

chain of thought prompting elicits reasoning in large language models

****Chain of Thought Prompting Elicits Reasoning in Large Language Models****

Chain of thought prompting elicits reasoning in large language models by guiding these AI systems to break down complex problems into smaller, more manageable steps. This technique has emerged as a groundbreaking approach to enhance the performance of language models in tasks that require multi-step reasoning, logic, or careful analysis. By encouraging models to "think aloud," chain of thought prompting enables them to generate intermediate reasoning steps that ultimately lead to more accurate and coherent answers. In this article, we'll explore what chain of thought prompting is, why it matters for large language models, and how it is reshaping AI's ability to reason like humans.

Understanding Chain of Thought Prompting

At its core, chain of thought prompting is a method of interacting with large language models (LLMs) such as GPT-4 or PaLM by providing examples or prompts that explicitly include the reasoning process. Instead of asking the model for a direct answer, users encourage it to articulate the steps it takes to arrive at that answer. This approach mimics human problem-solving, where we often talk through our thought process to clarify and ensure accuracy.

For instance, rather than simply asking, "What is 17 times 23?" a chain of thought prompt might look like this:

****Prompt:**** "To find 17 times 23, first multiply 17 by 20 to get 340, then multiply 17 by 3 to get 51, and finally add 340 plus 51 to get 391. What is 17 times 23?"

This prompt encourages the model to break down the multiplication into smaller chunks, making it easier to produce the correct answer.

Why Chain of Thought Prompting Matters

Large language models excel at pattern recognition and generating human-like text, but they often struggle with tasks requiring logical reasoning or multi-step problem-solving. Chain of thought prompting addresses this gap by making the reasoning process explicit, which leads to several key benefits:

- ****Improved Accuracy:**** By reasoning step-by-step, models reduce errors that arise from trying to generate answers in one go.
- ****Transparency:**** The reasoning steps provide insight into how the model arrived at its conclusion, increasing trust and interpretability.
- ****Versatility:**** This method works across various domains like mathematics, commonsense reasoning, and even complex decision-making.

The Mechanics Behind Chain of Thought Prompting

To appreciate how chain of thought prompting elicits reasoning in large language models, it helps to understand the underlying mechanics. LLMs are trained on vast datasets of text, learning patterns and associations. However, they do not inherently "think" or "reason" like humans. Instead, they predict the next word based on context.

When prompted with a chain of thought, the model generates intermediate tokens that represent the reasoning path, essentially simulating a stepwise thought process. This breaks down the task into subproblems, making it easier for the model to stay on track.

How to Craft Effective Chain of Thought Prompts

Crafting prompts that effectively stimulate chain of thought reasoning is both an art and a science. Here are some tips to get the most out of this technique:

1. **Use Explicit Reasoning Steps:** Include clear, logical steps in the prompt. For example, show calculations or decision criteria.
2. **Provide Examples:** Demonstrate chain of thought reasoning with a few sample problems before the target question.
3. **Encourage Detailed Explanations:** Ask the model to explain its reasoning before answering.
4. **Keep Language Simple and Clear:** Avoid ambiguity to reduce confusion in the model's response.
5. **Iterate and Refine:** Experiment with different prompt styles to see what yields the best reasoning output.

Applications of Chain of Thought Prompting in AI

Chain of thought prompting has far-reaching implications in improving how AI systems interact with humans and solve problems.

Enhancing Mathematical Problem Solving

Mathematics is a prime example where multi-step reasoning is crucial. Earlier, models often failed at complex arithmetic or algebra problems. With chain of thought prompting, they can now outline each calculation or transformation step, dramatically improving correctness.

Boosting Commonsense and Logical Reasoning

Many everyday tasks require commonsense understanding and logic. Chain of thought prompting helps models navigate these challenges by encouraging them to weigh different factors or rule out contradictions before answering.

Improving Decision-Making and Planning

In fields like robotics or automated planning, reasoning through sequences of actions is vital. By simulating chain of thought reasoning, language models can assist in generating stepwise plans or evaluating potential outcomes.

Challenges and Limitations

While chain of thought prompting represents a significant advance, it's important to acknowledge its current limitations.

