LLM Security

8.5% of AI Prompts Leak Sensitive Data – Are You Safe?

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Introduction

AI tools like ChatGPT can transform workplace productivity—until an employee accidentally shares customer data, contract terms, or confidential info.

The dilemma:

- **Employees need AI to work faster**
- **Enterprises can't risk data leaks**

People relentlessly feed sensitive data into AI tools - customer records, contracts, financials - without a second thought.

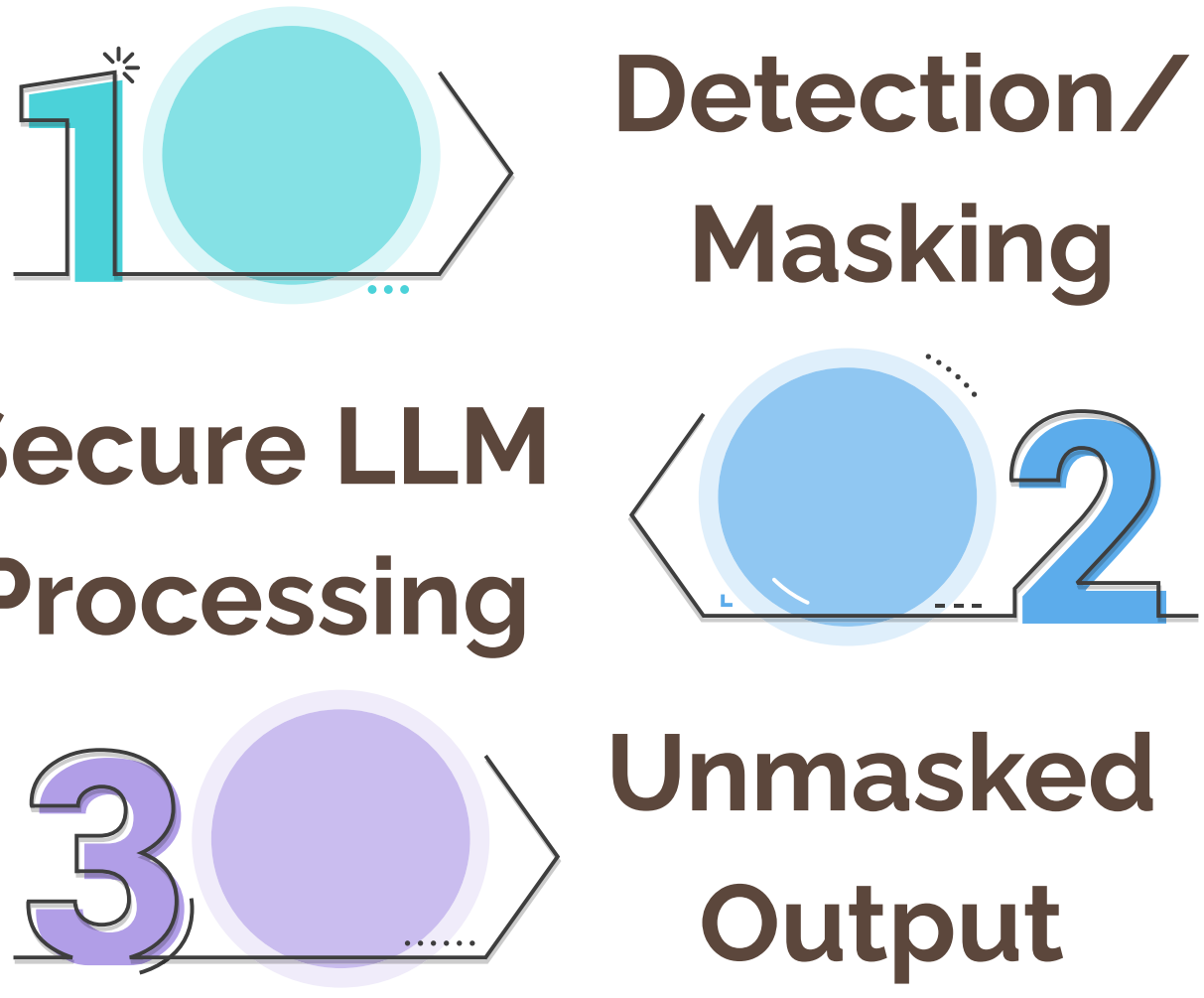
About **8.5%** enterprise AI queries contain sensitive data.

But, how do you enable AI without compromising security?

The solution isn't saying no to AI - but saying **yes to safe AI**. Lets learn how tools like **GPTGuard** can help achieve that ->

How GPTGuard works?

