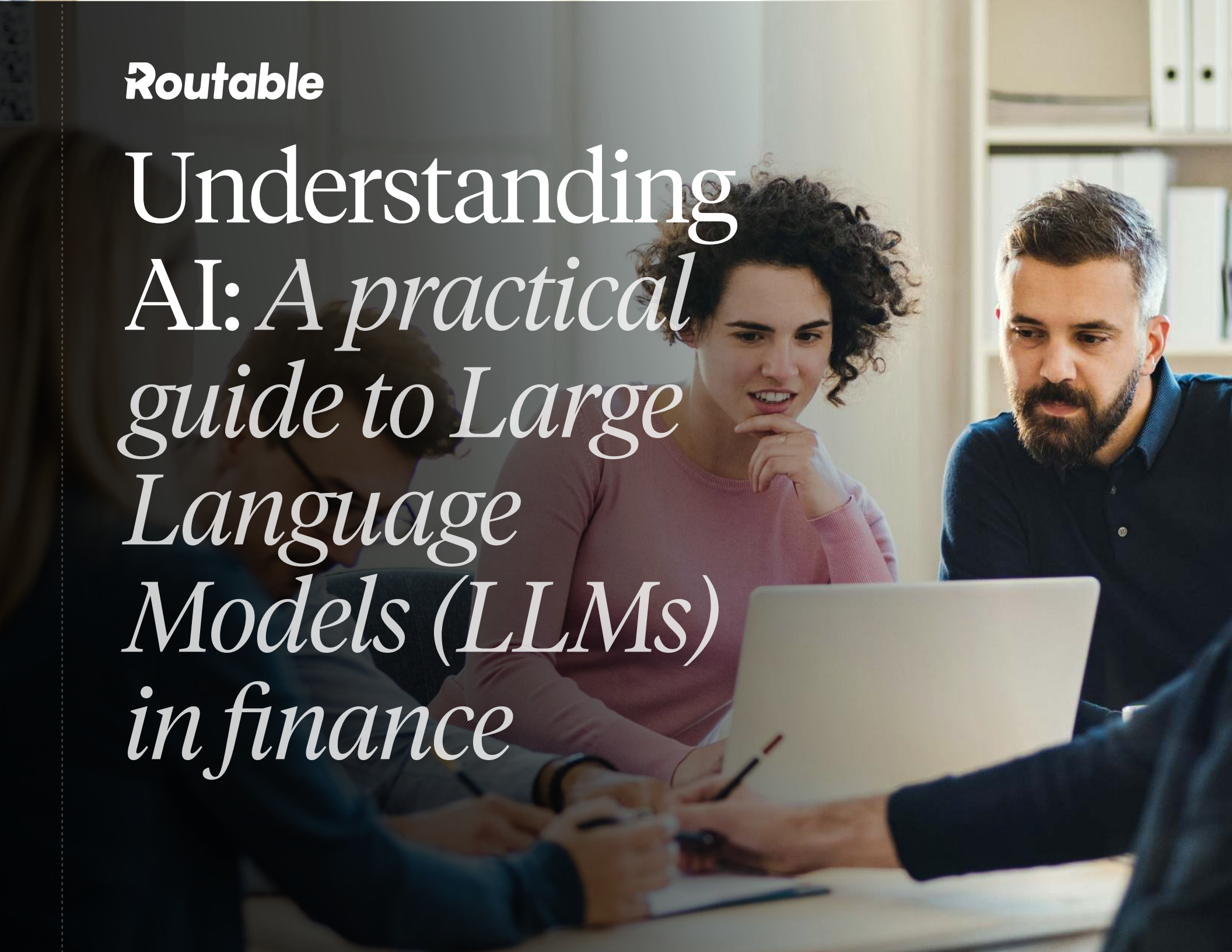