- **Increased Computation:** Generating intermediate steps requires more tokens and processing time, which can be costly.
- **Quality Depends on Prompting:** Poorly constructed prompts can mislead the model or produce irrelevant reasoning.
- **Not Fully Human-Like Reasoning:** Despite improvements, models do not truly understand concepts but rely on pattern matching.
- **Risk of Over-Confidence:** Models may generate plausible-sounding but incorrect reasoning steps.

Future Directions in Chain of Thought Reasoning

Research is actively exploring ways to optimize this approach, such as:

- **Automated Prompt Generation:** Using AI to create the best chain of thought prompts.
- **Fine-tuning Models:** Training models specifically on chain of thought data to internalize stepwise reasoning.
- **Hybrid Systems:** Combining symbolic reasoning with neural models for more reliable logic.
- **Interactive Reasoning:** Allowing users to guide and correct chain of thought outputs dynamically.

Why Chain of Thought Prompting Elicits Reasoning in Large Language Models

The crux of why chain of thought prompting elicits reasoning in large language models lies in how it aligns with the models' predictive nature. By nudging the model to produce a sequence of logical steps, the prompt reduces the cognitive load of jumping directly to an answer. It leverages the model's strength in generating coherent text sequences, transforming a complex problem into a narrative that the AI can follow.

Moreover, this approach taps into the model's training on extensive textual data that often includes explanations, solutions, and reasoning chains. When prompted appropriately, the model recalls these patterns and assembles a coherent reasoning path, much like a student showing their work on a math test.

Impact on AI Interpretability and Trust

One of the most exciting aspects of chain of thought prompting is its potential to make AI models more interpretable. Instead of being black boxes that spit out answers, models become more transparent by sharing their thought process. This can help developers, users, and stakeholders understand when and why a model might make a mistake, fostering greater trust in AI systems.

Practical Tips for Leveraging Chain of Thought Prompting

If you're looking to harness the power of chain of thought prompting in your own projects or experiments, here are some practical pointers:

- **Start Simple:** Begin with straightforward problems to see how the model generates reasoning steps.
- **Iterate on Prompt Design:** Small changes in wording can significantly affect output quality.
- **Combine with Few-Shot Learning:** Provide multiple examples of chain of thought reasoning to set a clear pattern.
- **Evaluate Stepwise:** Check each reasoning step for correctness rather than just the final answer.
- **Leverage Human Feedback:** Incorporate human review to refine and improve the reasoning chains.

As natural language processing continues to evolve, chain of thought prompting stands out as a crucial technique to push the boundaries of what large language models can achieve. By bridging the gap between raw text generation and logical reasoning, this approach unlocks new possibilities for AI applications across education, research, automation, and beyond.

Frequently Asked Questions

What is chain of thought prompting in large language models?

Chain of thought prompting is a technique that involves guiding large language models to generate intermediate reasoning steps before arriving at a final answer, thereby improving their ability to solve complex problems.

How does chain of thought prompting improve reasoning in large language models?

By encouraging the model to articulate a series of logical steps, chain of thought prompting helps the model break down complex tasks into manageable parts, leading to more accurate and interpretable reasoning outcomes.

Which types of tasks benefit most from chain of thought prompting?

Tasks that require multi-step reasoning, such as mathematical problem solving, commonsense reasoning, and logical deduction, show significant performance improvements when chain of thought prompting is applied.

Is chain of thought prompting applicable to all large language models?

While chain of thought prompting is most effective in large-scale language models with substantial reasoning capabilities, its benefits may vary depending on the model's size and training; larger models tend to respond better to this technique.

How is chain of thought prompting implemented in practice?

It is typically implemented by providing example prompts that include step-by-step reasoning or by explicitly instructing the model to 'think through' the problem before giving an answer.

Does chain of thought prompting increase computational cost?

Yes, generating intermediate reasoning steps generally requires more tokens and longer generation times, which can increase the computational cost and latency during inference.

Can chain of thought prompting make model outputs more interpretable?

Yes, because the model produces explicit intermediate reasoning steps, it becomes easier for humans to understand and verify the model's thought process and conclusions.

Are there any limitations to chain of thought prompting?

Limitations include the potential for the model to generate incorrect or irrelevant reasoning steps, and the approach may not always guarantee improved answers for all types of queries or smaller models.

