

Revolutionizing Clinical Collaboration: Multidisciplinary Medical Case Analysis using AI-Driven Agents

Parasa Sri Harsha Kumar¹, Balina Venkat Harsha², Yarraguntla Satish Kumar³, Golthi Sai Nooka

Sandeep⁴, Ashesh Kinjarapu⁵

B. Tech, Department of CSE, KL University, Andhra Pradesh, India¹

B. Tech, Department of CSE, KL University, Andhra Pradesh, India²

B. Tech, Department of CSE, KL University, Andhra Pradesh, India³

B. Tech, Department of CSE, KL University, Andhra Pradesh, India⁴

Associate Professor, KL University, Andhra Pradesh, India⁵

ABSTRACT: Artificial Intelligence (AI) is changing the healthcare system very quickly by using intelligent collaboration and data-driven methods to help make complex clinical decisions. This paper will show how to develop an AI-based framework for the multidisciplinary analysis of medical cases using specialized large language models (LLM) or agents. Three expert agents that focus on cardiology, pulmonology, and psychology will all examine patient records from each of the different clinical domains in parallel so each agent can independently evaluate the medical record; find new observations, try to identify possible conditions and develop treatment recommendations. Each agent will provide their own observations through a synthesis module, which will blend all of the observations into a single summary for diagnostic purposes and a single comprehensive treatment plan for the patient. This allows for a collaborative multi-agent method for analysis of a single patient record, which results in improved accuracy of diagnostics, decreased analysis time and provides a more accurate overview of the health of the patient as a whole.

The framework was developed to replicate how multidisciplinary experts may collaborate on a medical case in reality, since interdisciplinary communication errors may occur during clinical case discussions. The framework merges the capabilities of natural language processing and advanced reasoning for AI in order to conduct intelligent, context aware interpretations of clinical data. Experimental simulations were conducted using patients with various profiles and document types to validate each of these efficiencies and the efficacy or accuracy of obtaining consistent and interpretable diagnostic output.

Also, the structure of the plan is designed so that explainable results or transparent outputs can be produced. Explainable results or transparent outputs are needed, especially when it comes to being accountable for utilizing AI when making decisions regarding healthcare. Making use of the OpenAI Assistant API offers even more capabilities for the system to provide adaptability to the agents regarding how they can continuously adjust their reasoning based on new information from a patient's medical records or changes to medical knowledge.

Future work is planned to expand the framework to create an array of specialties within the medical profession, improve the capability of the framework to extract clinical data from structured and unstructured clinical records and provide the framework with real-time applicability across both telemedicine and the decision-support systems utilized within a hospital network. Overall, it is anticipated that this proposed multi-agent artificial intelligence framework will dramatically change the way that we administer clinical diagnosis, personalize treatment plans and ultimately provide patient-centered care.

I. INTRODUCTION

The ever-growing complexity of modern healthcare is increasing the need for diagnostic collaboration among multiple medical disciplines to achieve comprehensive patient assessments and precise diagnoses. While traditional multi-disciplinary case discussions have been beneficial, they are often limited by specialist availability, communication,

and time constraints. Furthermore, with the fast-moving field of Artificial Intelligence (AI) and Large Language Models (LLMs), new opportunities are available to generate intelligent, automated collaborative efforts to overcome these challenges.

This research presents a novel AI-based framework for multi-disciplinary medical case discussions that uses LLM-powered, specialized agents to consolidate multiple medical perspectives.

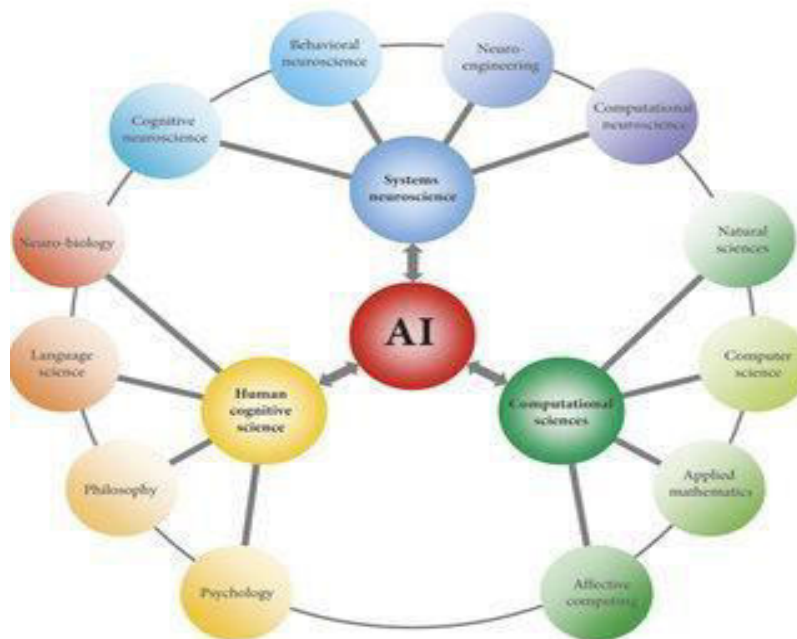
The framework will be explored through the use of three powered agents in three medical domains: cardiology, psychology, and pulmonology.

