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A Secure Machine Learning Model to Standardize Radiology Reports

Stanford researchers have developed a machine learning-based application that standardizes patient radiology reporting in a local and secure manner and outperforms all other general large language models (LLMs).

Radiology workflows are time-consuming, and the lack of standardization and automation in report generation causes inefficiencies in patient care. Previous attempts to automate reporting have left radiologists dissatisfied with the results. LLMs have improved the ability to automate and standardize certain aspects of radiology reporting; however, general-use LLMs such as GPT-4 are not suitable for sensitive patient data and have a likelihood of hallucinating and generating false information.

Stanford researchers have thus developed a machine learning model that outperforms all general-purpose LLMs like GPT-4 and can be run on a local device such as a phone or tablet to securely handle patient data. This model can also be coupled with speech-to-text systems to further expedite reporting and improve radiology workflows.

Stage of Development

Proof of Concept

Applications

- Automating radiology workflow
- Spoken radiology reporting
- Expansion to other reporting workflows

Advantages

- Local and secure
- Higher accuracy than other LLMs
- Faster than larger models
- Low computational cost

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