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Bail Recognizer System

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Abstract: *Pretrial detention and bail procedures create significant administrative burdens and raise fairness concerns worldwide. We present the Bail Recognizer System, a hybrid AI framework that combines structured case attributes, legal-text reasoning, and explainable machine learning to assist bail assessment and automate reporting for pretrial release. Our system ingests court and police records, extracts structured features and statutory context, and produces calibrated risk scores together with human-readable rationales for each recommendations, the system improves calibration over baseline risk scores, while post-hoc analyses show reduced disparate impact across demographic groups. We also describe a privacy-preserving kiosk prototype for automated reporting that logs identity and appearance times for recognizance releases. We discuss ethical safeguards, deployment considerations, and propose governance mechanisms to ensure the system remains a decision-support tool—not a decision replacement. Our dataset and code are released to enable reproducible research.*

Keywords*:* Artificial Intelligence, Machine Learning, Natural Language Processing, Legal Tech, Bail Prediction, Rule-based System, Logistic Regression, IPC Sections, Judicial Decision Support, Web Application, Data Analysis, Python, Flask, MongoDB

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