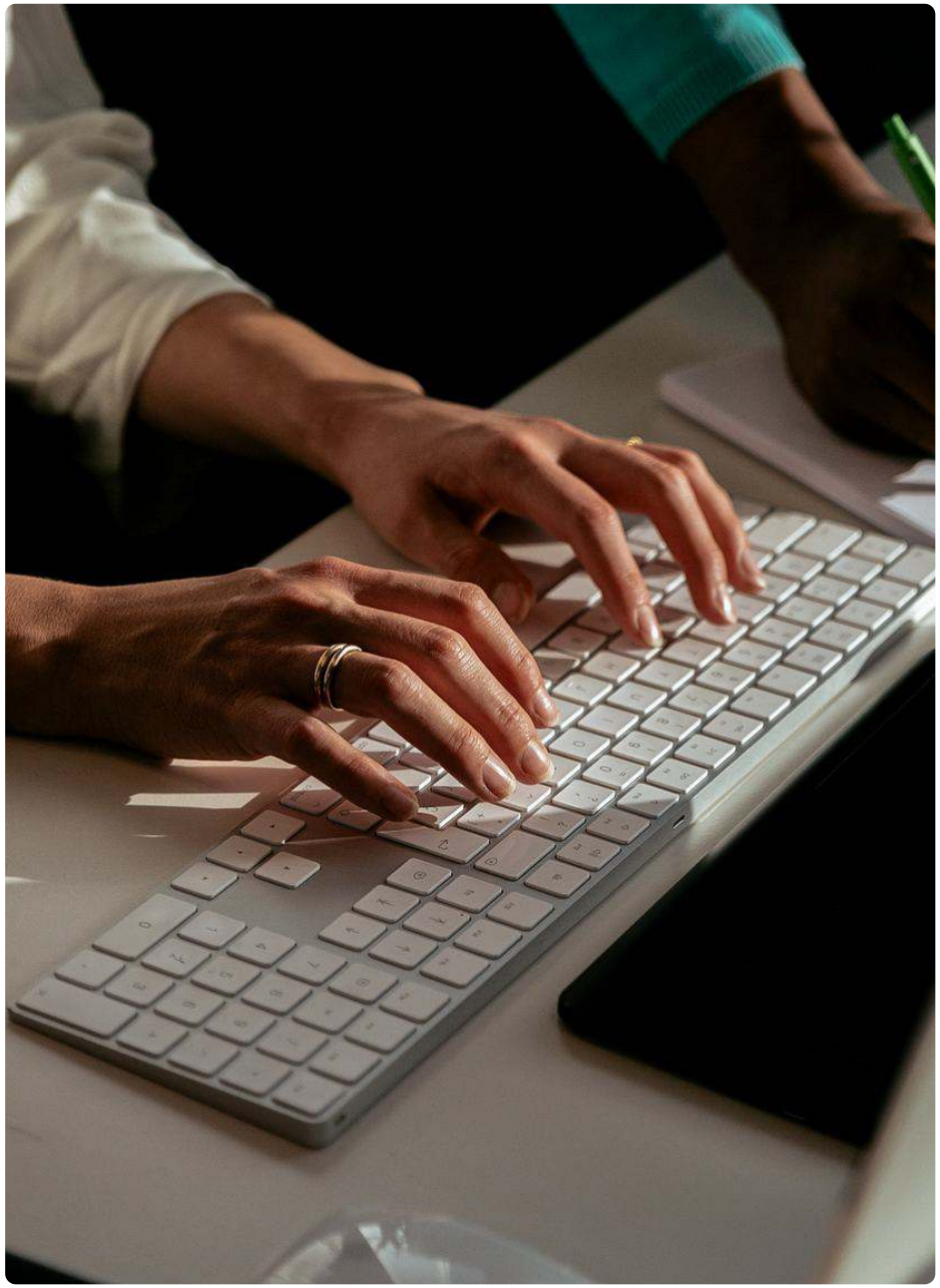
Routable

