

Graph-Augmented LLMs with Risk-Adjusted Safety Filtering for Personalized Advice and Medication Recommendation

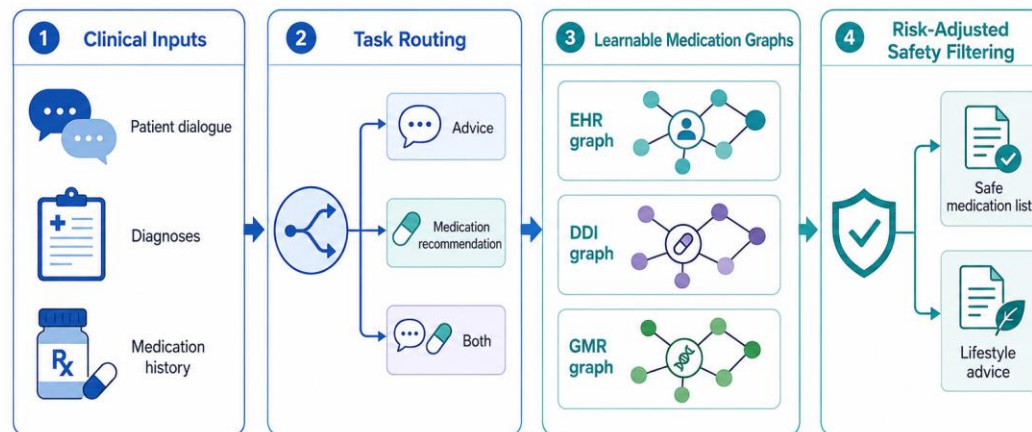
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Problems & Ideas

- Problems:
 - Medication recommendation models often focus on drug prediction alone.
 - Conversational advice routing, heterogeneous medication relations, and patient-level safety screening are usually handled separately.
- Ideas: LLM-AMR integrates task routing, learnable medication graphs, and risk-adjusted safety filtering in one compact framework.

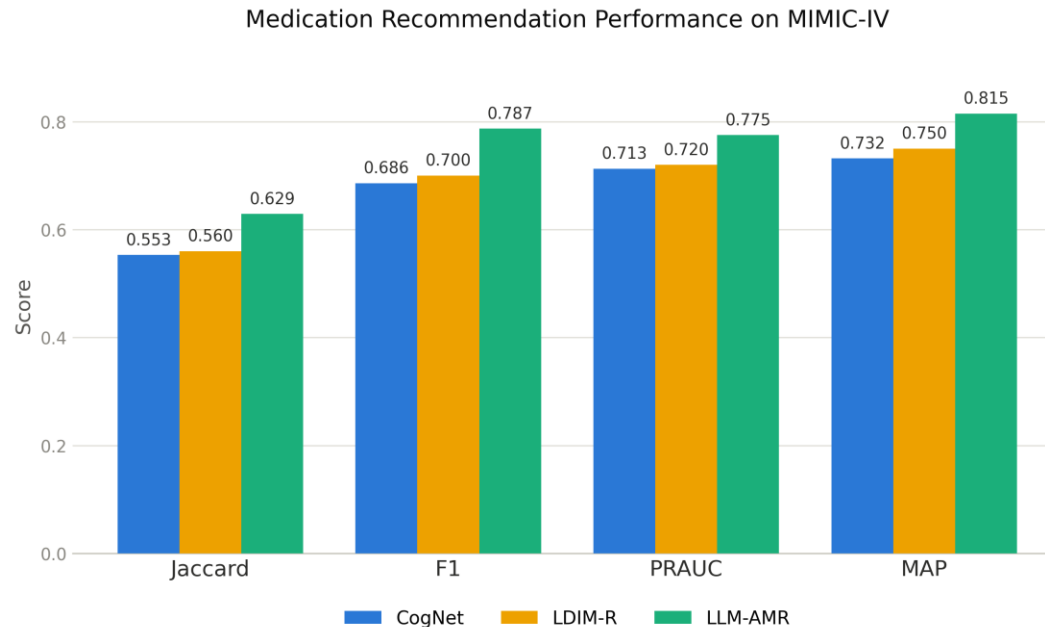
**Graph-Augmented LLMs with Risk-Adjusted Safety Filtering
for Personalized Advice and Medication Recommendation.**



Overview of LLM-AMR: clinical inputs, task routing, learnable medication graphs, and risk-adjusted safety filtering.

Main Contributions and Results

- Contributions:
 - A compact LLM-AMR framework integrates conversational routing, graph-based medication recommendation, and risk-adjusted safety filtering.
 - Learnable medication graphs adaptively combine EHR co-prescription, DDI, and GMR signals for personalized recommendation.
 - Experiments show improved Jaccard, F1, PRAUC, and MAP on MIMIC-IV, while routing reaches 0.913 accuracy and 0.911 Macro-F1 on Diagnose-me.



LLM-AMR improves Jaccard, F1, PRAUC, and MAP over representative baselines.

LLM-AMR improves medication recommendation quality over representative baselines on MIMIC-IV.