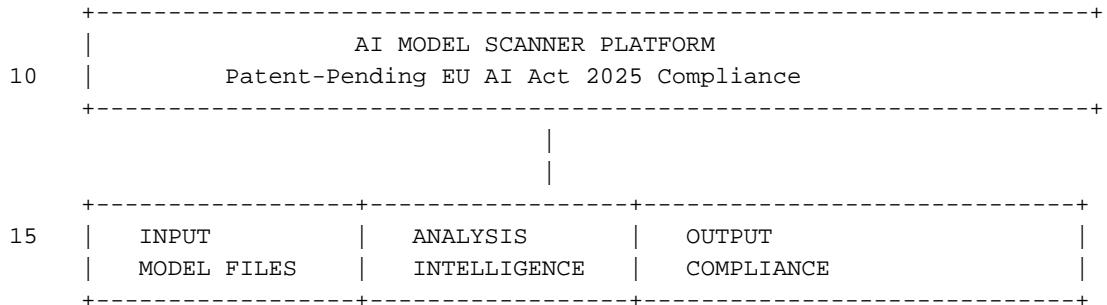


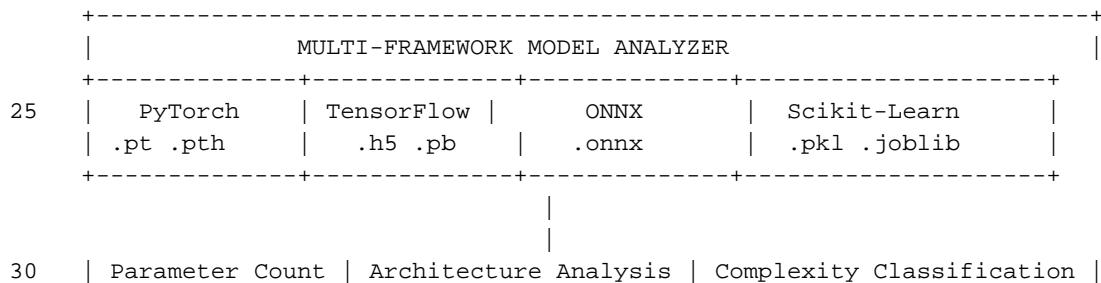
=====  
TEKENINGEN EN FORMULES (DRAWINGS AND FORMULAS)  
AI Model Scanner - Patent Tekeningen  
=====

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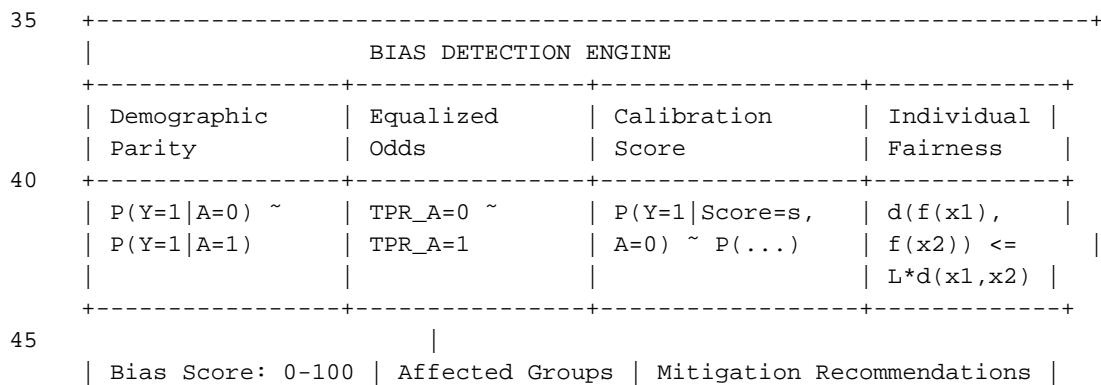
5 FIGUUR 1: SYSTEEM ARCHITECTUUR OVERZICHT