GPTGuard's privacy protection happens in three steps:



Intelligent Detection

- Combines AI, regex patterns, and custom rules to identify 50+ sensitive data types
- Adapts to your needs: Learns company-specific terms (project codenames, internal IDs)

Context-Aware Masking

- Replaces sensitive values with secure tokens (e.g., "Raj Mehta" → "[PERSON_1]")
- Preserves data format and meaning so LLMs understand the context

Secure Knowledge Retrieval

- HyperSearch RAG pulls answers from your documents using masked data only
- Always shows sources so you can verify responses

GPTGuard is powered by privacy APIs under the hood, lets see how it works -

Protecto's Privacy APIs

GPTGuard is powered by Protecto's Privacy API to deliver-

Protecto's API:

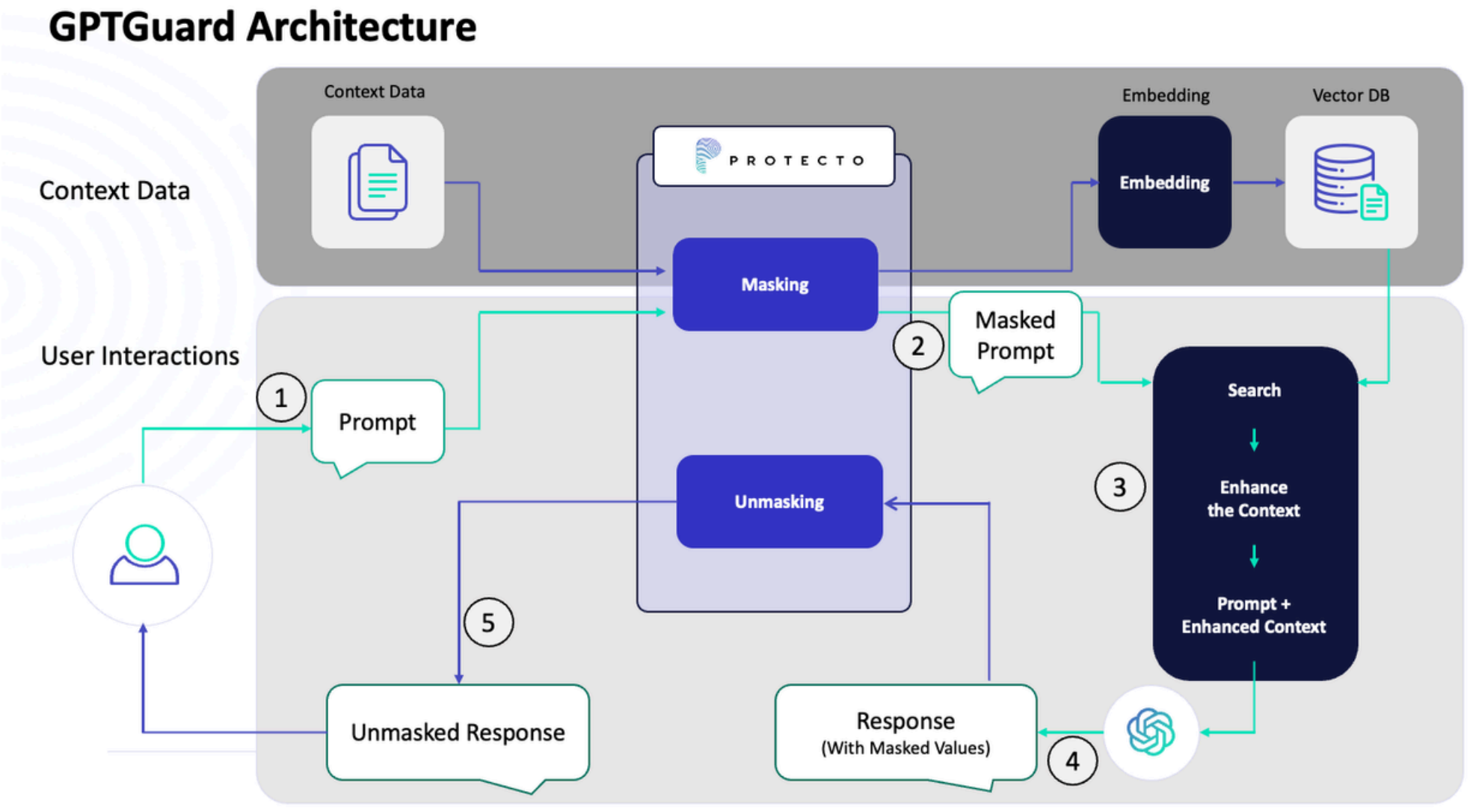
- Secure AI without sacrificing accuracy
- Audit-proof data handling
- Enterprise trust at scale

In terms of PII/PHI detection -

Protecto AI	> Microsoft Presidio, AWS Comprehend

Let's try to understand the architecture of GPTGuard to get better clarity-

GPTGuard Architecture



1. **User Interaction Phase**
   - Employees submit queries or documents as they would with any AI tool
   - The system automatically detects sensitive elements like: Customer identifiers, payment details(account number, CC, transaction ids), Medical/legal terms
2. **Intelligent Protection Layer**
   - Advanced masking replaces sensitive data with tokens while preserving: Contextual meaning, Data formats, Relationship between elements
3. **Secure Processing Stage**
   - Only masked information reaches the LLM (GPT-4, Claude, etc.)
   - Vector database enhances responses using protected document extracts
4. **Verified Output Delivery**
   - Authorized users receive complete answers with sensitive data restored
   - Full audit capability shows what was protected and when.

