project/result/inference/model_03_run
_01_dev_claim_evidence_retrieved.json
loaded claims_shortlist: /Users/johnsonzhou/git/comp90042-project/result/ner/dev
_claim_evidence_retrieved.json
running inference for claim-1928 n=1222

infer batches: 100%|      | 20/20 [00:05<00:00,  3.70it/s]

saved to: /Users/johnsonzhou/git/comp90042-project/result/inference/model_03_run
_01_dev_claim_evidence_retrieved.json
loaded claims_shortlist: /Users/johnsonzhou/git/comp90042-project/result/ner/dev
_claim_evidence_retrieved.json
running inference for claim-2787 n=4219

infer batches: 100%|      | 66/66 [00:16<00:00,  4.01it/s]

saved to: /Users/johnsonzhou/git/comp90042-project/result/inference/model_03_run
_01_dev_claim_evidence_retrieved.json
loaded claims_shortlist: /Users/johnsonzhou/git/comp90042-project/result/ner/dev
_claim_evidence_retrieved.json
running inference for claim-478 n=0

infer batches: 0it [00:00, ?it/s]

saved to: /Users/johnsonzhou/git/comp90042-project/result/inference/model_03_run
_01_dev_claim_evidence_retrieved.json

loaded claims_shortlist: /Users/johnsonzhou/git/comp90042-project/result/ner/dev
_claim_evidence_retrieved.json
running inference for claim-988 n=439

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infer batches: 100%|      | 7/7 [00:03<00:00, 2.19it/s]

saved to: /Users/johnsonzhou/git/comp90042-project/result/inference/model_03_run
_01_dev_claim_evidence_retrieved.json
loaded claims_shortlist: /Users/johnsonzhou/git/comp90042-project/result/ner/dev
_claim_evidence_retrieved.json
running inference for claim-266 n=630

infer batches: 100%|      | 10/10 [00:03<00:00, 3.14it/s]

saved to: /Users/johnsonzhou/git/comp90042-project/result/inference/model_03_run
_01_dev_claim_evidence_retrieved.json
loaded claims_shortlist: /Users/johnsonzhou/git/comp90042-project/result/ner/dev
_claim_evidence_retrieved.json
running inference for claim-2282 n=2246

infer batches: 100%|      | 36/36 [00:08<00:00, 4.35it/s]

saved to: /Users/johnsonzhou/git/comp90042-project/result/inference/model_03_run
_01_dev_claim_evidence_retrieved.json
loaded claims_shortlist: /Users/johnsonzhou/git/comp90042-project/result/ner/dev
_claim_evidence_retrieved.json
running inference for claim-2895 n=4022

infer batches: 100%|      | 63/63 [00:16<00:00, 3.90it/s]

saved to: /Users/johnsonzhou/git/comp90042-project/result/inference/model_03_run
_01_dev_claim_evidence_retrieved.json
loaded claims_shortlist: /Users/johnsonzhou/git/comp90042-project/result/ner/dev
_claim_evidence_retrieved.json
running inference for claim-349 n=3985

infer batches: 100%|      | 63/63 [00:14<00:00, 4.41it/s]

saved to: /Users/johnsonzhou/git/comp90042-project/result/inference/model_03_run
_01_dev_claim_evidence_retrieved.json
loaded claims_shortlist: /Users/johnsonzhou/git/comp90042-project/result/ner/dev
_claim_evidence_retrieved.json
running inference for claim-2101 n=1227

infer batches: 100%|      | 20/20 [00:05<00:00, 3.76it/s]

saved to: /Users/johnsonzhou/git/comp90042-project/result/inference/model_03_run
_01_dev_claim_evidence_retrieved.json
loaded claims_shortlist: /Users/johnsonzhou/git/comp90042-project/result/ner/dev
_claim_evidence_retrieved.json
running inference for claim-897 n=907

infer batches: 100%|      | 15/15 [00:04<00:00, 3.39it/s]

saved to: /Users/johnsonzhou/git/comp90042-project/result/inference/model_03_run
_01_dev_claim_evidence_retrieved.json
loaded claims_shortlist: /Users/johnsonzhou/git/comp90042-project/result/ner/dev

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```

_claim_evidence_retrieved.json
running inference for claim-3063 n=2151

infer batches: 100%|      | 34/34 [00:08<00:00,  3.99it/s]

saved to: /Users/johnsonzhou/git/comp90042-project/result/inference/model_03_run
_01_dev_claim_evidence_retrieved.json
loaded claims_shortlist: /Users/johnsonzhou/git/comp90042-project/result/ner/dev
_claim_evidence_retrieved.json
running inference for claim-386 n=10047

infer batches: 100%|      | 157/157 [00:45<00:00,  3.47it/s]

saved to: /Users/johnsonzhou/git/comp90042-project/result/inference/model_03_run
_01_dev_claim_evidence_retrieved.json
loaded claims_shortlist: /Users/johnsonzhou/git/comp90042-project/result/ner/dev
_claim_evidence_retrieved.json
running inference for claim-2691 n=1541