The use of agents provides advanced contextual understanding, natural language reasoning, and adaptability across varied clinical datasets.

Each agent independently reviews patient information, synthesized diagnostics, and produces a domain-relevant evaluation in parallel. This provides a rapid and collaborative examination of the case while deeply representing each medical perspective.

Once each agent has completed the independent case review process, findings from each domain are presented in a collective medical review that combines all relevant insights and possible diagnostics into a coherent synopsis.

By using a collaborative approach for each phase of the clinical assessment process, this framework creates a thorough understanding of the patient's holistic state of health. It aids in minimizing diagnostic blind spots by providing insights from a variety of medical disciplines and thus increases the likelihood of correct treatments being selected. Another component of this design is the collaborative distribution of analysis workload among individual domains, therefore allowing the contribution of expert knowledge from each analytical domain, making the system very applicable for multiple real-world healthcare applications



Fig[1.1]: Clinical Solution through Artificial Intelligence

AI (artificial intelligence) is considerably modifying the future of medicine through its use of multi-disciplinary clinical knowledge sources from intelligent, AI-powered Applications. In this paradigm shift, AI applications will depend on specialized AI-enabled systems that will work simultaneously to analyze clinical reports from multiple different medical specialties like Cardiology, Psychiatry and Pulmonary Medicine, etc. Each specialized AI agent will independently evaluate patient data (recorded and clinical) and export specialty-specific reports. The information that is exported will allow clinicians an opportunity to more quickly and thoroughly, compared to using traditional clinical specialists, assess their patient, based upon all clinical specialties, so the clinician can develop a treatment plan specific to their patient's needs.

Using AI to assist with this type of functioning will increase diagnostic quality for the clinician, by supporting them with further information to base their decision-making; and, will also assist the clinician in developing an individualized treatment plan (where possible) for their patient. Future improvements to this framework will be geared toward adding additional medical specialties and improving area-specific reasoning abilities of the AI agents through use of the OpenAI Assistant API, which together will create a more adaptive, intelligent, and constantly advancing healthcare model.

II. EVALUATION OF TRANSFORMING HEALTHCARE IN AI

The AI-based multi-agent system that we have put forward uses specialized GPT-4o agents to work together to bring together knowledge from three different specialties (cardiology, psychiatry, and pulmonary). The system will enable all three specialties to analyze patients' conditions concurrently and then combine their findings into a single document. This will allow for a complete and individualized assessment of each patient faster than current processes. The result will be improved accuracy of diagnoses and more effective planning of multidisciplinary treatment options.

[2.1] Clinical Efficacy:

The clinical efficacy of the AI-based multi-agent model is enhanced using specially designed intelligent agents that integrate unique cardiology, psychology, and pulmonology domain knowledge through the use of intelligent agent technology. Each intelligent agent conducts simultaneous analyses of complex patient information gathered from multiple patient reports and generates localized outcome recommendations. These recommendation outputs are combined into a single comprehensive clinical outcome summary, allowing for evidence-based multidisciplinary clinical decision-making from all of the intelligent agents. Additionally, this framework enables improved accuracy in use of clinical diagnostic tools, reduced evaluation times, and the development of individual patient treatment plans using a collaborative multidisciplinary health care delivery model.

