



# Efficient Financial Named Entity Recognition Without Large Language Models

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# Financial Named Entity Dataset: FiNER-ORD

Jimmy Cao **PER** , a Beijing **LOC** -based BMW **ORG** spokesman, said he was not able to provide an immediate comment.

The average “maker suggested retail price” (MSRP) for all passenger cars remains relatively high in China **LOC** , at around 280,000 yuan (\$45,000), according to research firm JATO Dynamics **ORG** .



Reuss says charging times ought to improve as well , falling significantly below the 45 minutes or so it now takes to refill a battery at a fast - charge station .



**FiNER-ORD: Financial Named Entity Recognition Open Research Dataset**

<https://doi.org/10.48550/arXiv.2302.11157>

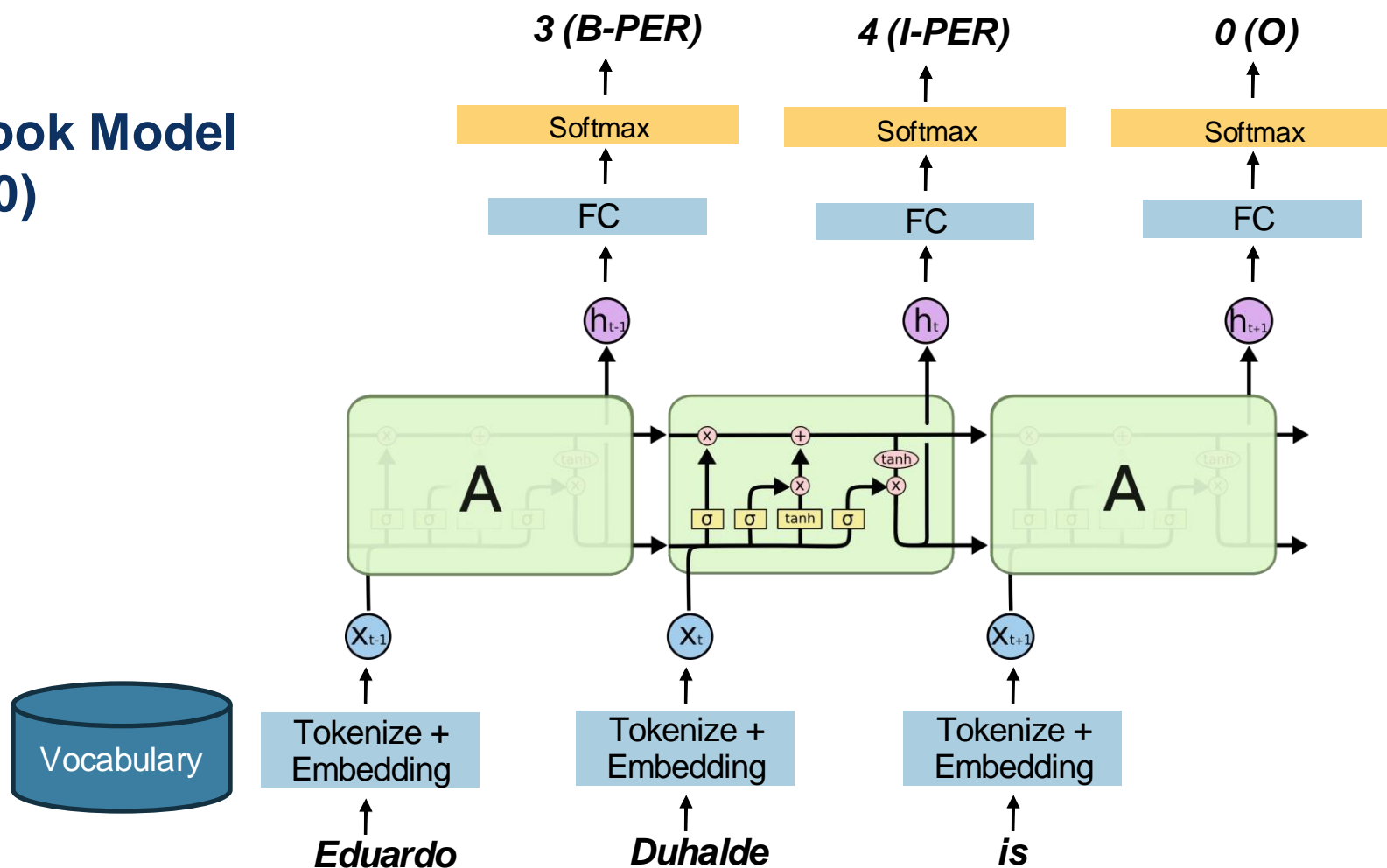
# Financial NER Eva Benchmark for LLMs

Dataset Metrics	Chat GPT	GPT 4	Gemini	FinMA 7B	Mixtral 7B
<b>NER SEC Filling EntityF1</b>	0.77	<b>0.83</b>	0.61	0.69	0.24
<b>FINER-ORD EntityF1</b>	0.28	<b>0.77</b>	0.14	0	0.05

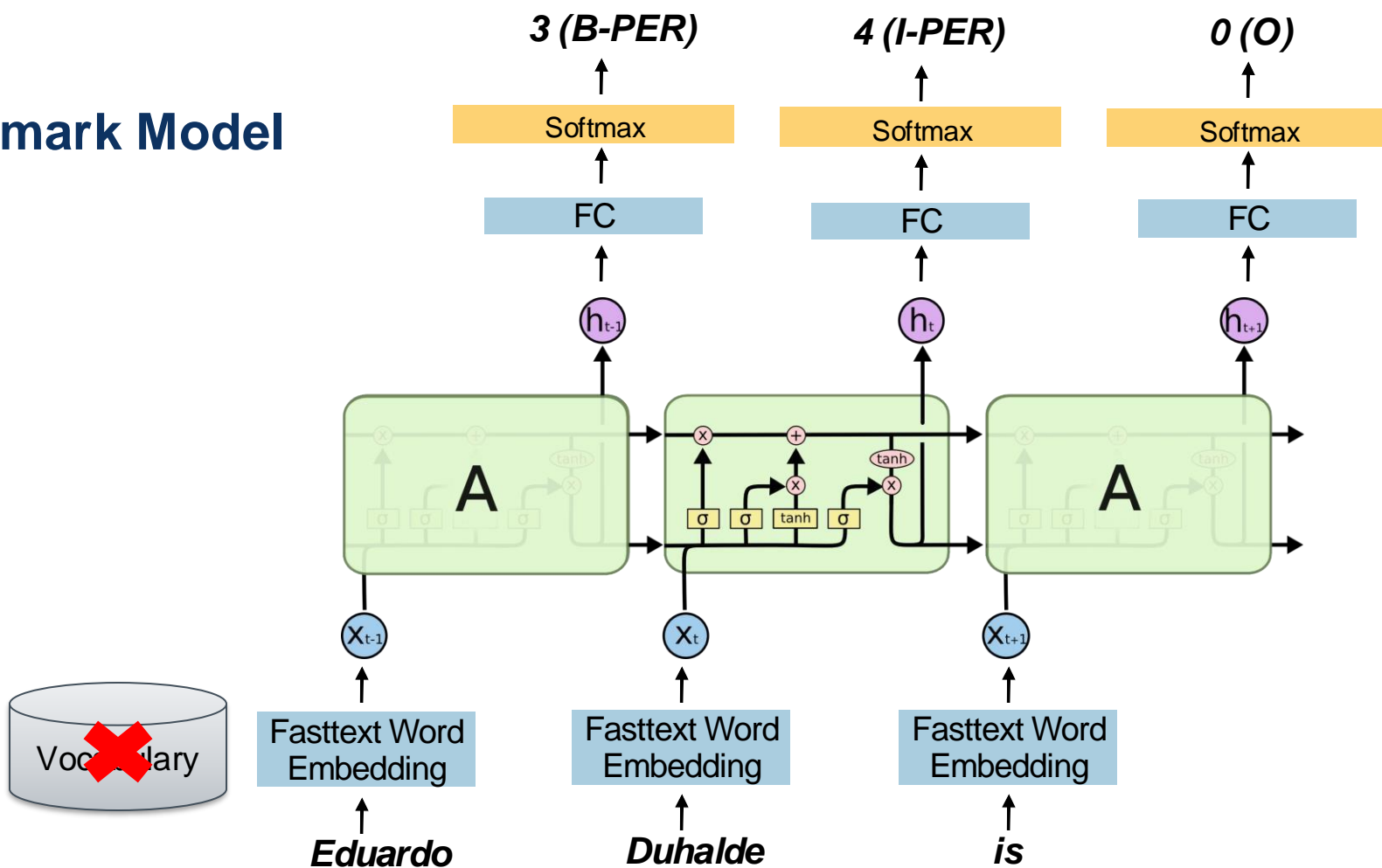
**FinBen: A Holistic Financial Benchmark for Large Language Models**

