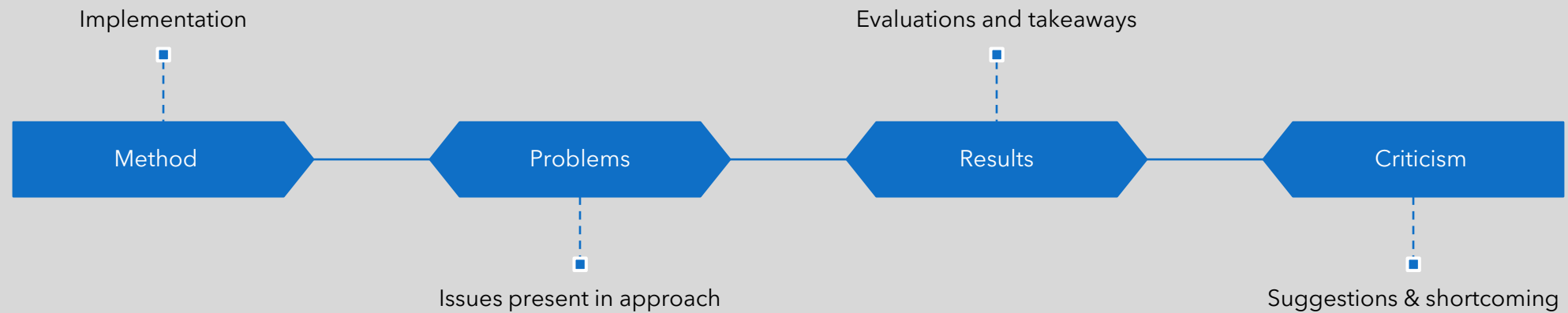




CONEXION: CONCEPT EXTRACTION WITH LARGE LANGUAGE MODELS

Alireza Alizadeh

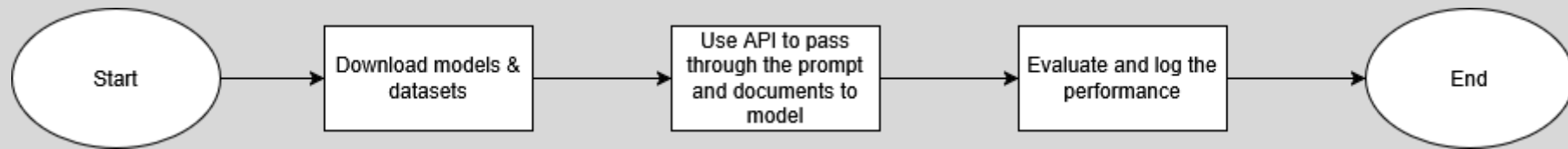
Presentation Roadmap





METHOD

Implementation





PROBLEMS

Issues

- Even running pre-trained models is expensive
- No mention of specialized datasets
- Outdated implementation of used datasets
- Unused imports in Implementation and leaked secrets



RESULTS

Evaluations and takeaways

- LLMs in a best-case scenario work better than current methods and models

Model	Inspec						SemEval2017					
	P	R	F_1	$F_1@5$	$F_1@10$	N_{EX}	P	R	F_1	$F_1@5$	$F_1@10$	N_{EX}
MultPax	0.051	0.057	0.049	0.052	0.052	5.000	0.150	0.091	0.107	0.103	0.103	5.000
EmbedRank	0.194	0.369	0.232	0.209	0.247	8.760	0.143	0.154	0.139	0.102	0.145	9.330
PyateBasics	0.090	0.743	0.155	0.008	0.017	47.716	0.076	0.521	0.127	0.013	0.016	62.290
Rake	0.093	0.690	0.158	0.128	0.202	46.167	0.072	0.562	0.124	0.056	0.091	72.290
FirstPhrases	0.164	0.586	0.242	0.193	0.227	18.457	0.139	0.331	0.186	0.086	0.146	20.0
KPMiner	0.048	0.066	0.049	0.063	0.057	6.006	0.121	0.107	0.100	0.116	0.115	7.260
Kea	0.088	0.384	0.134	0.128	0.143	20.0	0.104	0.251	0.138	0.136	0.154	20.0
MultipartiteRank	0.172	0.603	0.253	0.224	0.246	18.158	0.152	0.344	0.199	0.149	0.190	20.0
PositionRank	0.166	0.755	0.260	0.247	0.287	26.543	0.143	0.617	0.224	0.130	0.199	39.980
SingleRank	0.193	0.682	0.285	0.231	0.291	18.457	0.182	0.425	0.242	0.141	0.197	20.0
TextRank	0.195	0.685	0.287	0.221	0.292	18.457	0.174	0.403	0.230	0.135	0.195	20.0
TfIdf	0.099	0.435	0.152	0.129	0.154	20.0	0.114	0.277	0.151	0.146	0.167	20.0
TopicRank	0.169	0.531	0.242	0.230	0.241	17.074	0.145	0.340	0.192	0.152	0.187	19.870
YAKE	0.089	0.398	0.137	0.121	0.142	20.0	0.097	0.242	0.131	0.073	0.114	20.0
FS 1-Random (ours)	0.413	0.575	0.451	0.406	0.453	7.327	0.301	0.372	0.311	0.214	0.302	10.840



CRITICISM

Suggestions & shortcoming

- Fixing the security issues and secret leaks should be the first order of action
- Even though the paper preaches reproducibility many implementations have become broken over time
- No Gemini, Deepseek or Claude models were included in the study
- Unstructured Shell scripts even though they clearly have hierarchy and structure with different purposes



THE END