

AutoML Brain Deployment Report

Retraining Reason: The current model shows acceptable accuracy (0.768) and ROC-AUC (0.838); however, an F1 score of 0.634 indicates potential issues with false positives or false negatives. Additionally, some drift metrics, particularly 'MonthlyCharges' and 'TotalCharges', have shown slight increases that could indicate data drift, necessitating a review and potential retraining.

Deployment Safety Summary: {'model_version': 'Latest Production', 'evaluation_metrics': {'ROC_AUC': 0.8383626224456103, 'F1_Score': 0.6337817638266069, 'Accuracy': 0.7682119205298014}, 'drift_metrics': {'SeniorCitizen': 0.0006169689852301853, 'tenure': 0.006060535642110502, 'MonthlyCharges': 0.016370957541543538, 'TotalCharges': 0.01798904574331452, 'charges_per_month': 0.013184648498545759, 'clv_proxy': 0.017153715649028196, 'avg_charge_per_tenure': 0.013184648498545759, 'num_services': 0.007191701186663778, 'service_density': 0.007191701186663778, 'is_fiber': 0.002462580403479335, 'contract_strength': 0.00027748973835363703, 'high_monthly_charge': 1.633462194445195e-09, 'is_electronic_check': 0.00012751283781840594, 'tenure_contract_interaction': 0.0011686945857141465, 'high_charge_no_security': 0.0006036489134232683}, 'canary_evaluation': {'stable_p95_latency': None, 'canary_p95_latency': None, 'decision': 'REJECTED'}}

Risk Assessment: {'data_drift': 'Moderate', 'model_performance': {'acceptable': False, 'recommendation': 'Retrain model due to drifting features and suboptimal F1 score.'}, 'canary_release': 'REJECTED due to insufficient stability in canary deployment.'}

Executive Summary: {'overall_status': 'Model requires attention and possible retraining to address drift in key features and improve predictive performance.', 'next_steps': ['Investigate drift in MonthlyCharges and TotalCharges.', 'Reassess feature importance and model adjustments.', 'Consider further evaluations with new data before redeployment.']}