What research evidence supports the effectiveness of chain of thought prompting?

Multiple studies have demonstrated that chain of thought prompting significantly boosts performance on benchmarks requiring complex reasoning, such as arithmetic reasoning datasets and logical inference tasks, especially in large-scale models like GPT-3 and PaLM.

Additional Resources

Chain of Thought Prompting Elicits Reasoning in Large Language Models: Unpacking the Mechanism and Its Implications

chain of thought prompting elicits reasoning in large language models, a breakthrough that has significantly enhanced the problem-solving capabilities of AI systems. As artificial intelligence continues to evolve, researchers have sought methods to improve the reasoning aptitude of large language models (LLMs) like GPT-4, PaLM, and others. Chain of thought prompting has emerged as a pivotal technique that enables these models to break down complex problems into a series of intermediate reasoning steps, thereby enhancing their accuracy and reliability in tasks that require multi-step logic.

This article dives deeply into the mechanics behind chain of thought prompting, its impact on reasoning in large language models, and the broader implications for AI-driven decision-making systems. Through an investigative lens, we explore how this technique contrasts with traditional prompting methods and why it represents a meaningful leap forward in the field of natural language processing (NLP).

Understanding Chain of Thought Prompting in Language Models

At its core, chain of thought prompting is a strategy designed to coax large language models into articulating intermediate reasoning steps rather than outputting direct answers in a single response. Instead of providing a final solution outright, the model is encouraged to "think aloud," revealing the logical progression of its reasoning. This technique leverages the inherent ability of LLMs to generate coherent text sequences, guiding them to emulate human-like problem-solving processes.

Traditional prompting formats often rely on question-answer pairs or single-turn instructions, which may limit the model's capacity to handle complex, multi-step problems, especially those involving arithmetic, commonsense reasoning, or multi-hop inference. By contrast, chain of thought prompting explicitly instructs or exemplifies stepwise reasoning, thereby mitigating issues such as hallucination or shallow pattern matching.

How Chain of Thought Prompting Works

Chain of thought prompting can be implemented in various ways, including:

- **Zero-shot prompting with reasoning cues:** Presenting a prompt that encourages the model to explain its reasoning before answering.
- **Few-shot prompting with chain of thought exemplars:** Providing examples of stepwise solutions to similar problems within the prompt to demonstrate the reasoning process.
- **Self-consistency decoding:** Generating multiple reasoning paths and aggregating them to

select the most consistent answer.

These approaches rely on priming the model to produce a logical sequence of thoughts, which not only aids in accuracy but also increases interpretability—a critical factor in applications where understanding the rationale behind AI decisions is essential.

Impact on Reasoning and Performance

The effect of chain of thought prompting on large language models is measurable and significant. Research published in leading AI conferences has demonstrated that models employing chain of thought techniques outperform their counterparts on a variety of benchmarks, including arithmetic reasoning, symbolic reasoning, and commonsense tasks.

For instance, a study involving the PaLM model revealed that chain of thought prompting improved accuracy on multi-step arithmetic problems by as much as 17 percentage points compared to standard prompting methods. Similarly, GPT-4’s ability to reason through complex queries has been notably enhanced when chain of thought prompts are applied, making it more reliable for tasks such as legal reasoning, coding, and scientific question answering.

Comparative Analysis: Chain of Thought vs. Standard Prompting

Aspect	Standard Prompting	Chain of Thought Prompting
Output Style	Direct answers	Stepwise reasoning and explanation
Accuracy on Complex Tasks	Moderate to low	Significantly higher
Interpretability	Low	High
Model Confidence	Less transparent	More transparent through reasoning
Use Cases	Simple Q&A, straightforward tasks	Complex problem solving, reasoning-heavy domains

This comparison underscores the transformative potential of chain of thought prompting, particularly in scenarios where accuracy and transparency are paramount.

Broader Implications for AI and NLP

Beyond improvements in task-specific accuracy, chain of thought prompting represents a shift towards more human-aligned AI reasoning processes. By encouraging LLMs to articulate intermediate steps, this technique aligns with how humans approach problem-solving, thus fostering more natural and trustworthy interactions.