<https://doi.org/10.48550/arXiv.2402.12659>

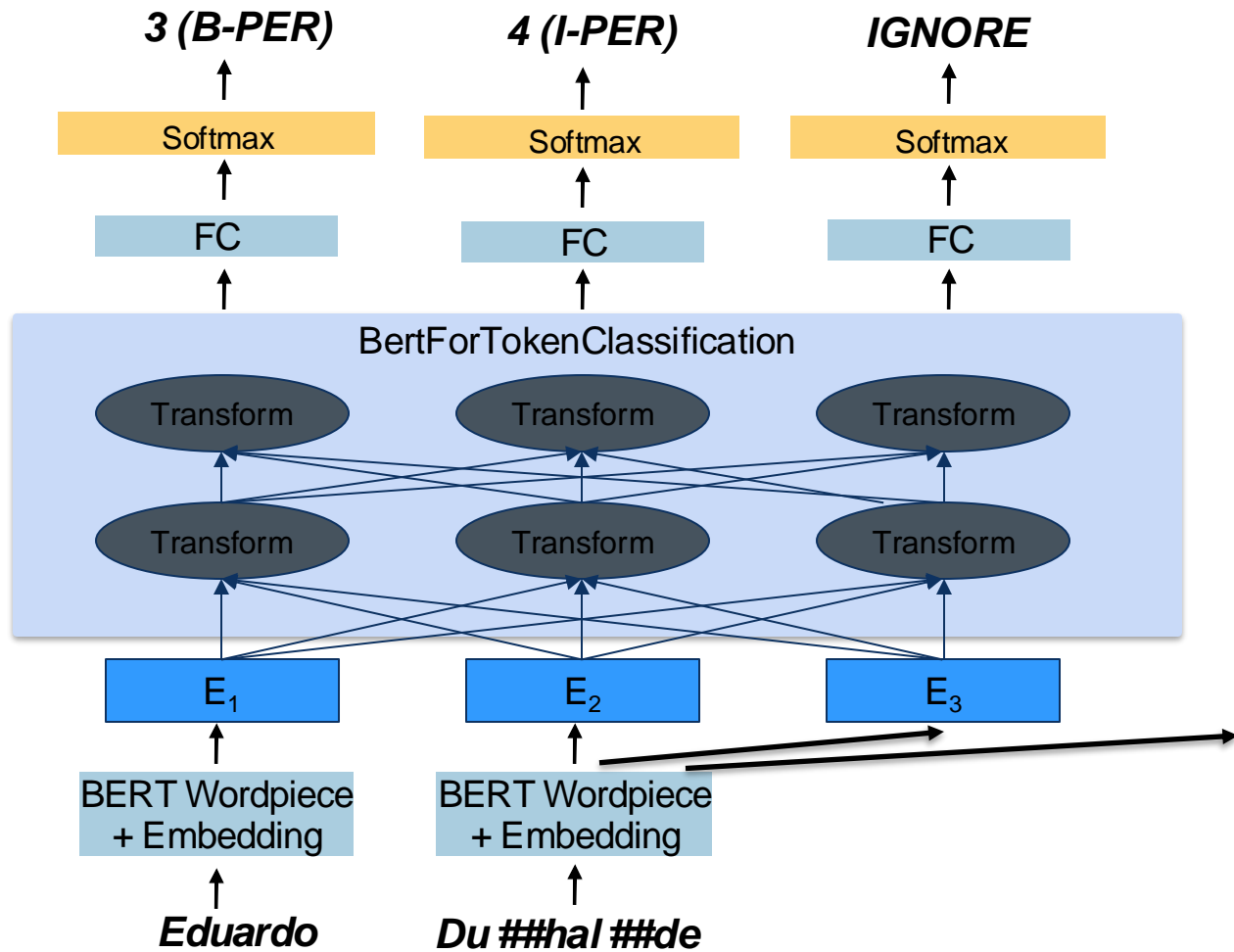
# Textbook Model (CS230)



