# Memory forgetting mechanisims in LLMs

- What if forgetting better, is better than, making LLMs remember more? Right now every company is building AI models that can remember more (longer convos, larger context windos, millions of tokens)

Deepseek did it backwards. They did a test where they took a 1000 words rendered as a img and asked "how few tokens needed for AI to read it back" ans: 100 tokens could decode 1000 of those words w 97% accuracy that's 10x compression with almost perfect recall. Then they did more tests

text tokens: 600-700, vision tokens: 64 = 96.5% pers, 10.5x compression
text token: 1000-1100, Vision tokens: 64 = 79.3% pers, 10.5x compression
text tokens: 1200-1300, vision tokens: 64 = 59.1% pers, 19.7x compression

- accuracy dropped 60% and while that can be seen as a failure deepseek though they found a new method. Think about your memory you know what you did 5 min ago but what about last week, a little hazy but last year and you only remember the big moments, Deepseek built that into a AI recent convos: stored as text (sharp) older stuff gets compressed into imgs (hazy) and ainciant history: compressed even more taking up less space. its not about storing more but storing what matters in a way that's scalable

## Self Adapting LLMs (seal) and 2028 data wall

by 2028 AI will have consumed every piece of human text on the internet right now models learn the same way: Feed it data, it memorizes patterns and that's it but MIT said what if AI can transform its own data before learning it, they made SEAL (SELF Adapting LLMs), working: give model new info like a paper instead of training directly on it, model reads it first then generates its own study materials on it it might rewrite it as implications, Break into Q and A pairs etc, then it fine tunes itself using LoRA (Reinforcement learning) on which formats work best. for MIT did: give model info → let it make its own material to study → remove everything and quiz it (after learning) this small seal model at MIT made better study material for itself than gpt-4 so when we hit that 2028 data wall techniques like seals will become important as it won't be about models that are big/better but about models that can gen own train data