Overfitting

📌 Overfitting happens when **AI memorizes past data too well** but struggles to handle new information.

💡 **Think of it like a student who memorizes answers instead of learning concepts.**

✅ AI should **recognize patterns**, not just repeat old data.

🔍 Why Overfitting is a Business Risk

📌 **Scenario:** Patrick's company uses AI to predict customer demand.

🚨 **Overfitting Problem:**

- ✔ AI memorized **historical buying patterns.**
- ✔ When **new market trends appeared**, AI **failed to adjust.**

📌 **Lesson: AI should learn general trends, not memorize past events.**

📌 3 Ways to Avoid Overfitting:

1. **Use More Diverse Training Data** – AI should learn from **varied scenarios, not just past trends.**
2. **Limit Model Complexity** – AI shouldn't have too many layers or rules that force it to overlearn details.
3. **Test AI on Unseen Data** – AI should be tested on **new, real-world data** before deployment.

💡 **AI that generalizes well makes smarter, future-proof decisions.**

📊 Real-World Example: AI in Stock Market Predictions

📌 **Scenario:** A hedge fund uses AI to predict stock prices.

- 🚨 **Overfitting Problem:** AI memorizes **historical trends** but fails when the market shifts.
- ✅ **With Proper Training:** AI learns **adaptive strategies** to handle new market conditions.

📌 **Lesson:** AI should predict **possibilities**, not assume the past will repeat.
