Insuring AI: How Insurance Can Support AI Development

CAS - Seminar on Reinsurance

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1. Introduction

2. Artificial Intelligence and Risks

3. Insurance of AI

4. Outlook
Introduction

Jascha Prosiegel
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The AI Risks team
- Underwrites AI model performance since 2018
- Insures corporates and tech startups across industries globally
- www.munichre.com/insure-ai
Artificial Intelligence

Statistical model trained on data
to perform a specific task
cheaper, faster and better

$200bn
Global Annual Corporate Investment into AI\(^1\)

AI being a critical part – 2022 vs 2025\(^2\)

- Sales
- Marketing & Advertising
- Finance
- Product Development
- HR
- SCM & Manufacturing
- IT

\(^1\) Stanford HAI, 2023 State of AI Report, \(^2\) MIT Technology Review, CIO survey on AI adoption
“the laws of statistics ensure that – even if AI does the right thing nearly all the time – there will be instances where it fails”

John Villasenor, Brookings Institute
Assumption: \((X_i, Y_i) \sim P_{XY} = P_X \times P_{Y|X}\)

Covariate Shift \(P_X \rightarrow \tilde{P}_X\)

Change in the distribution of input data between training and production

Concept Drift \(P_{Y|X} \rightarrow \tilde{P}_{Y|X}\)

Statistical properties of the target variable change over time in unforeseen ways
Insurance Products

**Insure-backed Performance Guarantees**
An AI provider adds a targeted performance guarantee to their product. The provider is insured against penalty payouts.

**Goal** Trust & Sales

**Own-Damage Performance Insurance**
A corporate automates tasks and services via AI and is insured against specific underperformance scenarios.

**Goal** Protected Automation
Attractiveness for Insurers

**AI Model Insurance**
A portfolio of predictions with a statistical error rate with accumulation and diversification potential.

Insuring the risk of errors above expectation.

**Reinsurance**
A portfolio of policies with loss frequencies/severity with accumulation and diversification potential.

Insuring the risk of loss ratio above expectation.
1. Process Assessment

- Business problem
- Data & feature engineering
- Training
- Monitoring & updating

2. Performance Data Review

- Variation over subsets
- Variation over time
- Stress test results
- Business outlook
Outlook

AI becomes the new normal and takes over more critical tasks.

New regulations bring environmental certainty and new requirements.

Even the best AI will make errors. Losses will drive insurance demand.
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Case Studies and more material: www.munichre.com/insure-ai