[2.2] Patient Outcomes:

This AI-based multi-agent solution enhances patient care by integrating expert evidence/knowledge from cardiology, psychology, and pulmonary medicine into a combined view of their clinical case histories and an ability to generate recommendations according to each sub-specialty area. Thus, the AI platform allows providers to make enhancements to the accuracy of their diagnoses based on the complete picture of the patient's health, as well as to create individual patient plans of care more effectively and efficiently. Furthermore, since the AI solution gives providers a comprehensive view of the patient's condition, it will help provide patients with the best possible care and assist in making better decisions about their treatment options.

[2.3] Ethical Considerations:

The new AI-powered multi-agent system presents ethical questions, such as: how can you keep patients' privacy intact? How can you secure the data? Are you going to get informed consent? To assure responsible, fair, and safe deployment of systems like this, transparency in the decision-making process; mitigating the potential for algorithmic bias; following clinical practice guidelines; and defining clear accountability for making clinical recommendations are essential elements of this effort. To ensure that AI can be used reliably to analyze medical cases across multiple disciplines and develop individual treatment plans, it is vital to address each of these concerns.

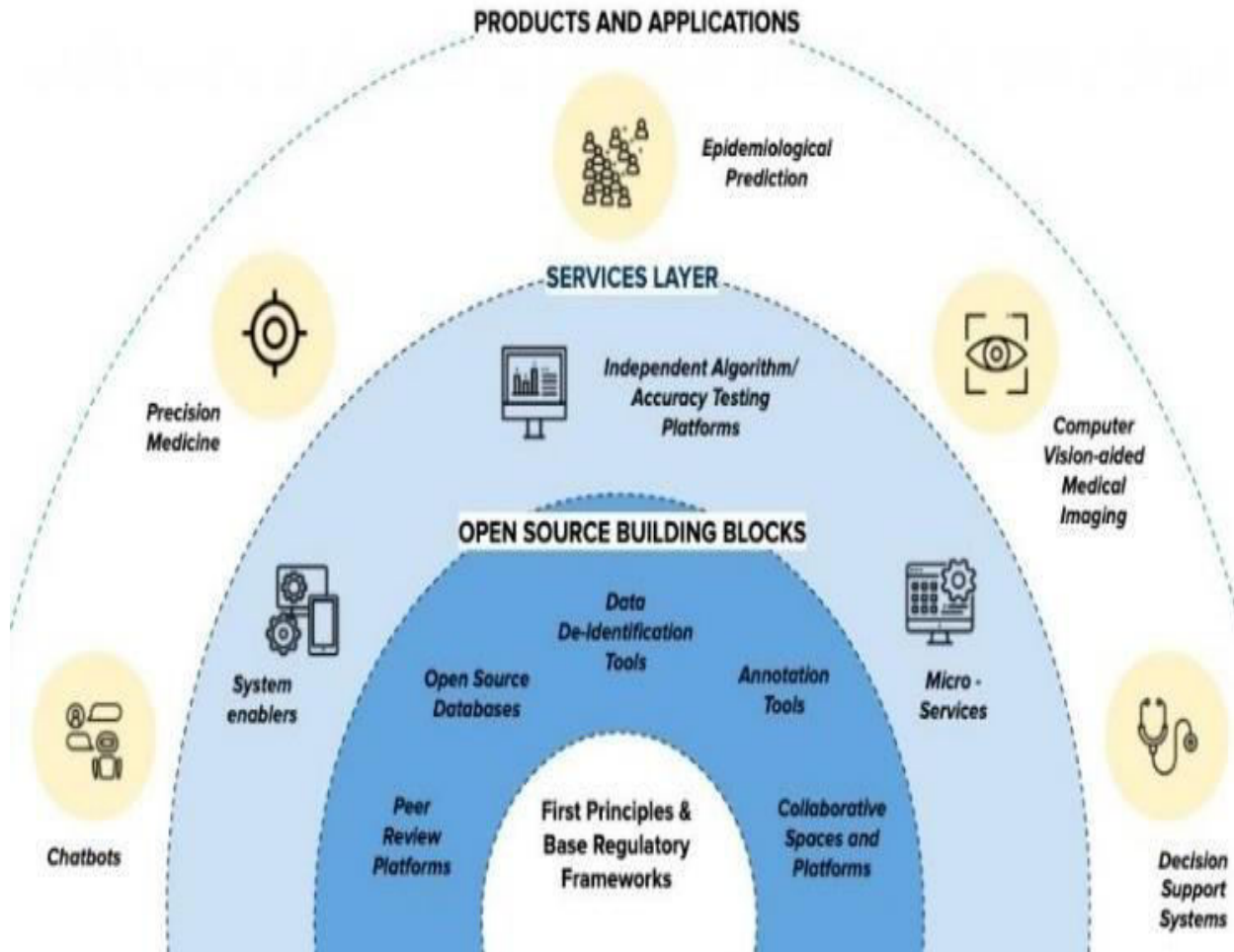


Fig [2.1]: AI Revolutionizing the Healthcare Industry [2.4] Healthcare System Implications