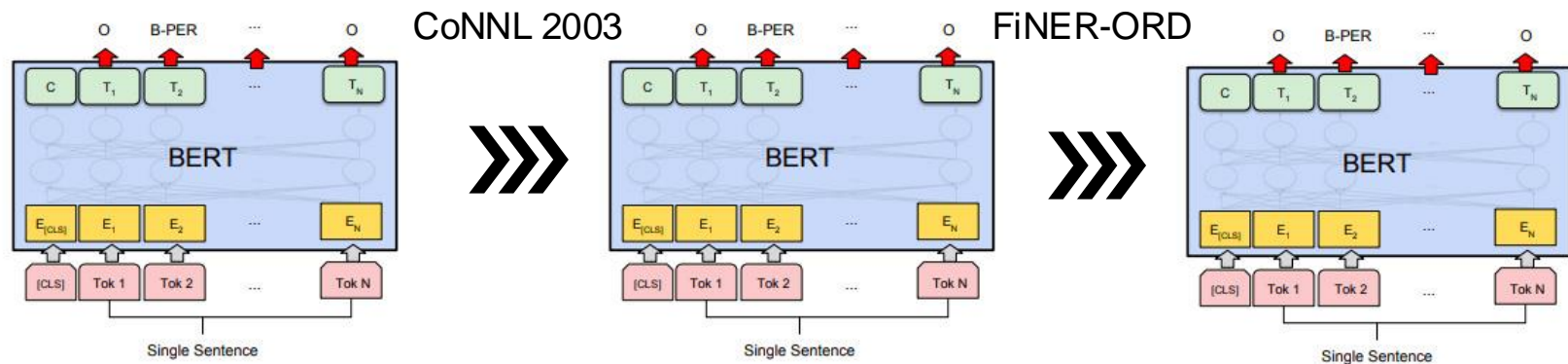
# Benchmark Model



# Pre-trained BERT

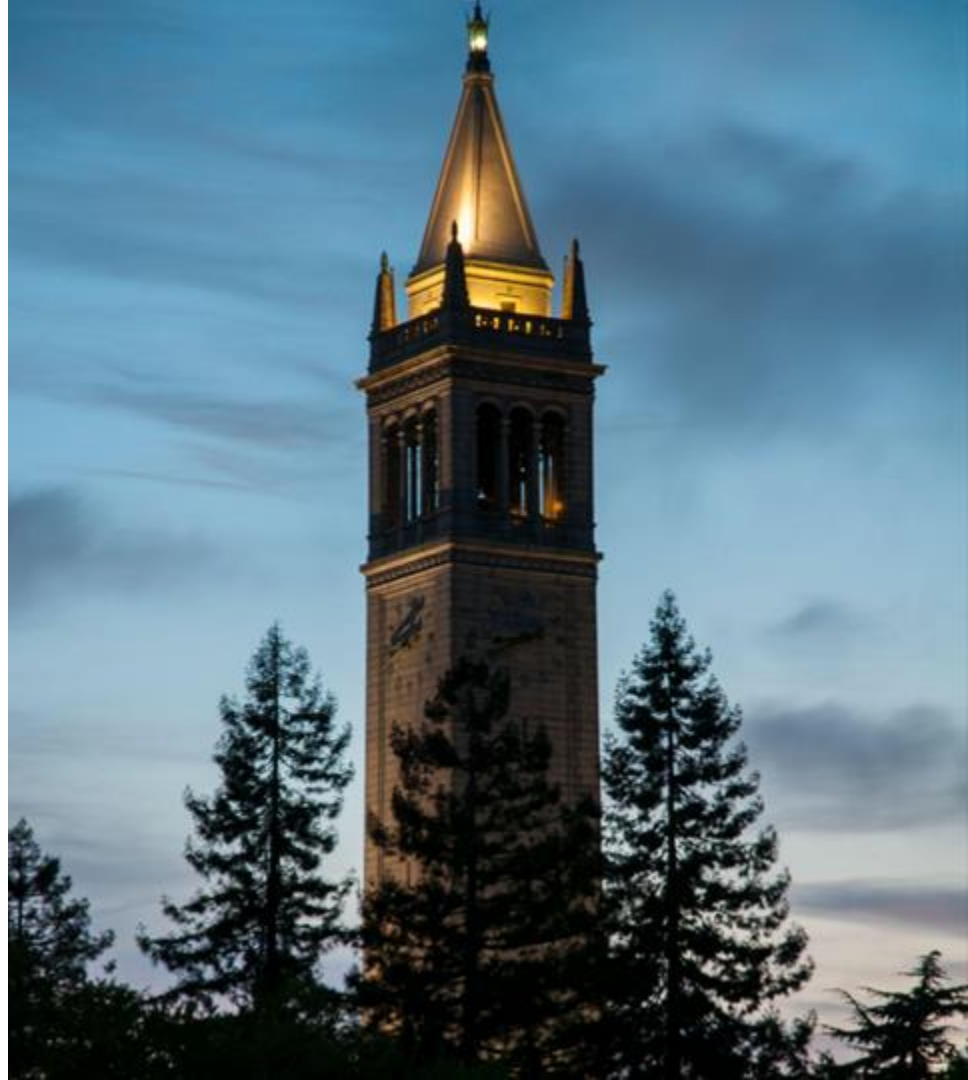


# Transfer Learning



# Quick Notebook Walkthrough

- [Notebook](#)
- [Source Code](#)
- [Paper](#)





## Confusing NER Example

huggingface.co/datasets/TheFinAI/flare-finer-ord/viewer/default/test?q=Reuss

**Datasets:** TheFinAI / flare-finer-ord

Dataset card **Viewer** Files Community

Split (1)  
test · 1.08k rows

Reuss

Share results 5 results

id	query	answer	label	token
string · lengths	string · lengths	string · lengths	sequence · lengths	sequence · lengths
finerord470	In the list of tokens, identify 'Person',...	":0 It:0 's:0 got:0 a:0 long:0 runway:0 ,:0 ":0...	[ "0", "0", "0", "0", "0", "0", "0", "0", "0", "0", "B-PER", ...]	[ "", "It", "'s", "got", "a", "long", "runway", ",", ...]
finerord485	In the list of tokens, identify 'Person',...	Reuss:0 says:0 charging:0 times:0 ought:0 to:0...	[ "0", "0", "0", "0", "0", "0", "0", "0", "0", "0", "0", ...]	[ "Reuss", "says", "charging", "times", "ought", ...]