Understanding AI: *A practical guide to Large Language Models (LLMs) in finance*



Introduction



Artificial intelligence (AI) is becoming more and more prominent in our daily lives. Critics will call the use of AI to simplify tasks lazy, but the truth is, AI can help you do things that were previously impossible, or at least really hard.

The thought of AI in the workplace can make people a little uneasy, and that's okay because while AI is seemingly everywhere, it also feels like we don't really understand how it works. In this ebook we will deep dive into what "AI" really refers to, how Large Language Models (LLMs) actually work (and continuously evolve), and how AI is helping finance teams streamline their work like never before.

What do we mean when we talk about AI?

AI is a really big bucket that actually breaks down into four categories:

01 AI-assisted OCR

Converts images of text (from scanned documents, photos, PDFs, etc.) into machine-readable, editable text.

02 Machine learning

Systems learn patterns from data and improve over time without being explicitly programmed.

03 Natural language processing

Enable machines to understand, interpret, and respond to human language.

04 Generative AI

The focus is creation, not just recognition or prediction.

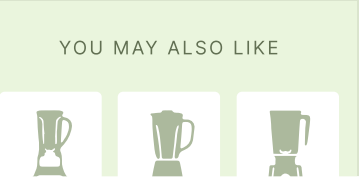
Going a step beyond these core four buckets, is where we introduce Large Language Models (LLMs). LLMs sit at the intersection of the above four AI buckets.

OCR

License plate recognition at toll booths

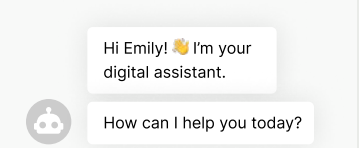
Machine learning

Recommendation engines



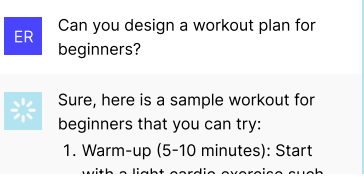
Natural language processing

Customer service chatbot



Generative AI

Create exercise plans or recipes



What is a Large Language Model or LLM?

A Large Language Model is a type of artificial intelligence (AI) that's trained to understand and generate human language. The most common examples of LLMs are ChatGPT (Open AI), Gemini (Google), Llama (Meta), but there are many others.

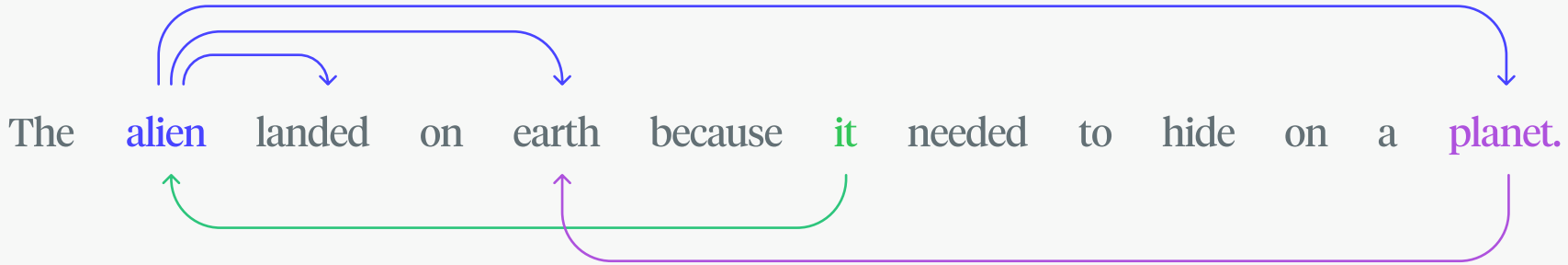
At the most basic level, an LLM is a very advanced auto-complete.

Think about when you text on your cell phone. Have you ever been mid-text and noticed the keyboard is trying to guess the next word you're going to type? LLMs are kind of like that, but way more advanced, powerful, and of course, much larger.

Let's take it up a notch and break down how LLMs actually work.

Think of an LLM as a giant library that understands language.

Libraries host thousands of books on thousands of topics. Now imagine the library not only hosts the information, but can recognize the words and patterns stored along every shelf. An LLM is a library that understands the relationship between the words in books, the context of passages within stories, and even the nuances of how humans use language to communicate. Through all of this learned information, the LLM practices predicting the next word in a sentence.



The LLM “library” gets more sophisticated as the library’s resources improve.

LLMs use a type of neural network called transformers, which are designed to read text and figure out how all the words relate to each other, not just one by one, but all at once.

Think of a transformer as a consultant who is available for 24/7 support within the library. This consultant has read every book ever written in the library and understands what you’re asking, how words form conversations in context, and can predict ideas for you.