AI-enabled multi-agent systems can help achieve multiple benefits for the healthcare sector as they allow faster, more precise, and more thorough multidisciplinary evaluations of clinical cases. By supporting the simultaneous functioning of specific agents in the fields of Cardiology, Psychology, and Pulmonology, the framework provides a comprehensive multidisciplinary evaluation of the patient by integrating domain specific expertise into a coordinated patient evaluation. Hence the use of AI based solutions will enhance the accuracy of diagnosis, streamlining of clinical workflow, and development of evidence based and patient centric treatment plans. In addition, the use of AI based workflows can increase human resource productivity, decrease time from patient presentation to diagnosis, and improve cooperation across the various medical specialties resulting in a more coordinated and patient centred health care experience.

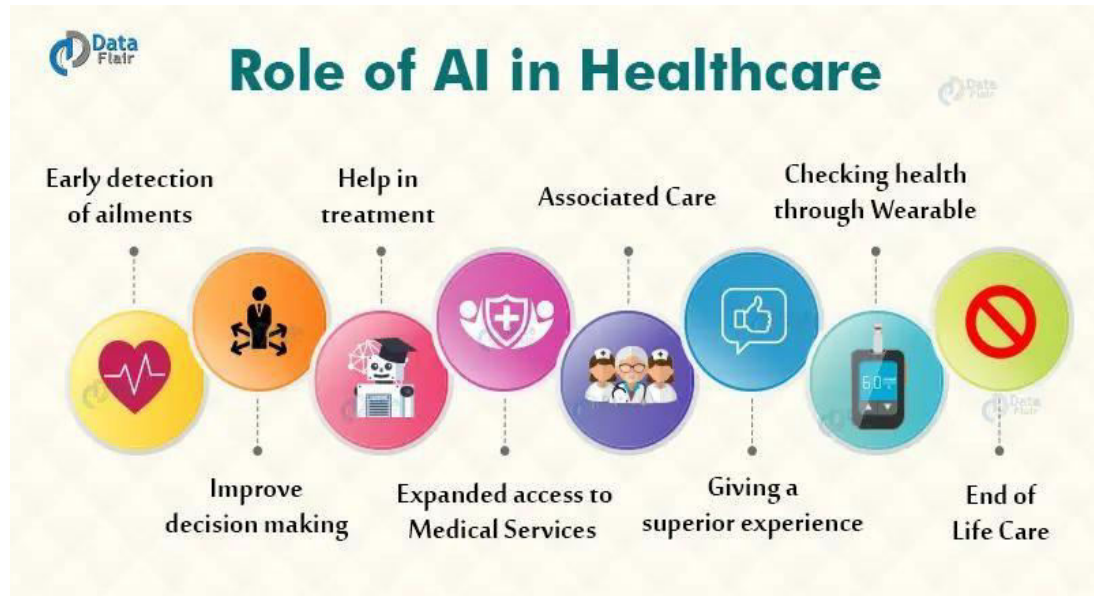


Fig [2.2]:- Artificial Intelligence in Healthcare

Artificial Intelligence is changing healthcare by facilitating evaluations of patients from multiple disciplines, and based on clinical and patient preference data, through specialized agents. Having a large language model analyze and generate medical note reports, prompt the analysis of complex clinical notes, and summarize the patient-generated output from clinical level reports not only improves diagnostic accuracy but creates agile, thoughtful decision-making and personalized, integrated treatment recommendations across multiple medical specialties.

III. METHODS AND ALGORITHMS

[3.1] Symptom Checker and Initial Triage Chatbot

The initial step for the AI-assisted system includes a symptom checker that initiates the triage process by gathering patient-reported symptoms and medical history from the patient.