infer batches: 100%|      | 25/25 [00:06<00:00,  3.87it/s]

saved to: /Users/johnsonzhou/git/comp90042-project/result/inference/model_03_run
_01_dev_claim_evidence_retrieved.json
loaded claims_shortlist: /Users/johnsonzhou/git/comp90042-project/result/ner/dev
_claim_evidence_retrieved.json
running inference for claim-530 n=2028

infer batches: 100%|      | 32/32 [00:07<00:00,  4.04it/s]

saved to: /Users/johnsonzhou/git/comp90042-project/result/inference/model_03_run
_01_dev_claim_evidence_retrieved.json
loaded claims_shortlist: /Users/johnsonzhou/git/comp90042-project/result/ner/dev
_claim_evidence_retrieved.json
running inference for claim-2979 n=4530

infer batches: 100%|      | 71/71 [00:17<00:00,  4.11it/s]

saved to: /Users/johnsonzhou/git/comp90042-project/result/inference/model_03_run
_01_dev_claim_evidence_retrieved.json
loaded claims_shortlist: /Users/johnsonzhou/git/comp90042-project/result/ner/dev
_claim_evidence_retrieved.json
running inference for claim-665 n=2861

infer batches: 100%|      | 45/45 [00:13<00:00,  3.26it/s]

saved to: /Users/johnsonzhou/git/comp90042-project/result/inference/model_03_run
_01_dev_claim_evidence_retrieved.json
loaded claims_shortlist: /Users/johnsonzhou/git/comp90042-project/result/ner/dev
_claim_evidence_retrieved.json
running inference for claim-199 n=3545

infer batches: 100%|      | 56/56 [00:12<00:00,  4.47it/s]

saved to: /Users/johnsonzhou/git/comp90042-project/result/inference/model_03_run
_01_dev_claim_evidence_retrieved.json

```

```

loaded claims_shortlist: /Users/johnsonzhou/git/comp90042-project/result/ner/dev
_claim_evidence_retrieved.json
running inference for claim-490 n=1183

infer batches: 100%|      | 19/19 [00:04<00:00,  4.34it/s]

saved to: /Users/johnsonzhou/git/comp90042-project/result/inference/model_03_run
_01_dev_claim_evidence_retrieved.json
loaded claims_shortlist: /Users/johnsonzhou/git/comp90042-project/result/ner/dev
_claim_evidence_retrieved.json
running inference for claim-2400 n=1965

infer batches: 100%|      | 31/31 [00:09<00:00,  3.22it/s]

saved to: /Users/johnsonzhou/git/comp90042-project/result/inference/model_03_run
_01_dev_claim_evidence_retrieved.json
loaded claims_shortlist: /Users/johnsonzhou/git/comp90042-project/result/ner/dev
_claim_evidence_retrieved.json
running inference for claim-204 n=2938

infer batches: 100%|      | 46/46 [00:10<00:00,  4.45it/s]

saved to: /Users/johnsonzhou/git/comp90042-project/result/inference/model_03_run
_01_dev_claim_evidence_retrieved.json
loaded claims_shortlist: /Users/johnsonzhou/git/comp90042-project/result/ner/dev
_claim_evidence_retrieved.json
running inference for claim-1426 n=1218

infer batches: 100%|      | 20/20 [00:04<00:00,  4.37it/s]

saved to: /Users/johnsonzhou/git/comp90042-project/result/inference/model_03_run
_01_dev_claim_evidence_retrieved.json
loaded claims_shortlist: /Users/johnsonzhou/git/comp90042-project/result/ner/dev
_claim_evidence_retrieved.json
running inference for claim-698 n=3627

infer batches: 100%|      | 57/57 [00:17<00:00,  3.31it/s]

saved to: /Users/johnsonzhou/git/comp90042-project/result/inference/model_03_run
_01_dev_claim_evidence_retrieved.json
loaded claims_shortlist: /Users/johnsonzhou/git/comp90042-project/result/ner/dev
_claim_evidence_retrieved.json
running inference for claim-1021 n=2017

infer batches: 100%|      | 32/32 [00:08<00:00,  3.78it/s]

saved to: /Users/johnsonzhou/git/comp90042-project/result/inference/model_03_run
_01_dev_claim_evidence_retrieved.json

```

## 1.6 Test inference

```
[ ]: inference_run(  
    claims_path=DATA_PATH.with_name("test-claims-unlabelled.json"),  
    evidence_path=DATA_PATH.with_name("evidence.json"),  
    # claims_shortlist=NER_PATH.with_name("test_claim_evidence_retrieved.json"),  
    evidence_shortlist=NER_PATH.  
    ↪with_name("shortlist_test_claim_evidence_retrieved.json"),  
    save_path=OUTPUT_PATH.  
    ↪with_name("model_03_run_01_test_claim_evidence_retrieved.json")  
)
```