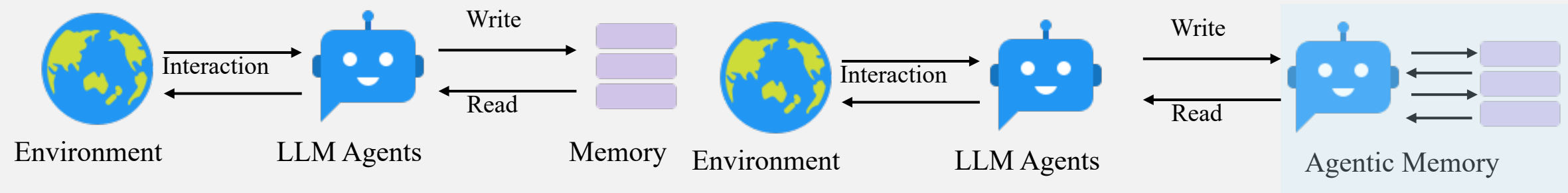
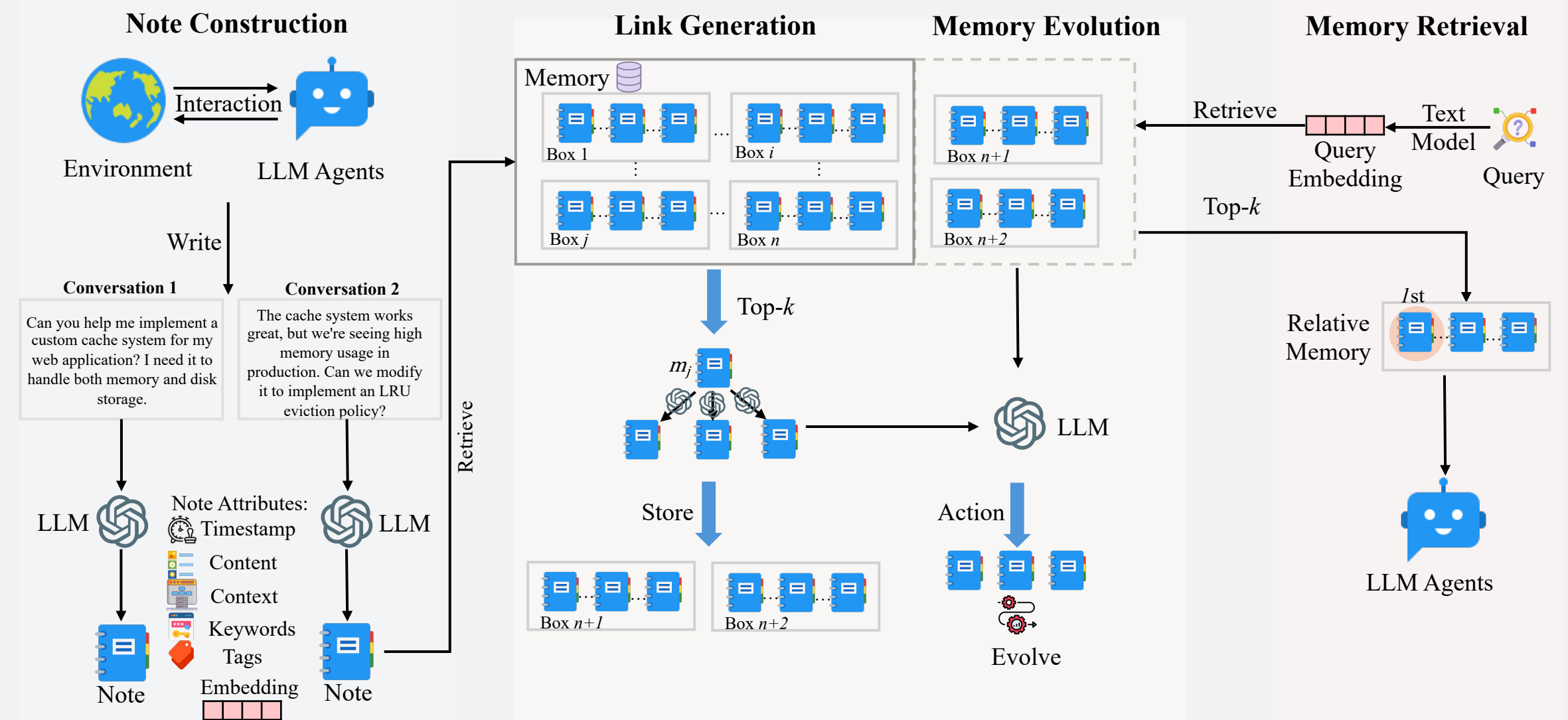


