Natural Language Explanations

Multi-modal Medical Input

Chest X-ray

Lab Results
WBC: 15.2 ↑
CRP: 85 mg/L ↑
PCT: 2.1 ng/mL
Temp: 38.5°C

Clinical Data

Clinical Notes
"Patient presents with productive cough, fever for 3 days. Chest auscultation reveals cr... right lower lobe. Histor..."

Explanation Components
✓ Primary diagnosis
✓ Supporting evidence
✓ Confidence level
✓ Clinical reasoning

Generation Template
```
[DIAGNOSIS] based on
[EVIDENCE] with
[CONFIDENCE] confidence
[RECOMMENDATION]
```

Multi-modal Deep Learning Model
...traction → Attention → Classification → Generation

Generated Natural Language Explanation
📋 **Diagnosis: Community-acquired pneumonia (confidence: 87%)**

🔍 Key Findings: The chest X-ray shows **consolidation in the right lower lobe**, consistent with bacterial pneumonia. Laboratory results indicate **elevated inflammatory markers** (WBC, CRP) supporting an active infection.
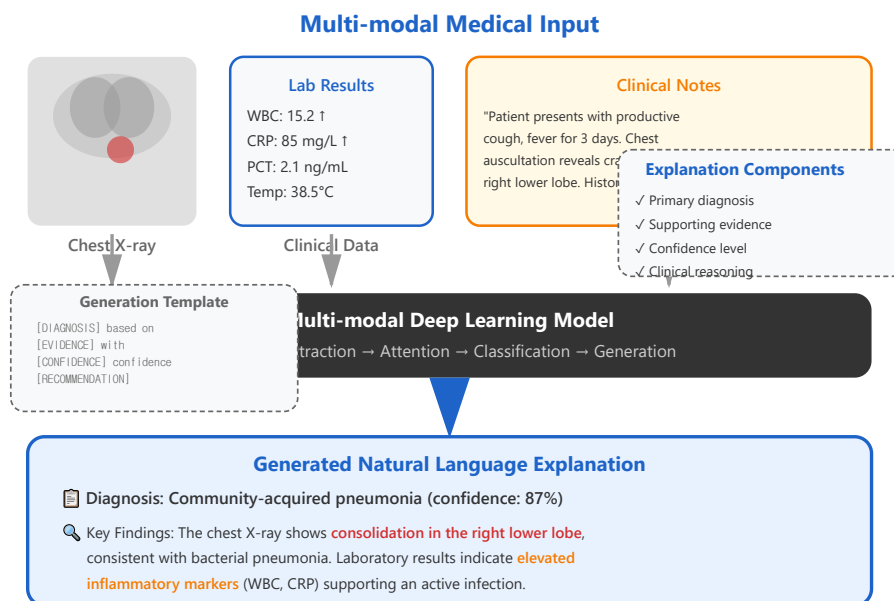
💬 Text Generation
AI generates human-readable explanations automatically from model outputs

🧑 Clinical Language
Uses appropriate medical terminology for healthcare professionals

🔗 Multi-modal Integration
Combines insights from images, labs, and text into coherent explanations

📖 Quality Assurance
Ensures accuracy, completeness, and clinical relevance of explanations