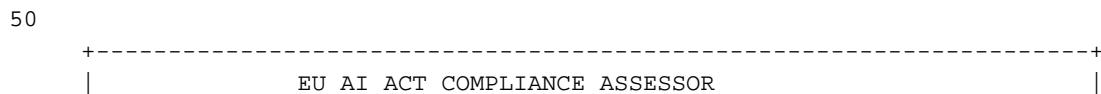
20 FIGUUR 2: MULTI-FRAMEWORK ANALYZER



FIGUUR 3: BIAS DETECTION ENGINE



FIGUUR 4: EU AI ACT COMPLIANCE ASSESSOR



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55	ARTICLE 5 Prohibited Practices	ARTICLES 19-24 High-Risk Systems	ARTICLES 51-55 General Purpose AI (GPAI)
60	- Social Score - Manipulation - Subliminal - Biometric ID	- QMS Required - Tech Docs - Record Keeping - CE Marking	- Foundation Model - >1B Parameters - Compute Limits - Adversarial Test
65	EUR 35M or 7% Global Turnover	EUR 15M or 3% Global Turnover	EUR 15M or 3% Global Turnover

FIGUUR 5: NEDERLANDS SPECIALISATIE

NETHERLANDS SPECIALIZATION			
	BSN Detection	UAVG Compliance	Penalty Engine
75	- 9-digit BSN - Checksum Valid - Privacy Risk - GDPR Art.9	- AP Authority - Data Residency - Local Rules - NL Specific	- EUR 35M Max - 7% Turnover - Risk Scaling - Regional Multi
80			

FIGUUR 6: MATHEMATISCHE FORMULES (GECORRIGEERD)

85 BIAS DETECTION ALGORITHMS:

Formule 1 - Demographic Parity:

$$P(Y=1|A=0) \sim P(Y=1|A=1)$$

90 Formule 2 - Equalized Odds:

$$TPR_{A=0} \sim TPR_{A=1} \text{ EN } FPR_{A=0} \sim FPR_{A=1}$$

Formule 3 - Calibration Score:

$$P(Y=1|Score=s, A=0) \sim P(Y=1|Score=s, A=1)$$

95 Formule 4 - Individual Fairness:

$$d(f(x_1), f(x_2)) \leq L * d(x_1, x_2)$$

BSN CHECKSUM VALIDATIE (GECORRIGEERD - Officieel Nederlands Algoritme):

```
100
checksum = (digit_0 * 9) + (digit_1 * 8) + (digit_2 * 7) +
           (digit_3 * 6) + (digit_4 * 5) + (digit_5 * 4) +
           (digit_6 * 3) + (digit_7 * 2) - (digit_8 * 1)
```

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105 BSN is geldig als: checksum mod 11 == 0

```

Voorbeeld: BSN 111222333
= (1x9) + (1x8) + (1x7) + (2x6) + (2x5) + (2x4) + (3x3) + (3x2) - (3x1)
= 9 + 8 + 7 + 12 + 10 + 8 + 9 + 6 - 3
110   = 66 mod 11 = 0 ✓ GELDIG

```

PENALTY CALCULATION:

```

115  penalty = MAX(
        fixed_amount x regional_multiplier,
        revenue x percentage x regional_multiplier
    )

120  waarbij:
    fixed_amount = EUR 35,000,000 (Artikel 5) of EUR 15,000,000 (Artikelen 19-24)
    percentage = 7% (Artikel 5) of 3% (Artikelen 19-24)
    regional_multiplier = Nederland-specifieke compliance factor

125
FIGUUR 7: SYSTEEM FLOW DIAGRAM

```

```

INPUT
|
+--> Multi-Framework Analysis
130  |
+--> Bias Detection
|
+--> EU AI Act Assessment
|
+--> Netherlands Specialization
|
+--> Real-time Monitoring
|
+--> Compliance Reports
140

```

FIGUUR 8: PROCESSING PIPELINE

```

+-----+
145 | STEP 1: Model Upload
|   - Framework Detection (PyTorch/TensorFlow/ONNX/scikit-learn)
|   - File Validation (.pt, .pth, .h5, .pb, .onnx, .pkl, .joblib)
+-----+
|
150
=====

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```