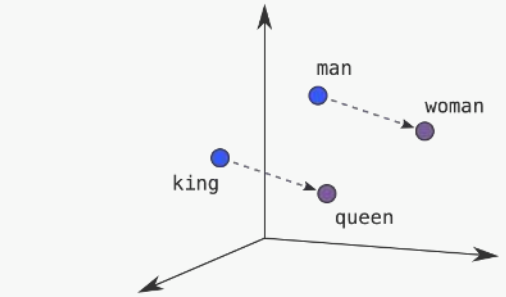
Now imagine the consultant has a giant map of where all words live, based on their meaning and the words with similar meanings are placed close together. This is called a “high-dimensional word space.” High-dimensional word spaces allow LLMs to capture context, meaning, and nuanced relationships between concepts more effectively.

How does this all come together?

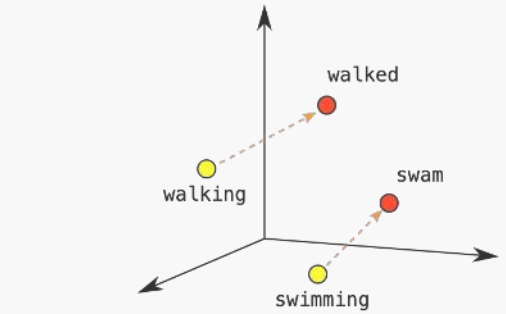
Let’s say you walk into the library (LLM) and you ask the 24/7 consultant for help writing a story about a woman who hitch-hiked from Madrid, Spain to Rome, Italy.

The consultant (transformer):

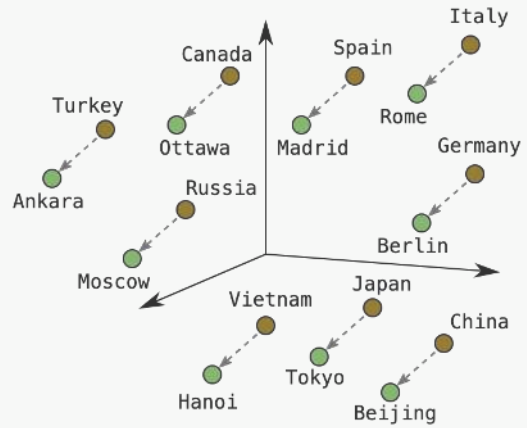
1. Understands the meaning of each word you asked.
2. Looks at how the words relate to each other.
3. Uses the map of word meanings to choose the next best words.
4. Writes a full, coherent story by predicting word after word.



Male / Female

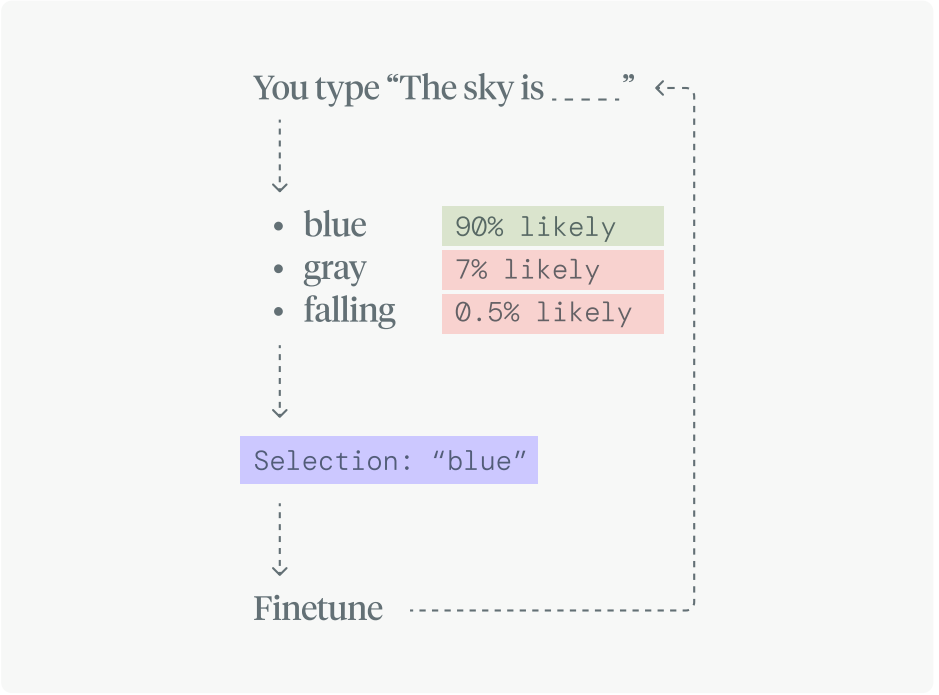


Verb Tense



Country / Capital

LLMs respond to patterns but they cannot think on their own.