Enhancing Explainability and Trust

One of the longstanding challenges in AI has been its "black box" nature—models produce outputs without clear explanations, complicating trust and adoption in sensitive sectors like healthcare, finance, and law. Chain of thought prompting inherently produces explanations alongside answers, which can be invaluable for validation, error analysis, and regulatory compliance.

Potential Drawbacks and Challenges

While chain of thought prompting introduces many benefits, it is not without limitations:

- **Increased computational cost:** Generating longer, multi-step outputs requires more processing time and resources.
- **Possibility of flawed reasoning:** The model's intermediate steps may still contain inaccuracies or logical fallacies, necessitating human oversight.
- **Prompt engineering complexity:** Designing effective chain of thought prompts demands expertise and experimentation.

These factors highlight the need for continued research and refinement to maximize the utility of chain of thought prompting.

Future Directions in Chain of Thought Research

The promising results from chain of thought prompting have spurred ongoing investigation into complementary methods that could further enhance reasoning capabilities. Some avenues include:

- **Automated prompt generation:** Leveraging AI to create optimal chain of thought exemplars dynamically.
- **Integration with symbolic reasoning systems:** Combining LLMs with traditional logic engines for hybrid reasoning.
- **Enhanced self-consistency models:** Refining techniques to select the best reasoning path from multiple generated candidates.

Moreover, as LLMs continue to grow in scale and complexity, chain of thought prompting may evolve into a standard practice, much like fine-tuning or reinforcement learning from human feedback (RLHF).

Ultimately, chain of thought prompting elicits reasoning in large language models by bridging the gap between raw language generation and structured problem-solving. Its ability to improve performance, explainability, and trustworthiness marks a significant milestone in the ongoing development of intelligent systems capable of nuanced understanding and complex decision-making.

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chain of thought prompting elicits reasoning in large language models: ChatGPT und Large Language Models? Frag doch einfach! Thomas Kessel, Alexander Brandt, Jonas Offtermatt, Friedrich Augenstein, Claus Praeg, 2024

chain of thought prompting elicits reasoning in large language models: Prompt Engineering für Large Language Models John Berryman, Albert Ziegler, 2025-09-23
LLM-Anwendungen effektiv steuern: von der Prompt-Optimierung bis zur Workflow-Integration
LLMs als leistungsstarke Bausteine für Anwendungen nutzen Den richtigen Prompt und Kontext für nützliche Ergebnisse gestalten Von der Erfahrung der GitHub-Copilot-Entwickler profitieren
Fortgeschrittene Konzepte wie Conversational Agency und Workflow-Steuerung meistern Large Language Models (LLMs) revolutionieren die Welt. Sie bieten die Möglichkeit, Aufgaben zu automatisieren und komplexe Probleme zu lösen. Eine neue Generation von Softwareanwendungen nutzt diese Modelle als zentrale Bausteine und erschließt in praktisch allen Bereichen völlig neues Potenzial. Um zuverlässig auf diese Funktionen zugreifen zu können, sind jedoch neue Fähigkeiten erforderlich. Mit diesem Buch eignen Sie sich die Kunst und die Techniken des Prompt Engineering an und schöpfen die Möglichkeiten von LLMs voll aus. Die Branchenexperten John Berryman und Albert Ziegler erklären, wie man effektiv mit KI kommuniziert und Ideen in ein sprachmodellfreundliches Format umwandelt. Durch das Erlernen der konzeptionellen Grundlagen und der praktischen Techniken erwerben Sie das Wissen und die nötige Sicherheit, um die nächste Generation von LLM-basierten Anwendungen zu entwickeln. Aus dem Inhalt: Verstehen Sie die LLM-Architektur und erfahren Sie, wie Sie am besten mit ihr interagieren können. Entwerfen Sie eine umfassende Strategie zur Erstellung von Prompts für eine Anwendung. Sammeln, sortieren und präsentieren Sie Kontextelemente, um eine effiziente Eingabeaufforderung zu erstellen. Erlernen Sie spezifische Techniken, um Prompts zu erstellen, wie Few-Shot-Prompting, Chain-of-Thought-Prompting und RAG.