Motivation

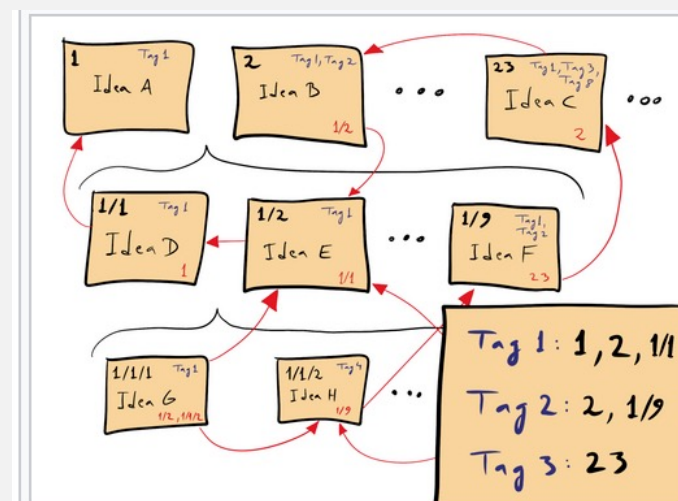


- **Organize** memory autonomously.
- Learn the **contextual** description.

Methodology



Zettelkasten (Card File)



A card file for personal knowledge management can be made up of notes containing numbers, tags (blue) and cross-references to other notes (red). A tag index (bottom right) allows topical cross-referencing.

- No real boxes exist
- Retrieval use links to allocate similar memories
- Vector DB used for storage

Experiments

(1) Question Answering Task

Based on the given context, write a short answer for the question.

		Single-Hop Reasoning		Commonsense & World Know.		Multi-Hop Reasoning		Adversarial		Temporal Reasoning	
		Last night .. we celebrated my daughter's birthday.		I'm a fan of both classical like Bach and Mozart, as well as modern music like Ed Sheeran's "Perfect".		I visited New York two years ago.		A picture from one of my older travels		July 10, 2022: ... I actually started on a book recently since my movie did well!	
		Q: Whose birthday did X celebrate?		Q: Would X likely enjoy "The Four Seasons" by Vivaldi?		Q: Which places has X visited?		Q: When did X start learning violin? (A) Sep 5, 2020 (B) Not answerable		Oct 6, 2022: ... I finished up my writing for my book last week..	
		A: daughter		A: Yes; she likes classical music.		A: New York, Horseshoe Canyon		A: (B) Not answerable		Q: How long did it take for X to finish writing the book? A: three months	