GPTGuard can help prevent severe data leaks in major sectors. Lets see how-

Real World Example

According to Harmonic Security's report **8.5% of enterprise AI** queries contain **sensitive data** with top exposures of customer data**(45%)**, employee records**(26%)** etc.

Tools like **GPTGuard** can help prevent this by:

Finance

- Automatic masking of account numbers, SSNs
- Audit-compliant document search

Health

- Real-time PHI tokenization
- HIPAA-safe chat with EHRs

Legal

- Privileged data stays on-premises
- Masked but accurate legal research

As AI becomes widely adopted across every sector, we must establish clear security measures to prevent data leaks. Remember:

The solution isn't saying no to AI - it's saying yes to safe AI.

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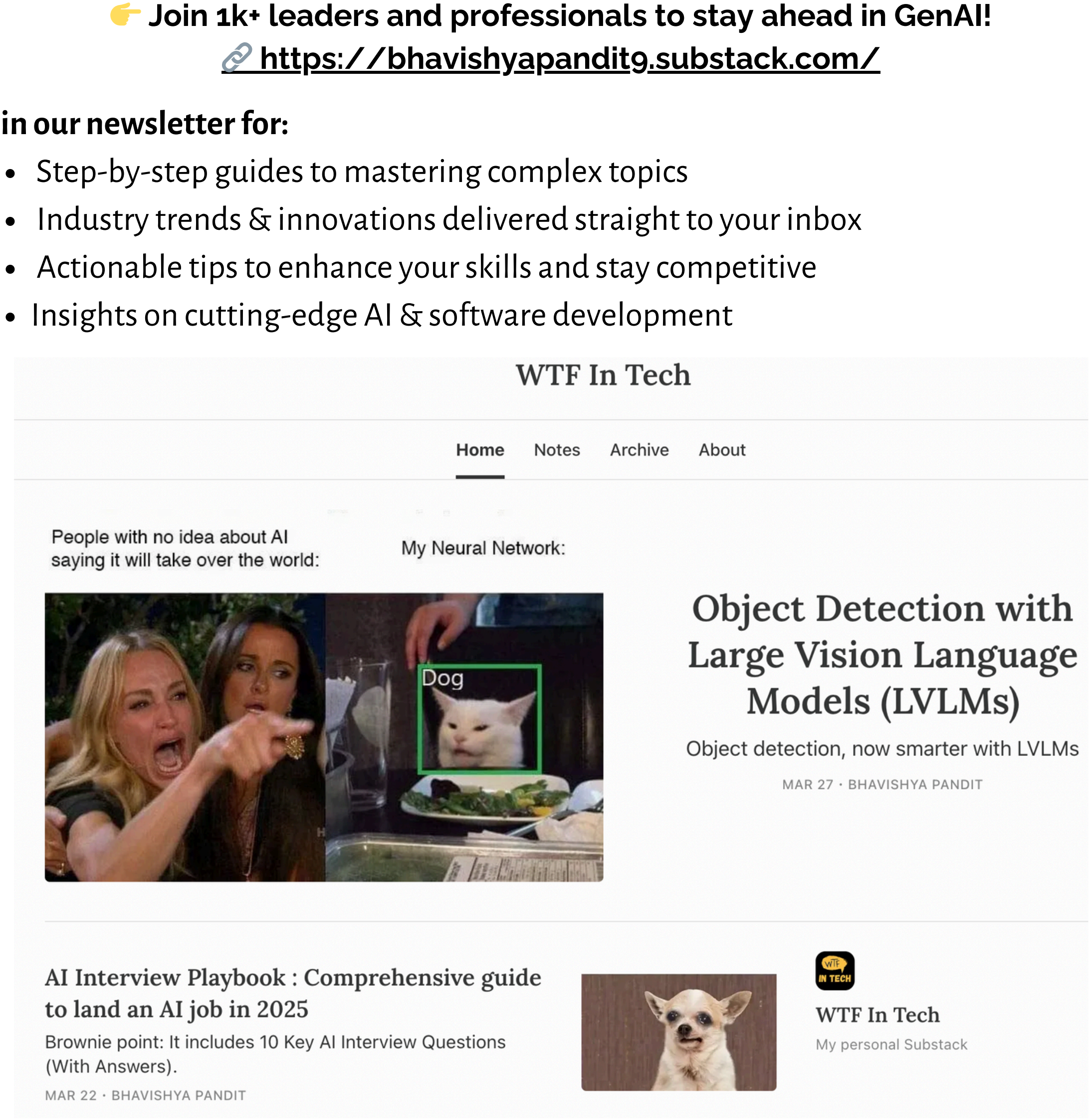

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