chain of thought prompting elicits reasoning in large language models: Prompt Engineering im Geschäftsprozessmanagement Thomas Keuthen, 2025-07-28 Bei der Optimierung von Geschäftsprozessen spielen Large Language Models (LLMs) wie ChatGPT eine zentrale Rolle. Ziel des Buches ist, eine Brücke zwischen klassischen Prozessmanagement-Methoden und den neuesten Entwicklungen im Bereich Künstlicher Intelligenz zu schlagen. Dabei werden nicht nur theoretische Grundlagen vermittelt, sondern auch praxisnahe Anwendungsfälle vorgestellt. Besonderes Augenmerk liegt auf Strategien zur effizienten Nutzung von LLMs, der Kostenkontrolle und der Vermeidung von Anbieterabhängigkeiten. Von der Prozessidentifikation über die Modellierung bis hin zur kontinuierlichen Optimierung - LLMs eröffnen neue Möglichkeiten in der Dokumentenanalyse, Prozessgestaltung und -überwachung, im Kundenservice oder in ERP-Systemen. Fallstudien und klare Methoden helfen dabei, die richtige KI-Technologie auszuwählen und effizient in bestehende Systeme zu integrieren. Das Buch zeigt mit konkreten Beispielen anschaulich, wie Unternehmen LLMs erfolgreich einsetzen können und welche Herausforderungen bei der Implementierung bestehen. Es liefert verständliche und anwendungsorientierte Inhalte für alle, die Geschäftsprozesse zukunftsfähig gestalten möchten.

chain of thought prompting elicits reasoning in large language models: Handbuch Data

Science und KI Katherine Munro, Stefan Papp, Zoltan Toth, Wolfgang Weidinger, Danko Nikolic, Barbora Antasova Vesela, Karin Bruckmüller, Annalisa Cadonna, Jana Eder, Jeannette Gorzala, Gerald A. Hahn, Georg Langs, Roxane Licandro, Christian Mata, Sean McIntyre, Mario Meir-Huber, György Móra, Manuel Pasieska, Victoria Rugli, Rania Wazir, Günther Zauner, 2025-02-10 - Bietet einen umfassenden Überblick über die verschiedenen Anwendungsbereiche von Data Science und KI - Mit Fallbeispielen aus der Praxis, um die beschriebenen Konzepte greifbar zu machen - Mit praktischen Beispielen, die Ihnen helfen, einfache Datenanalyseprojekte durchzuführen - Neu in der 3. Auflage: Generativ KI und LLMs, KI und Klimawandel, ML Ops und ML Security, Zahlreiche Kapitel wurden von Grund auf überarbeitet - Ihr exklusiver Vorteil: E-Book inklusive beim Kauf des gedruckten Buches Data Science, Big Data und künstliche Intelligenz gehören derzeit zu den Konzepten, über die in Industrie, Regierung und Gesellschaft viel gesprochen wird, die aber auch am häufigsten missverstanden werden. Dieses Buch erklärt die Konzepte und vermittelt Ihnen das praktische Wissen, um sie zu nutzen. Das Buch nähert sich den Themen Data Science und KI von mehreren Seiten. Es zeigt, wie Sie Data-Plattformen aufbauen und Data-Science-Tools und -Methoden einsetzen können. Auf dem Weg dorthin hilft es Ihnen zu verstehen - und den verschiedenen Interessengruppen zu erklären -, wie Sie mit diesen Techniken Mehrwert generieren können. So kann Data Science in Unternehmen dabei helfen, schnellere Entscheidungen zu treffen, Kosten zu senken und neue Märkte zu erschließen. Darüber hinaus werden die grundlegenden Konzepte von Data Science, einschließlich Statistik, Mathematik sowie rechtliche Überlegungen erklärt. Praktische Fallstudien veranschaulichen, wie aus Daten generiertes Wissen verschiedene Branchen langfristig verändern wird. Das Autor:innenteam besteht aus Datenexpert:innen aus der Wirtschaft und aus dem akademischen Umfeld. Das Spektrum reicht von strategisch ausgerichteten Führungskräften über Data Engineers, die Produktivsysteme erstellen, bis hin zu Data Scientists, die aus Daten Wert generieren. Alle Autor:innen sind im Vorstand oder Mitglieder der Vienna Data Science Group (VDSG). Diese NGO hat sich zum Ziel gesetzt, eine Plattform für den Wissensaustausch zu etablieren. AUS DEM INHALT // - Grundlagen der Mathematik: ML-Algorithmen verstehen und nutzen - Machine Learning: Von statistischen zu neuronalen Verfahren; von Transformers und GPT-3 bis AutoML - Natural Language Processing: Werkzeuge und Techniken zur Gewinnung von Erkenntnissen aus Textdaten und zur Entwicklung von Sprachtechnologien - Computer Vision: Erkenntnisse aus Bildern und Videos gewinnen - Modellierung und Simulation: Modellierung des Verhaltens komplexer Systeme, z. B. der Ausbreitung von COVID-19. Was-wäre-wenn-Analysen - ML und KI in der Produktion: Vom Experiment zum Data- Science-Produkt - Ergebnisse präsentieren: Grundlegende Präsentationstechniken für Data Scientists