finerord469	In the list of tokens, identify 'Person',...	Reuss:B-PER said:0 GM:B-ORG is:0 beginning:0 to:0 scale:...	[ "B-PER", "0", "B-ORG", "0", "0", "0", "0", "0", "0", ...]	[ "Reuss", "said", "GM", "is", "beginning", "to", ...]
finerord468	In the list of tokens, identify 'Person',...	Finance:I-ORG recently:0 caught:0 up:0 with:0 GM:B-OR...	[ "I-ORG", "0", "0", "0", "0", "0", "B-ORG", "0", "0", "0", ...]	[ "Finance", "recently", "caught", "up", "with", "GM", ...]
finerord490	In the list of tokens, identify 'Person',...	Reuss:B-PER adds:0 that:0 the:0 Bolt:0 will:0 have:0...	[ "B-PER", "0", "0", "0", "0", "0", "0", "0", "0", "0", ...]	[ "Reuss", "adds", "that", "the", "Bolt", "will", ...]

# Results

	TP	FP	FN	Support	Precision	Recall	F1
LSTM	130	35	65	195	0.79	0.67	0.72
BERT	167	45	28	195	0.79	0.86	0.82
TRAN	173	33	22	195	0.84	0.89	0.86

Dataset Metrics	Chat GPT	GPT 4	Gemini	FinMA 7B	Mixtral 7B
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## Questions?

If you have questions about  
an individual piece, email  
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