It’s important to remember that LLMs do not know things the way humans do. When you have a “conversation” with an LLM, like ChatGPT for example, it’s not really thinking and responding, instead it is recognizing patterns in words and predicting what comes next.

This process makes LLMs very convincing, but it also means they cannot guarantee 100% accuracy.

In general, computers don’t understand words like we do. Computers use numbers to process information. So, LLMs break text into small chunks, called "tokens," and assign words a numeric value the computer can process.

Example: "Hello" → 12345, "world" → 67890.

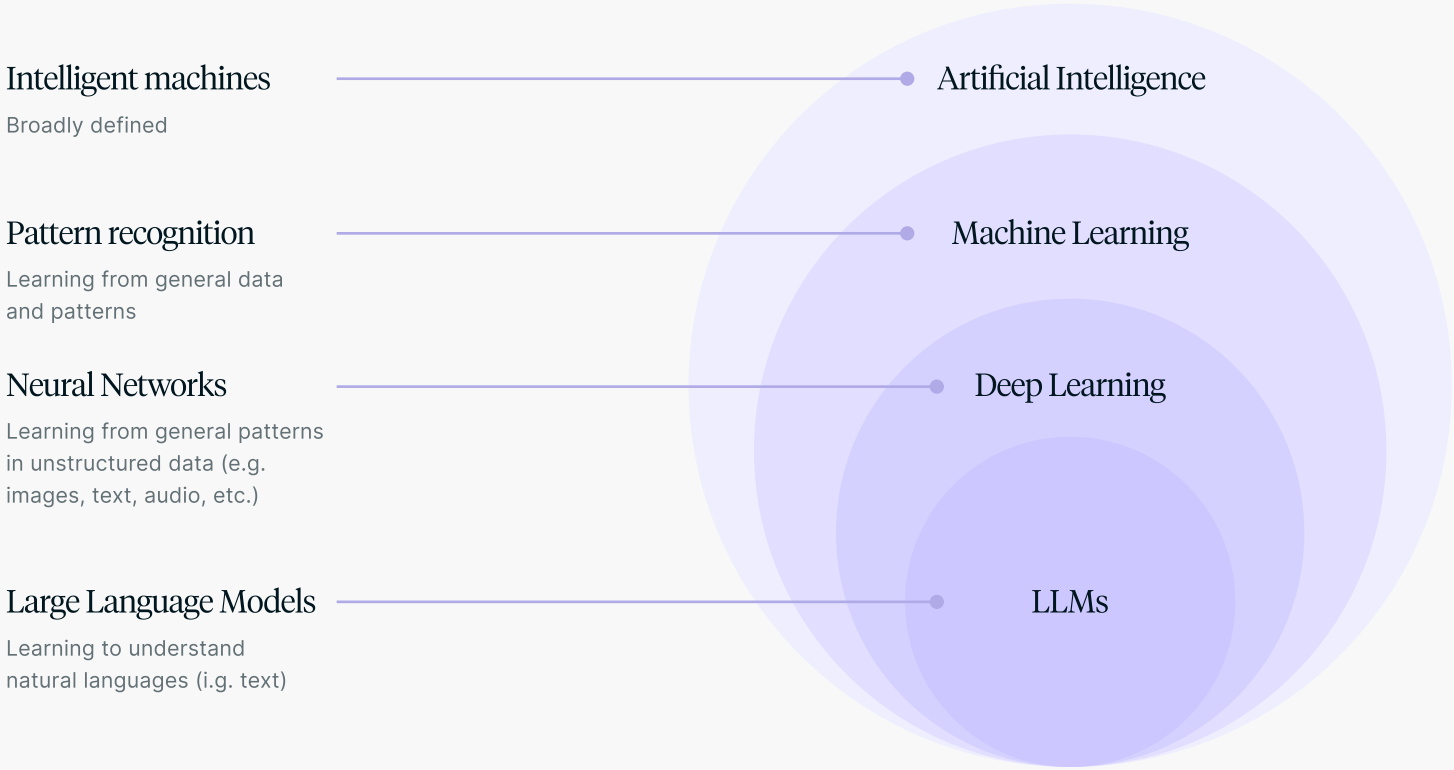
LLMs learn from examples, billions of them!