chain of thought prompting elicits reasoning in large language models: Programmieren mit KI Tom Taulli, 2024-10-29 Der praktische Einstieg in die KI-basierte Programmierung Das Buch führt in die Kernfunktionen von KI-basierten Entwicklungswerkzeugen ein Es stellt eine Vielzahl von Tools vor: von allgemeinen LLMs bis zu Systemen, die innerhalb von Entwicklungsumgebung genutzt werden Es zeigt Vor- und Nachteile sowie Anwendungsfälle beliebter Systeme Sowohl für Programmierneinsteiger*innen als auch für erfahrene Entwickler*innen geeignet Nutzen Sie das Potenzial der neuesten KI-Technologien für Ihre Arbeit: Dieser praktische Leitfaden zeigt den Einsatz von KI-Assistenten für die gesamte Softwareentwicklung - einschließlich Planung, Design und Debugging. Sie erfahren, wie Sie eine breite Palette von Werkzeugen verwenden können, um schneller und effizienter zu programmieren - von allgemeinen LLMs (ChatGPT, Gemini und Claude) bis hin zu codespezifischen Systemen (GitHub Copilot, Tabnine, Cursor und Amazon CodeWhisperer). Tom Taulli - bekannt für seinen lockeren und unterhaltsamen Schreibstil - stellt eine modulare Programmiermethodik vor, die optimal auf die Art und Weise abgestimmt ist, wie Prompts KI-generierten Code erzeugen. Er beschreibt auch, wie LLMs genutzt werden können, um eine Programmiersprache zu lernen, Code zu erklären oder Code von einer Sprache in eine andere zu konvertieren. Das Buch behandelt: Die zentralen Funktionen von KI-basierten Entwicklungstools Vor- und Nachteile sowie Use Cases beliebter Systeme, einschließlich GitHub Copilot Die

Einsatzmöglichkeiten von ChatGPT, Gemini, Claude und anderen LLMs für die Programmierung KI-Entwicklungswerkzeuge für den gesamten Lebenszyklus der Softwareentwicklung, einschließlich Requirements, Fehlerbehebung und Dokumentation Prompt Engineering für die Programmierung Den Einsatz von KI-Assistenz für mühsame Aufgaben wie die Erstellung regulärer Ausdrücke Die Verwendung von KI-basierten Low-Code- und No-Code-Tools

chain of thought prompting elicits reasoning in large language models: *Prompt Engineering for Large Language Models* Nimrita Koul, This eBook 'Prompt Engineering for Large Language Models' is meant to be a concise and practical guide for the reader. It teaches you to write better prompts for generative artificial intelligence models like Google's BARD and OpenAI's ChatGPT. These models have been trained on huge volumes of data to generate text and provide a free of cost, web-based interface to the underlying models as of 11 Nov. 2023. These models are fine tuned for conversational AI applications. All the prompts used in the eBook have been tested on the web interface of BARD and ChatGPT-3.5.