```

+-----+
| STEP 2: Architecture Analysis
|   - Parameter Count (threshold: <1M, 1M-100M, 100M-1B, >1B)
|   - Layer Configuration
|   - Model Complexity Classification
+-----+
|
160
=====
```

```

| STEP 3: Bias Detection
|   - Demographic Parity (threshold: 0.80)
|   - Equalized Odds (TPR & FPR comparison)
165 |   - Calibration Score (per demographic group)
|   - Individual Fairness (Lipschitz continuity, L=1.0)
+-----+
|
170 +-----+
| STEP 4: EU AI Act Classification
|   - Article 5 Check (Prohibited Practices)
|   - Articles 19-24 Validation (High-Risk Systems)
|   - Articles 51-55 Assessment (GPAI Models)
175 |   - Penalty Calculation (EUR 35M / EUR 15M)
+-----+
|
180 +-----+
| STEP 5: Netherlands Compliance
|   - BSN Detection (9-digit pattern + checksum)
|   - UAVG Validation (AP authority integration)
|   - Regional Penalty Multipliers
|   - Dutch Language Support
185 +-----+
|
190 +-----+
| STEP 6: Report Generation
|   - PDF/HTML Output
|   - Technical Documentation
|   - Remediation Recommendations
|   - Compliance Certificate (with AP stamp)
+-----+
195

```

FIGUUR 9: DEPLOYMENT ARCHITECTUUR

```

+-----+
200 |           DEPLOYMENT ARCHITECTURE
+-----+

```

===== PAGINA 17 van 18

```

| +-----+ +-----+ +-----+
205 | Streamlit | PostgreSQL | Redis
| Frontend  | <---->| Database  | <---->| Cache
| +-----+ +-----+ +-----+
|
210 +-----+
|   AI Model Scanner Services
|   - Multi-Framework Analyzer
|   - Bias Detection Engine
|   - EU AI Act Compliance Assessor
215 |   - Netherlands Specialization Module
| +-----+
|

```

	Docker Container (Horizontale Schaalvergroting)	
--	---	--

220

FIGUUR 10: COMPETITIVE ADVANTAGE MATRIX

	FEATURE	DataGuardian	Systeem A	Systeem B	Systeem C
	Automated Bias	Y	N	N	W
	Multi-Framework	Y	N	N	W
	BSN Detection	Y	N	N	N
230	EU AI Act 2025	Y	W	W	W
	Cost (Annual)	EUR 2.5K-25K	EUR 50K-500K	EUR 75K-400K	EUR 100K+
	Cost Savings	BASELINE	95%	96%	97%

235 Legend: Y = Full Support, W = Partial Support, N = No Support

FIGUUR 11: VALUE PROPOSITION

	PATENT VALUE PROPOSITION
	Market Opportunity: EUR 447M (EU-wide AI compliance market)
245	Target Market: 1.8M EU companies using AI
	Netherlands Market: EUR 23M (150,000 companies)
	Penalty Prevention: Up to EUR 35M per violation
	Cost Savings: 95-97% vs commerciele oplossingen
250	Processing Speed: <30s (vs hours manually)

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	Accuracy: 95%+ bias, 98%+ compliance	
255	First-Mover Advantage: EU AI Act enforced Feb 2025	
	Patent Protection: 20 years (until 2045)	
	Patent Value: EUR 1M - EUR 2.5M	

260

=====  
BELANGRIJKE TECHNISCHE CORRECTIES  
=====

265

BSN FORMULE CORRECTIE:

OUD (FOUT):  
 $\text{checksum} = \text{SUM}(\text{digit}_i \times (9-i)) \bmod 11$  ✗ INCORRECT

270

NIEUW (CORRECT):  
 $\text{checksum} = (\text{digit}_0 \times 9) + (\text{digit}_1 \times 8) + \dots - (\text{digit}_8 \times 1)$  ✓ CORRECT

De laatste digit ( $\text{digit}_8$ ) gebruikt factor 1, NIET factor  $(9-8)=1$  via formule.

275 Dit is het officiele Nederlandse BSN 11-proef algoritme.

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EINDE TEKENINGEN EN FORMULES

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