

# Ethical AI Validator - Compliance Report

## Report Information

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## Model Information

model\_name: Neural Network (MLP)  
config\_name: default  
version: 1.3

## Training Scenario and Hyperparameters

Scenario: NN-default

Hyperparameter	Value
activation	relu
alpha	0.0001
batch_size	auto
beta_1	0.9
beta_2	0.999
early_stopping	False
epsilon	1e-08
hidden_layer_sizes	(100, 50)
learning_rate	constant
learning_rate_init	0.001
max_fun	15000
max_iter	500
momentum	0.9
n_iter_no_change	10
nesterovs_momentum	True
power_t	0.5
random_state	42

shuffle	True
solver	adam
tol	0.0001
validation_fraction	0.1
verbose	False
warm_start	False

## Audit Criteria

bias_threshold	0.3
fairness_threshold	0.7

## Bias Analysis Results

Protected Attribute	Group	Bias Score
gender	female	0.198
gender	male	0.256
age_group	18-25	0.198
age_group	26-35	0.198
age_group	36-50	0.551
age_group	50+	0.138
education	bachelor	0.194
education	high_school	0.562
education	master	0.198
education	phd	0.198

## Fairness Assessment Results

Protected Attribute	Fairness Score
gender	0.772
age_group	0.713
education	0.740

## Hyperparameter Impact Analysis

Parameter	Value	Risk	Rationale
alpha	0.0001	MEDIUM	Very low regularization may worsen group disparities.
class_weight	None	LOW	No class weighting can under-serve minority groups if data is imbalanced.

## Likely Contributing Factors

- 1. Low fairness score observed for 'age\_group' (score=0.713).
- 2. Highest bias in education -> high\_school (bias\_score=0.562).
- 3. Suspected hyperparameters: alpha=0.0001 (MEDIUM) - Very low regularization may worsen group disparities.; class\_weight=None (LOW) - No class weighting can under-serve minority groups if data is imbalanced.

## Overall Compliance Summary

Overall Status	PARTIALLY COMPLIANT
Bias Issues	Yes
Fairness Issues	No
Total Issues	1
Summary	Minor issues detected. Some compliance requirements need attention.

## GDPR Compliance Assessment

Requirement	Status	Notes
Data Minimization	Compliant	Audit completed successfully
Purpose Limitation	Compliant	Audit completed successfully
Transparency	Non-Compliant	Bias detected - transparency compromised
Accountability	Compliant	Audit completed successfully
Right to Explanation	Non-Compliant	Bias/fairness issues affect explainability

## AI Act Compliance Assessment

Requirement	Status	Notes
Risk Assessment	Non-Compliant	Bias/fairness risks identified
Transparency Requirements	Non-Compliant	Bias affects transparency
Human Oversight	Non-Compliant	Bias/fairness issues require oversight
Accuracy Requirements	Compliant	Audit completed successfully
Documentation	Non-Compliant	Bias/fairness issues need documentation

## Recommendations

- 1: HIGH PRIORITY: Apply post-processing bias correction
- 2: Implement equalized odds post-processing
- 3: Implement comprehensive bias monitoring in production
- 4: Document all mitigation strategies implemented
- 5: Establish regular bias monitoring procedures
- 6: Provide model explanations for affected groups
- 7: Consider human oversight for high-stakes decisions