

Explainable AI for Systematic Literature Review for Scientific Publication



Customer

Roche HEOR team









Objective

Accelerate the title and abstract screening (TIABS) stage of a systematic literature review using an explainable AI pipeline, while ensuring reproducibility, transparency, and publication-grade quality.

Scope

Design and validate an explainable AI screening pipeline using human-labeled SLR datasets to support inclusion and exclusion decisions with clear rationale.

Approach

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Screening Framework: Title and abstract screening structured using the Population–Intervention–Comparator–Outcome (PICO) framework.
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Training Data: Three human–performed SLR datasets used for training and validation.
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AI Screening Model: Multiple 5–shot binary classifiers structured around the PICO framework to classify abstracts as include or exclude.
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Minimal Training Design: Models trained using only 5 labeled samples per class.
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Explainability: Each prediction includes explicit exclusion reasons generated alongside classification.
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Pipeline Execution: Abstracts passed through multiple classifiers to generate final screening decisions.
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Validation: Performance evaluated across datasets using accuracy, recall, precision, and F1-score.
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Deliverable: Explainable TIABS pipeline supporting reproducible and transparent screening decisions.

Result

Methodology	Volume	Capability	Performance
Explainable AI 5-shot Screening Pipeline	1,626 / 777 / 965 abstracts	Explainable screening with minimal training data	Accuracy: 0.81–0.85
			Exclusion Reason Accuracy: 0.64–0.95
			Precision: 0.66–0.78