In order for an LLM to truly become sophisticated, it needs to have access to massive training datasets. This comes in the form of hundreds of billions of words that have been harvested from websites and books. This volume of information is how the LLM learns linguistic patterns and world knowledge. LLMs are trained by “reading” a huge amount of text from the internet. They learn how people communicate with one another so they can respond in a natural way.

LLMs still fail to robustly understand the world. Their knowledge comes indirectly from surface patterns in messy internet text, rather than grounded physical experience.

How LLMs are at the core of how we use AI

We've covered what AI means and how LLMs operate. But how does it translate to the world of accounting and finance?



AI can be used to do things that were previously impossible.

AI in the finance space is an extremely powerful tool if the user understands how to leverage the automation technology to simplify and streamline workflows.

AI as a tool to leapfrog

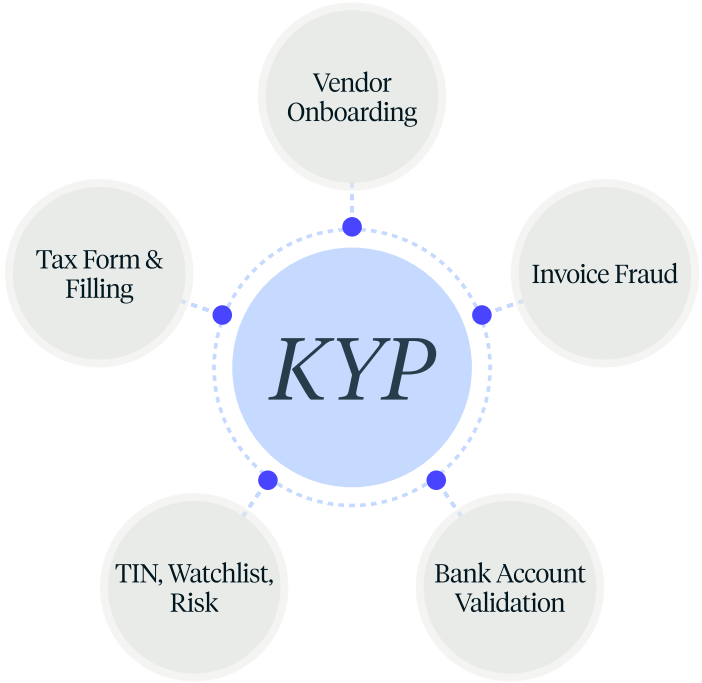
The core work functions of a finance and accounting professional can be summarized in this pyramid, with the most basic functions at the bottom and the more complex functions building off of the well-established base (think Maslow's hierarchy of needs). The real value for your organization is at the top of the pyramid. But the harsh reality is that 80% of time is spent on the bottom part of the pyramid due to manual work and outdated systems.

Prevent fraud with KYP

Use automation to go beyond basic verification

AI is enabling fraudsters to get more creative, so it's imperative to Know Your Payee (KYP) at every step of the process. If you're only managing a handful of invoices, you can manual verify each payee's bank account, and run them against watchlists, etc. But if your business processes thousands of invoices, manual KYP processes are practically impossible. Here are some of the ways AP automation can help:

- **Tax compliance across vendor types** - From corporations to sole proprietors
- **Early fraud detection** - Identifying payment anomalies before fraud occurs
- **Audit-ready documentation** - Maintaining complete records for all vendor relationships
- **Streamlined onboarding with robust security** - Using intelligent risk assessment
- **Sanctions screening** - Preventing payments to sanctioned entities through automated checks
- **Regulatory compliance** - Reducing penalty risks through continuous monitoring



AI can mitigate risk of human error

AI reduces human error by automating repetitive tasks, flagging anomalies, and guiding users with smart suggestions. These features work together to act as a safety net, constantly checking, learning, and correcting processes to protect your AP team from costly errors.

