



上海市肺科医院
SHANGHAI PULMONARY HOSPITAL
上海市肺科医院互联网医院
上海市职业病防治院
同济大学附属上海市肺科医院
上海市红十字肺科医院

LungSmart

Intelligent Closed-Loop System for Lung Cancer Diagnosis and Treatment

Core Concept:

Deeply integrate "clinician experience" with "computational power" to transform raw medical data into high-quality AI assets through a closed-loop process.

1. Intelligent Labeling & Data Distillation

- **Semantic Modeling:** Incorporate clinical guidelines to accurately extract entities from medical records, imaging, and pathology reports.
- **Knowledge Distillation:** Guide model fine-tuning with soft targets to enable efficient, automated deployment within private environments.

2. Comprehensive Lung Cancer Patient Profiling

- **Multi-Dimensional Aggregation:** Integrate critical indicators including genetic mutations, TNM staging, and ECOG performance status.
- **Digital Twin:** Transform static labels into dynamic patient data streams through advanced temporal processing.

3. Intelligent Disease Progression Mapping

- **Trajectory Reconstruction:** Logically correlate full-lifecycle records to automatically map the evolution of diagnosis and treatment.
- **Node Identification:** Recognize PD/PR and other disease milestones at the millisecond level to provide precise decision support.

4. Decision Generation & Expert Alignment

- **Decision Support:** Benchmark against NCCN/CSCO guidelines to intelligently recommend optimal, personalized treatment regimens.
- **Double-Blind Validation:** Perform real-time alignment between model-generated plans and expert insights, with in-depth analysis of any divergences.

5. High-Quality Medical Data Asset

- **Closed-Loop Feedback:** Feed expert-validated data back into the system to build a "gold-standard" instruction set for fine-tuning.
- **Value Accumulation:** Address the scarcity of medical corpora while establishing a secure research foundation powered by block-chain technology.

