emtelliPro® for Radiology

Unlock the Insights in Radiology Reports

The emtelliPro Natural Language Processing (NLP) engine creates structured data from the unstructured text of radiology reports. It uncovers deep insights into clinical and operational performance and allows the deployment of next-generation applications to help deliver patient care more efficiently and at a higher level of quality than ever before.

Next-Generation Technology

Process all types of medical text with high precision and recall, aided by deep learning models that parse confusing and ambiguous medical prose.

Extract, code, and categorize medical entities using multiple ontologies (e.g. SNOMED-CT, RadLex, MEDCIN, ICD-10, etc.) and even custom ontologies

Extract assertions within the medical text such as negation status, uncertainty, question status, and ambiguity to reliably characterize the content of reports

Extract relationships between terms such as qualifier values, measurements, experiencers, image references, critical results communications, and follow-up recommendations

Numerous Use Cases

emtelliPro enables use cases for clinical, quality assurance, operational, and research functions that have never before been possible.

Clinical

- Create automated patient summaries so radiologists can easily have an 'at-a-glance' view of a patient's history instead of reading through prior reports
- Smart searching can help radiologists find the 'needle in the haystack' that they're looking for in patient charts without the aggravations of keyword-based searching
- Classify prior reports as 'normal' or 'abnormal', and view prior reports with concept, measurement, and image reference highlighting to help radiologists find the data they need faster

Quality

- Track follow-up recommendations to prevent 'lost to follow-up' patients and ensure optimal patient outcomes, reduce medicolegal risk, and ensure appropriate resource utilization
- Track radiologist documentation of critical results communication to ensure compliance with department protocols and high-quality care
- Provide feedback to radiologists about uncertainty usage in their reports to help identify knowledge gaps or unwanted reporting trends

Operational

- Provide accurate reports to referring departments about the quality of their requisitions and case positivity rates
- Help MRI technologists screen patient charts for medical devices, incidents, or prior procedures that if not known, could result in unused MRI booking slots
- Track AI model performance, automatically comparing AI model output to the radiologist's report to gain insights into AI performance and drift over time as imaging equipment and protocols change

emtelligent® MEDICAL NLP

www.emtelligent.com info@emtelligent.com 1.877.GO.EMTEL

Research/Education

- Create trainee 'scoreboards' to track diagnosis volume (rather than just case volume) to ensure that trainees are seeing the diagnoses they need
- Use enhanced search across multiple examinations to find patients with multiple conditions and correlations – avoid manual chart review and increase publication volume
- Rapidly and easily identify cohorts of cases for AI model training sets

Simple IT Integration

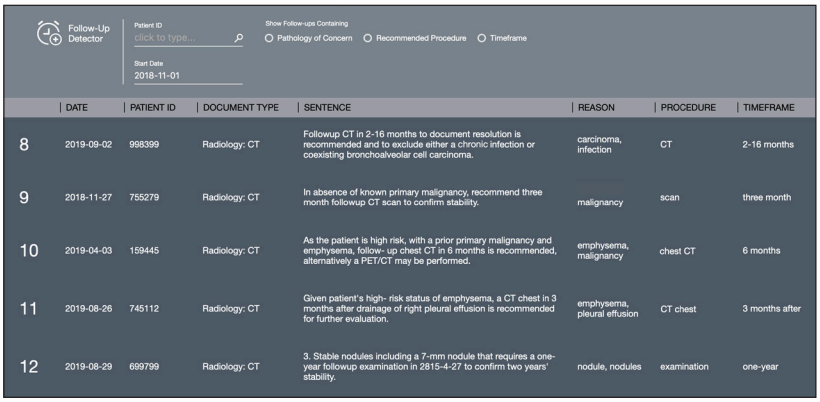
emtelliPro is incredibly easy to integrate with existing systems

- Non-invasive, vendor-agnostic technology
- Flexible cloud-based or on-premise models
- Easy to configure and use
- Highly scalable, able to process millions of text-based reports daily on a single server instance
- Secure and HIPAA-compliant

Use Case Spotlight #1: Tracking Follow-up Recommendations

emtelliPro can identify follow-up recommendations in diagnostic reports from radiologists, pathologists, and cardiologists with high accuracy, and structure the data within. These follow-up recommendations contain critical information, which if not acted upon, can result in poor patient outcomes or delays in care.

- emtelliPro identifies the reason, the recommended procedure, and the time frame for the follow-up, which can be used to automate reminders for referring physicians and patients to ensure they get the tests they need
- This reduces medicolegal risk to the diagnostic physician, ensures appropriate patient care, and for private healthcare facilities, ensures appropriate resource utilization



	DATE	PATIENT ID	DOCUMENT TYPE	SENTENCE	REASON	PROCEDURE	TIMEFRAME
8	2019-09-02	998399	Radiology: CT	Followup CT in 2-16 months to document resolution is recommended and to exclude either a chronic infection or coexisting bronchoalveolar cell carcinoma.	carcinoma, infection	CT	2-16 months
9	2018-11-27	755279	Radiology: CT	In absence of known primary malignancy, recommend three month followup CT scan to confirm stability.	malignancy	scan	three month
10	2019-04-03	159445	Radiology: CT	As the patient is high risk, with a prior primary malignancy and emphysema, follow- up chest CT in 6 months is recommended, alternatively a PET/CT may be performed.	emphysema, malignancy	chest CT	6 months
11	2019-08-26	745112	Radiology: CT	Given patient's high- risk status of emphysema, a CT chest in 3 months after drainage of right pleural effusion is recommended for further evaluation.	emphysema, pleural effusion	CT chest	3 months after
12	2019-08-29	699799	Radiology: CT	3. Stable nodules including a 7-mm nodule that requires a one-year followup examination in 2815-4-27 to confirm two years' stability.	nodule, nodules	examination	one-year

Use Case Spotlight #2: AI Model/Radiologist Report Concordance Reporting

As vendors are now widely selling AI models with promises of high accuracy, hospitals, clinics, and AI vendors are discovering the need to track AI model performance at initial implementation, and over time. Differences in imaging equipment, image protocols, and patient factors can mean that there is a significant gap between as-promised and real-world performance of AI models. Performance at initial implementation can drift when new imaging equipment or protocols are implemented – tracking this is important to ensure value and patient safety.

emtelliPro can automatically classify radiologist reports as being positive or negative for specific pathologies, and these results can be compared to AI model output to produce concordance reports. These can be run regularly or on-demand to accurately assess AI model performance in a hospital or clinic's real-world environment, to help ensure value for the medical imaging department and that patients receive the care they need.

Make the emtelligent Choice | **Contact emtelligent today to learn more about our ability to help prevent lost-to-follow-up patients.**

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