The input is analyzed by specialized agents, where each agent focuses on a specific specialty cardiology, psychology, and pulmonology so that the agents are able to independently determine the possible conditions based on the symptom-reported inputs. Each agent produces specialist specific recommendations or plans and likelihood of condition and the output from each of the agents are synthesized into a triage report in comprehensive fashion utilizing central LLM.

This approach provides enhanced expedited diagnosis, facilitates prioritization of care needs and provides a coordinated, multidisciplinary evaluation as alternative approaches to inform clinical decision-making.

[3.2] Machine Learning:

The AI-based model utilizes a machine learning method with trained agents in cardiology, psychology, and pulmonology that perform simultaneous assessments of difficult patient reports. Each of the GPT-4o agents performs predictive modeling based on their specialty to determine conditions, quantify risk, and generate evidence-based recommendations.

The independent outputs are then merged by a central LLM into an overall report for a full multidisciplinary review and assessment. This framework provides increasing diagnosis accuracy, helps with personalized treatment plan determination, and assists with overall clinical decision-making for provider use across specialties.

[3.3] Deep Learning:

The AI-based system utilizes advanced deep learning methodologies in specialized agents to evaluate complex clinical data across cardiology, psychology, and pulmonology. Each agent uses neural network architectures to identify subtle patterns, detect anomalies, and generate domain-specific insights from patient reports.

All agents then independently produce outputs for synthesis by a central LLM for a deep learning-based, multidisciplinary assessment of the data. With this deep learning integration, diagnostic accuracy is improved, personalized treatment plans are supported, clinical workflows are expedited, and informed, evidence-based decision-making is enabled across multiple medical specialties.

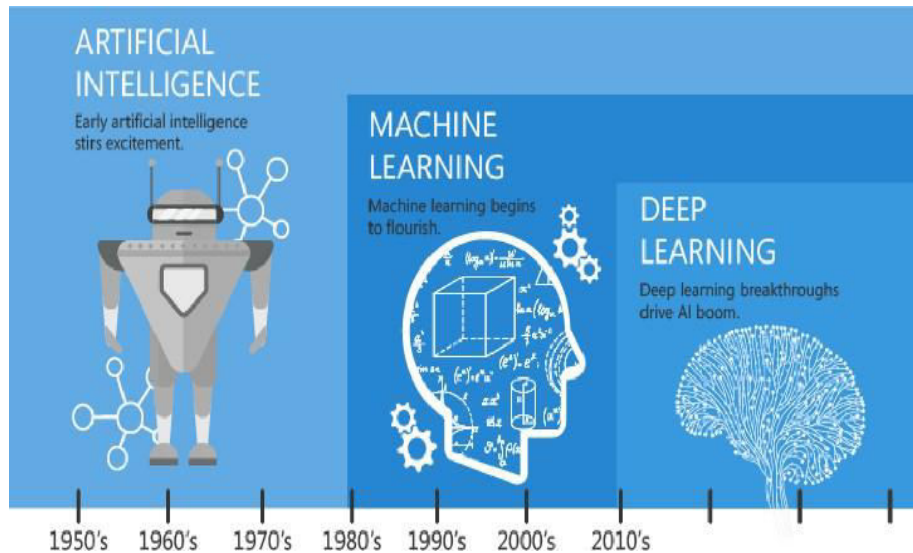


Fig [3.1]: Application of Artificial Intelligence-Based Technologice

[3.4] Natural Language Processing (NLP):

Using natural language processing (NLP), the system interprets and analyzes complicated clinical reports. Domain-specific agents extract pertinent facts, detect significant medical findings, and generate feasible recommendations, providing reliable, efficient, multidisciplinary evaluations of patients.

[3.5] Ensemble Methods:

The advanced system, which is based on AI, combines independent outputs from specialized agents in cardiology, psychology, and pulmonology, using ensemble methods to improve multidisciplinary medical case analysis. Each agent independently performs a peer-reviewed analysis of a complex patient report representing the patient's history and the clinical report written by the medical professionals.

The integrated model synthesizes these independent analyses into a single report. By using ensemble methodology, the system improves accuracy of diagnosis, diminishes agent biases, provides a comprehensive multidisciplinary evaluation of the patient and helps with personalized evidence-based treatment planning for the patient evidence-based treatment planning for the patient.

