

Here is the generated checklist in Markdown format:

AI/ML Model Development Checklist

Assurance Level 1 (DAL A)

- **Data Management**

- ☐ Have you ensured validation and verification of data throughout the process? [YES/NO]
- ☐ Have you performed a data verification step to confirm the appropriateness of defined ODD and data sets used for training, validation, and verification of the ML model? [YES/NO]

- **Model Architecture**

- ☐ Have you described the ML model architecture? [YES/NO]

- **Learning Management**

- ☐ Have you captured requirements pertaining to learning management and training processes, including:
 - Model family and selection? [YES/NO]
 - Learning algorithm(s) selection? [YES/NO]
 - Explainability capabilities of the selected model? [YES/NO]
 - Activation functions? [YES/NO]
 - Cost/loss function selection describing link to performance metrics? [YES/NO]
 - Model bias and variance metrics and acceptable levels? [YES/NO]
 - Model robustness and stability metrics and acceptable levels? [YES/NO]
 - Training environment (hardware and software) identification? [YES/NO]
 - Model parameters initialisation strategy? [YES/NO]
 - Hyper-parameters identification and setting? [YES/NO]
 - Expected performance with training, validation, and test sets? [YES/NO]

Assurance Level 2 (DAL B)

- **Model Training**

- ☐ Have you documented the credit sought from the training environment and qualified the environment accordingly? [YES/NO]
- ☐ Have you provided quantifiable generalisation bounds? [YES/NO]

- **Model Optimisation**

- ☐ Have you documented any model optimisation that may affect the model behavior (e.g. pruning, quantization) and assessed their impact on the model behavior or performance? [YES/NO]

Assurance Level 3 (DAL C)

- **Bias-Variance Trade-off**

- ☐ Have you accounted for bias-variance trade-off in the model family selection? [YES/NO]
- ☐ Has evidence of reproducibility of the model training process been provided? [YES/NO]

- **Model Verification**

- ☐ Have you performed an evaluation of the performance of the trained model based on test data set and documented the result of the model verification? [YES/NO]
- ☐ Have you performed requirements-based verification of the trained model behavior? [YES/NO]

Assurance Level 4 (DAL D)

- **Stability Analysis**

- ☐ Has an analysis been performed on the stability of learning algorithms? [YES/NO]
- ☐ Has the verification of the stability of the trained model covering the whole AI/ML constituent ODD been performed and documented? [YES/NO]

Please note that this checklist is generated based on the provided text and may require further clarification or modification depending on specific requirements.