What's what PSPM

HOW DATA SCIENCE WORKS IN OUR DAILY LIFE WITHOUT US EVEN NOTICING

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Have You Ever Wondered How Everything Feels So Personalized?

Imagine waking up in the morning. You grab your phone, and before you even think of what to do next, social media has already lined up the perfect videos, memes, and posts for you. You open Spotify, and it plays exactly the kind of song that fits your mood. You check your email, and somehow, spam messages are neatly filtered out, leaving only the important ones. Ever wondered how all this happens?

The answer lies in data science—a powerful, invisible force working behind the scenes to make our daily lives smoother, faster, and more personalized. And the crazy part? Most of us don't even realize how deeply it affects us.

Figure 1: Facebook As The Most Popular Social Media
Source: Image generated by ChatGPT

Understanding the Connection Between AI, Machine Learning, and Data Science

You've probably heard the terms Artificial Intelligence (AI), Machine Learning (ML), and Data Science being thrown around, sometimes even used interchangeably. But are they really the same thing? Not quite! Let me break it down for you in a way that makes sense.

Think of Data Science as the whole process of making sense of data. Imagine having a giant treasure chest filled with numbers, text, and images—data scientists are like treasure hunters who analyze, clean, and find meaningful patterns in all that information. They use statistics, programming, and domain knowledge to turn raw data into useful insights.

Now, within data science, there's Machine Learning (ML)—a special technique that allows computers to learn from data without being explicitly programmed. Instead of writing rules for every possible situation, we let the machine find patterns and make predictions on its own. For example, when Netflix suggests a movie or TikTok knows exactly what video to show you next—that's machine learning working behind the scenes!

And then, there's Artificial Intelligence (AI)—the big umbrella that covers everything related to making computers "think" like humans. AI is the wider concept that includes machine learning as one of its tools. While ML focuses on learning from data, AI goes beyond that—it helps machines understand language, make decisions, and even interact like humans (like chatbots or voice assistants).

So, in simple terms: Data Science provides the data, Machine Learning finds patterns, and AI makes smart decisions based on those patterns. That's why you might see these three terms together so often—they're different but closely connected!

Now that you know the difference, let's explore how data science works in our daily lives without us even realizing it!

The Magic Behind Social Media & Online Behavior

Let's start with something we all use: social media. Have you noticed how Facebook, Instagram, and TikTok seem to know exactly what you like? The moment you pause on a cat video, suddenly, your feed is flooded with more cute kittens. If you search for a new phone, ads for smartphones mysteriously follow you across different platforms.

This isn't magic—it's data science at work. Every scroll, like, and share is recorded, analyzed, and used to predict what you'd like to see next. Algorithms track your engagement and serve content that keeps you hooked. Even the comments you see are filtered using sentiment analysis, ensuring harmful or offensive remarks don't ruin your browsing experience.

Figure 2: Sentiment Analysis To Discover Opinions, Emotions and More
Source: https://www.expressanalytics.com/blog/social-media-sentiment-analysis/

Your Smart Assistant is Always Learning

If you've ever used Siri, Alexa, or Google Assistant, you've interacted with one of the smartest AI-powered tools. These virtual assistants don't just recognize your voice—they learn from your usage patterns. If you frequently ask about the weather at 7 AM, your assistant might eventually predict your question and show the forecast before you even ask.

Smart homes work in a similar way. That's data science predicting when you're likely to feel hot or cold and adjusting accordingly. Even simple things like predictive text in WhatsApp messages or email responses in Gmail rely on machine learning to guess what you're about to type next.
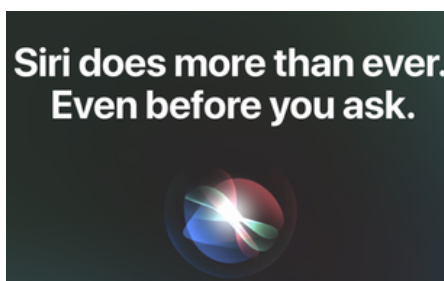

Figure 3: SIRI – Your Virtual Assistant
Source: https://www.phonearena.com/news/Is-Siri-not-always-answering-the-right-Apple-device-Heres-how-you-can-fix-that_id129696

How Google Maps Knows Where the Traffic Is?

Ever been late for a meeting and relied on Google Maps or Waze to find the fastest route? These apps predict real-time traffic fascinatingly. They don't just guess—millions of devices send GPS data, helping data scientists analyze congestion, road closures, and accident reports. The system learns from past patterns, making it smarter every day.

And if you've ever used Grab or Uber, have you noticed how the price fluctuates based on time and demand? That's dynamic pricing at work, where AI calculates ride fares based on supply, demand, and even the weather.

The Secret Behind Your Shopping Recommendations

"Shopee!" Your Shopee notifications manifest in the morning. You browse for a pair of sneakers online. The next thing you know, Lazada, and even Facebook are bombarding you with ads for sports shoes. No, your phone isn't spying on you (at least not in the way you think!). E-commerce platforms track what you click, how long you view a product, and even what you almost bought.

By analyzing this data, their algorithms suggest items that match your interests. The same goes for Netflix and YouTube—each recommendation is customized based on your viewing history. That's why you'll never run out of things to watch!

Even Your Health is Monitored by AI

If you wear a Fitbit, Apple Watch, MI Band, or any fitness tracker, you're basically carrying an AI-powered health assistant on your wrist. These devices monitor your heart rate, step count, and sleep patterns, using predictive analytics to suggest healthier habits.

Even hospitals rely on data-driven diagnosis models to detect diseases earlier. Ever heard of AI detecting cancer from scans with higher accuracy than doctors? That's data science revolutionizing healthcare, helping save lives with better predictions.

Figure 4: Smart Watch – More Than Just A Fashion
Source: https://www.cnet.com/tech/mobile/best-smartwatch/

Banking, Spam Filters & Other Hidden AI Wonders

Every time you swipe your credit card, fraud detection algorithms check if the transaction looks suspicious. If something seems off—like an unexpected purchase in another country—your bank might block it.

Even your email's spam filter is powered by AI, scanning messages for keywords and patterns associated with phishing scams or promotions. This is why your inbox remains (mostly) clutter-free.

So, What Does All This Mean for Us?

The beauty of data science is that it's everywhere, shaping our daily routines without us even thinking about it. It's helping companies personalize experiences, making services more efficient, and even improving healthcare.

Of course, with great power comes great responsibility. The more data we share, the more companies know about us. That's why understanding how our data is used is crucial. While AI makes life easier, we should always be aware of its impact—especially on privacy.

So, the next time Spotify plays your favorite song or Google predicts the best route to work, take a moment to appreciate the invisible world of data science working in the background—just for you.

Figure 5: Data Science Transforms Our Life
Source: Image generated by ChatGPT