The kinds of errors AI can catch:

- Incorrect billing addresses
- Duplicate payments
- Overbilling
- Typos

39% of invoices have errors

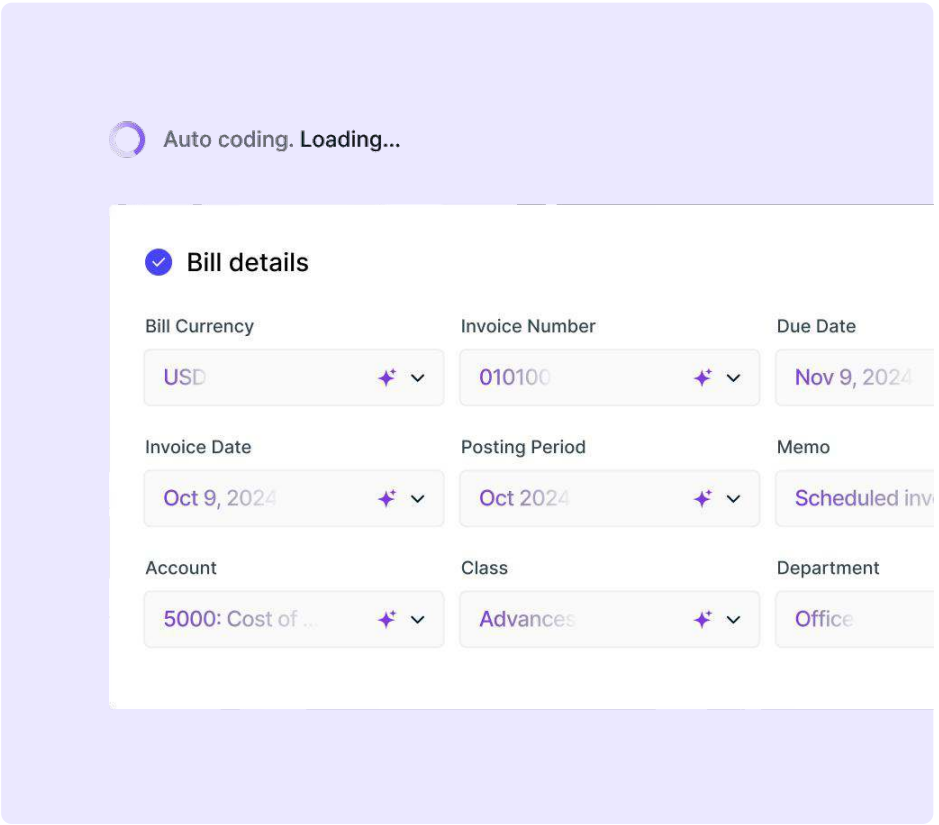
Agentic AI for fraud prevention and human error

Traditional OCR technology

Traditional OCR is the process where computer systems read text from a digital file (e.g. a PDF) and convert it into editable data. As you may know, the problem with traditional OCR is it tends to lack flexibility and cannot process complex invoice layouts. Not only can it not process complex invoices, there's no way to train the system on incorrect or missing data extractions.

Trainable OCR technology

Machine learning technology has made a trainable OCR model possible. Trainable OCR also pulls text from digital files and converts it to edible data, but it learns from your manual corrections and immediately applies them to future invoices from the same vendor. This creates a continuous feedback loop that improves accuracy without needing developer input.



AI-driven predictive coding

Beyond OCR, predictive bill coding uses machine learning to suggest fields that typically aren't included in the invoice, but need to be included on the bill. Machine learning analyzes all of your past bill data to better understand the context of the bill and can suggest fields based on inferences. This technology is also trainable, so as the technology gets more data, it will get better at predicting bill codes. This means AP professionals simply upload an invoice, check that the predicted bill codes are accurate, and save the bill.

Conclusion

AI is constantly learning, evolving and making itself more accurate with the help of humans. By understanding the context of how AI technology operates and how you can train AI to best serve you, you can leverage AI to defend against fraud and to help automate your AP process.

Interested in learning more about how Routable can help save your team time and streamline your workflows?

Schedule a demo with us today.

Request A Demo

Routable

Routable's Accounts Payable Automation platform offers the most efficient and robust solution to streamline and scale the end-to-end AP process. With automated invoice capture and processing, flexible payment options, and seamless vendor management, Routable reduces manual payment tasks by 80% so finance teams can focus on impact. Routable's deep ERP integrations and configurable approval workflows support complex business requirements with ease. Routable eliminates compliance headaches through detailed audit trails, role-based access, and vendor risk checks. All with an average savings of 30%. AP Automation, solved.