Dataset – LoCoMo

Long-term Conversation + QA Evaluation

Model		Method	Category										Average		
			Multi Hop		Temporal		Open Domain		Single Hop		Adversial		Ranking		Token Length
			F1	BLEU	F1	BLEU	F1	BLEU	F1	BLEU	F1	BLEU	F1	BLEU	
GPT	40-mini	LoCoMo	25.02	19.75	18.41	14.77	12.04	11.16	40.36	29.05	69.23	68.75	2.4	2.4	16,910
		READAGENT	9.15	6.48	12.60	8.87	5.31	5.12	9.67	7.66	9.81	9.02	4.2	4.2	643
		MEMORYBANK	5.00	4.77	9.68	6.99	5.56	5.94	6.61	5.16	7.36	6.48	4.8	4.8	432
		MEMGPT	26.65	17.72	25.52	19.44	9.15	7.44	41.04	34.34	43.29	42.73	2.4	2.4	16,977
	A-MEM	27.02	20.09	45.85	36.67	12.14	12.00	44.65	37.06	50.03	49.47	1.2	1.2	2,520	
	40	LoCoMo	28.00	18.47	9.09	5.78	16.47	14.80	61.56	54.19	52.61	51.13	2.0	2.0	16,910
		READAGENT	14.61	9.95	4.16	3.19	8.84	8.37	12.46	10.29	6.81	6.13	4.0	4.0	805
		MEMORYBANK	6.49	4.69	2.47	2.43	6.43	5.30	8.28	7.10	4.42	3.67	5.0	5.0	569
MEMGPT		30.36	22.83	17.29	13.18	12.24	11.87	60.16	53.35	34.96	34.25	2.4	2.4	16,987	
A-MEM	32.86	23.76	39.41	31.23	17.10	15.84	48.43	42.97	36.35	35.53	1.6	1.6	1,216		
Qwen2.5	1.5b	LoCoMo	9.05	6.55	4.25	4.04	9.91	8.50	11.15	8.67	40.38	40.23	3.4	3.4	16,910
		READAGENT	6.61	4.93	2.55	2.51	5.31	12.24	10.13	7.54	5.42	27.32	4.6	4.6	752
		MEMORYBANK	11.14	8.25	4.46	2.87	8.05	6.21	13.42	11.01	36.76	34.00	2.6	2.6	284
		MEMGPT	10.44	7.61	4.21	3.89	13.42	11.64	9.56	7.34	31.51	28.90	3.4	3.4	16,953
	A-MEM	18.23	11.94	24.32	19.74	16.48	14.31	23.63	19.23	46.00	43.26	1.0	1.0	1,300	
	3b	LoCoMo	4.61	4.29	3.11	2.71	4.55	5.97	7.03	5.69	16.95	14.81	3.2	3.2	16,910
		READAGENT	2.47	1.78	3.01	3.01	5.57	5.22	3.25	2.51	15.78	14.01	4.2	4.2	776
		MEMORYBANK	3.60	3.39	1.72	1.97	6.63	6.58	4.11	3.32	13.07	10.30	4.2	4.2	298
MEMGPT		5.07	4.31	2.94	2.95	7.04	7.10	7.26	5.52	14.47	12.39	2.4	2.4	16,961	
A-MEM	12.57	9.01	27.59	25.07	7.12	7.28	17.23	13.12	27.91	25.15	1.0	1.0	1,137		
Llama 3.2	1b	LoCoMo	11.25	9.18	7.38	6.82	11.90	10.38	12.86	10.50	51.89	48.27	3.4	3.4	16,910
		READAGENT	5.96	5.12	1.93	2.30	12.46	11.17	7.75	6.03	44.64	40.15	4.6	4.6	665
		MEMORYBANK	13.18	10.03	7.61	6.27	15.78	12.94	17.30	14.03	52.61	47.53	2.0	2.0	274
		MEMGPT	9.19	6.96	4.02	4.79	11.14	8.24	10.16	7.68	49.75	45.11	4.0	4.0	16,950
	A-MEM	19.06	11.71	17.80	10.28	17.55	14.67	28.51	24.13	58.81	54.28	1.0	1.0	1,376	
	3b	LoCoMo	6.88	5.77	4.37	4.40	10.65	9.29	8.37	6.93	30.25	28.46	2.8	2.8	16,910
		READAGENT	2.47	1.78	3.01	3.01	5.57	5.22	3.25	2.51	15.78	14.01	4.2	4.2	461
		MEMORYBANK	6.19	4.47	3.49	3.13	4.07	4.57	7.61	6.03	18.65	17.05	3.2	3.2	263
MEMGPT		5.32	3.99	2.68	2.72	5.64	5.54	4.32	3.51	21.45	19.37	3.8	3.8	16,956	
A-MEM	17.44	11.74	26.38	19.50	12.53	11.83	28.14	23.87	42.04	40.60	1.0	1.0	1,126		

Baselines:

Long-term Context of LLM: LoCoMo
Summarization/ Memory Systems:
ReadAgent, MemoryBank, MemGPT

Results:

Save Tokens ||
Performance Improve

Paper



Paper Link

Code



A-mem Repo

Resume



Wujiang Resume

Linkedin



Linkedin

Looking for Internship, especially on agentic model training.