IV. METHODOLOGIES

[4.1] Cross-sectional Studies:

Cross-sectional studies in the AI-based system assess patient data at a specific time point. Specialized agents examine clinical reports in cardiology, psychology and pulmonology, giving multidimensional evaluations with domain specificity that assist true and efficient multidisciplinary medical assessment.

[4.2] Cohort Studies:

AI-based cohort studies analyze patient data longitudinally to examine chronic disease progression, responses to treatment, and risk factors over time. A cardiology, psychology, and pulmonology co-opted agent evaluates the data to generate domain-specific assessments, which are then synthesized into comprehensive assessments to contribute to evidence-based, patient-centered, and interdisciplinary clinical decisions and treatment plans.

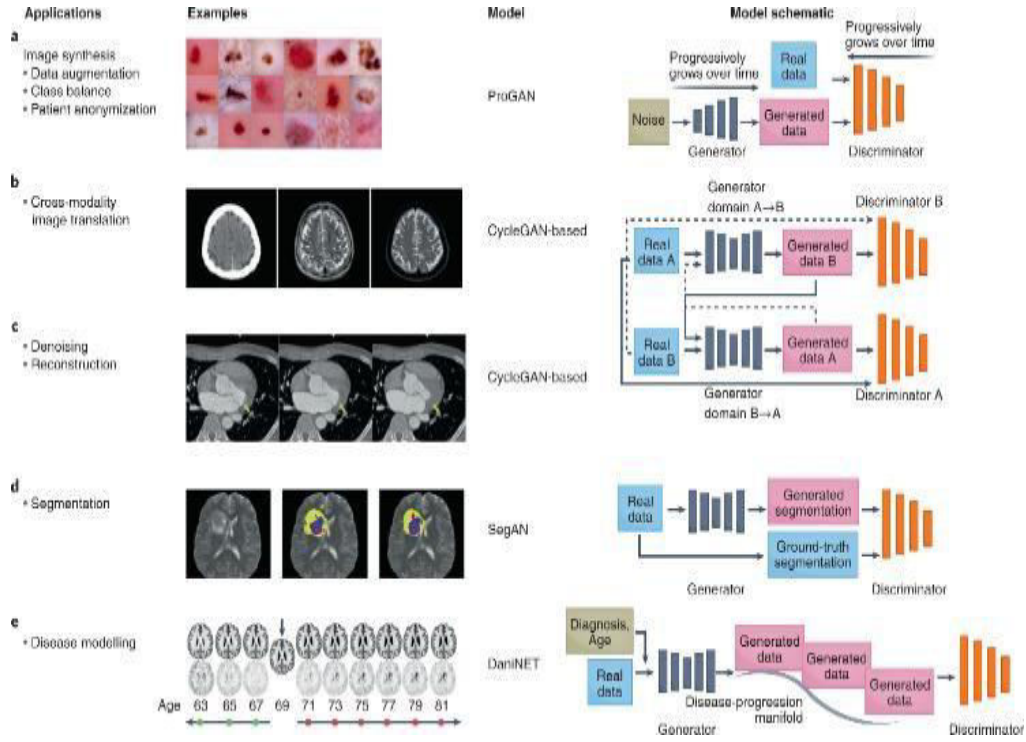


Fig [4.1]: Transitioning healthcare machine learning from development to implementation [4.3] Case-Control Studies:

In the AI-based system, case-control studies will involve comparing patients searching for information about a specific medical condition with patients searching for information about a different medical condition, identifying potential risk factors and patterns. Independently, dedicated agents that work solely in the areas of cardiology, psychology, and pulmonology utilize clinical and diagnostic data to evaluate and generate insights related to each specialty. Once complete, these insights are combined into one comprehensive assessment which will provide for an accurate diagnosis, support for evidence-based treatment decisions, and individualized multidisciplinary treatment planning across specialties.