chain of thought prompting elicits reasoning in large language models: *Coding mit KI für Dummies* Chris Minnick, 2024-09-11 Lassen Sie sich beim Programmieren assistieren Von der Prozessautomatisierung über die Code-Optimierung bis hin zur Erledigung von Kernaufgaben wie Dokumentation, Debugging und Aktualisierung – künstliche Intelligenz hilft Ihnen dabei, sich auf den Kern Ihrer Entwicklungsarbeit zu konzentrieren. In diesem Buch lernen Sie die wichtigsten Plattformen kennen, mit denen Sie neuen Code schreiben und Ihre Codequalität verbessern können. Sie erfahren, welche Möglichkeiten und welche Grenzen die KI-Tools haben und wie Sie diese für Routineaufgaben einsetzen. So behalten Sie den Kopf frei für die wichtigen Aufgaben. Sie erfahren Welche Tools und Plattformen Sie kennen sollten Wie Sie die Lesbarkeit von Code verbessern Wie Sie Bugs mithilfe von KI beseitigen Wie Sie mithilfe von KI Ihren Code wartungsfreundlicher gestalten

chain of thought prompting elicits reasoning in large language models: Weiß die KI, dass sie nichts weiß? Katharina Zweig, 2025-09-30 Warum wir ChatGPT und Co. nicht unsere Kreditkarten überlassen sollten Schon bald sollen wir alle lästigen Aufgaben von intelligenten Chatbots wie ChatGPT und Co. in Form von KI-Agentensystemen erledigen lassen können. Doch wie genau funktionieren die Sprachmodelle: Haben sie intellektuelle Fähigkeiten, die denen von uns Menschen ähneln oder sie gar übersteigen? Katharina Zweig, vielfach ausgezeichnete Informatikprofessorin und Deutschlands führende KI-Erklärerin, zeigt, was ChatGPT und Co. wirklich können und was nicht. Denn Sprachmodelle können weder im menschlichen Sinne zusammenfassen, vergleichen, analysieren noch bewerten, auch wenn es oft so aussieht. Katharina Zweig zeigt, wie wichtig es ist, menschliche und maschinelle Leistungen nicht zu verwechseln und warnt eindrücklich vor spektakulären, vielleicht sogar fatalen Misserfolgen beim Einsatz von KI-Agentensystemen, die auf Sprachmodellen basieren. "Wer die KI-Revolution verstehen will, muss Katharina Zweig lesen." Sebastian Matthes, Chefredakteur Handelsblatt "Katharina Zweig gehört zu den profiliertesten Wissenschaftlerinnen Deutschlands im Bereich künstliche Intelligenz." DER SPIEGEL "Die Informatikerin Katharina Zweig sagt: Es liegt in unserer Hand, zu steuern, wo Algorithmen sinnvoll sind – und wo nicht. Denn auch Maschinen machen Fehler." SÜDDEUTSCHE ZEITUNG

chain of thought prompting elicits reasoning in large language models: Document Analysis and Recognition – ICDAR 2025 Xu-Cheng Yin, Dimosthenis Karatzas, Daniel Lopresti, 2025-09-15 The 5-volume set LNCS 16023 - 16027 constitutes the proceedings of the 19th International Conference on Document Analysis and Recognition, ICDAR 2025, which took place in Wuhan, China, during September 2025. The total of 142 full papers included in the proceedings was carefully reviewed and selected from 314 submissions. They were organized in topical sections as follows: Part I: Document Analysis; Handwriting Recognition; Document Synthesis, Multimodal Models for Document Understanding; NLP for Document Understanding; Part II: Historical Document Analysis; Trustworthy Document Analysis Methods and Documentation; Handwriting Recognition; Camera Based Methods and Font Analysis; Part III: Poster Papers; Part IV: Poster

Papers; Part V: Poster Papers; Competitions.

chain of thought prompting elicits reasoning in large language models: Pattern

Recognition Apostolos Antonacopoulos, Subhasis Chaudhuri, Rama Chellappa, Cheng-Lin Liu, Saumik Bhattacharya, Umapada Pal, 2024-12-02 The multi-volume set of LNCS books with volume numbers 15301-15333 constitutes the refereed proceedings of the 27th International Conference on Pattern Recognition, ICPR 2024, held in Kolkata, India, during December 1–5, 2024. The 963 papers presented in these proceedings were carefully reviewed and selected from a total of 2106 submissions. They deal with topics such as Pattern Recognition; Artificial Intelligence; Machine Learning; Computer Vision; Robot Vision; Machine Vision; Image Processing; Speech Processing; Signal Processing; Video Processing; Biometrics; Human-Computer Interaction (HCI); Document Analysis; Document Recognition; Biomedical Imaging; Bioinformatics.

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