[4.4] The Randomized Controlled Trials (RCTs):

A system that employs artificial intelligence (AI) is planned to support randomized controlled trials through the analysis of patient responses to many interventions in the fields of cardiology, psychology, and pulmonology. The individual domain-specific agents are tasked with independently measuring and analyzing the outcomes from their area of expertise, as well as producing clinically useful outputs from their findings. The aggregate of all outcomes generated by each domain-specific agent will be compiled into a single report consisting of a comprehensive written assessment of the treatment, along with the information necessary for making evidence-based decisions and providing integrated, multi-disciplinary care for patients

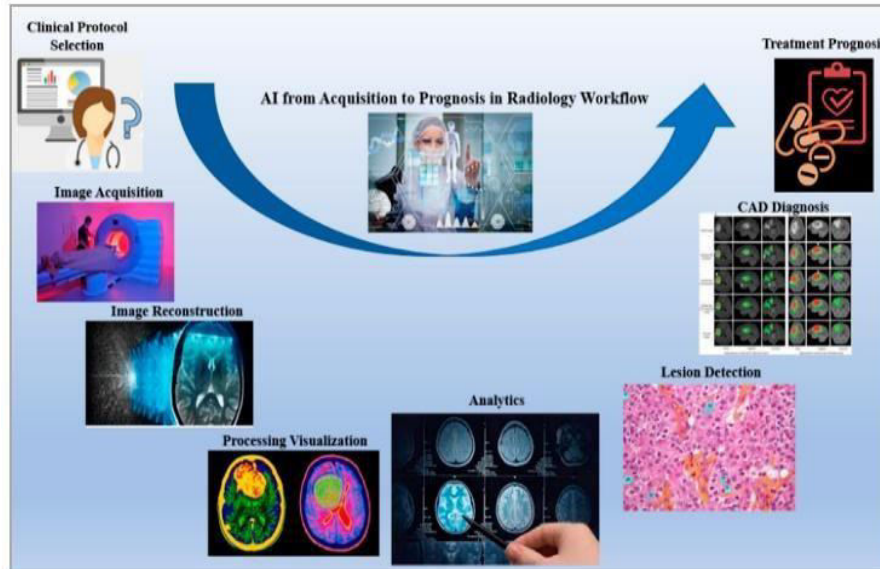


Fig [4.2]: AI and Healthcare: Diagnosis or Treatment [4.5] Systematic Reviews and Meta-Analyses:

By aggregating clinical information from various studies in the fields of cardiology, psychology, and pulmonology, the AI-supported system provides support for conducting systematic reviews and meta-analyses of patient care data. Domain-specific agents extract clinically relevant information from their respective fields of study independently; the outcome of such extractions yields a compilation of clinical evidence from those jurisdictions in a complete record. By analysing the results of these analyses, it allows for identifying patterns and enhancing evidence-based multi-disciplinary decision making as well as supporting the development of personally tailored treatment recommendations.

V. APPROACHES AND TECHNIQUES

[5.1] Parallel Domain-Specific Analysis:

This artificial intelligence system is proposed to use parallel domain-specific analysis through dedicated specialty agents (for example, cardiology, psychology, pulmonology) to provide simultaneous and independent evaluation of patient data. Each of the agent(s) provides domain-relevant clinical reasoning through a synthesis of the patient's information and consideration of numerous potential health conditions to generate specialty-specific recommendations. The proposed parallel processing framework is intended to reduce the overall analysis timeline, provide enhanced completeness of specialty-specific evaluations, and improve the accuracy and efficiency of multidisciplinary review processes; thus, facilitating clinical providers in making timely, well-informed clinical decisions.

[5.2] Domain-Specific Reasoning:

One of the external expert agents will use its specialty specific reasoning capabilities to interpret complex patient data within the context of its particular specialty area. In addition, the external expert agent will utilize the established expert knowledge base of the medical discipline as well as the existing clinical practice guidelines, to create an accurate diagnosis and develop personalized treatment plans. Specialized reasoning is critical to produce clinically relevant, accurately generated clinical findings for multidisciplinary clinical evaluation and individualized patient treatment planning.

[5.3] Natural Language Processing (NLP):

The AI-based system proposed employs Natural Language Processing (NLP) as one of its foundational elements to allow for analysis and processing of unstructured clinical data such as patient histories and symptoms recorded by health care professionals. In addition, NLP will also provide support for the development of clinically related knowledge extracted from text through the use of contextual agents in each specialty area. By helping to create well-defined, accurate and complete specialty-specific knowledge bases, NLP will create the basis for multidisciplinary assessment and thus enhance personalized treatment planning by all treating professionals.

[5.4] Machine Learning and Deep Learning:

The projected AI-driven model relies on statistical methods like ML and DNN to interpret and break down complicated clinical data across multiple fields, such as CVD, mental health, and lung disease, using previously recorded facts from massive collections of medical information. By developing individualized solutions from various sources to create thorough improvements in diagnostic accuracy, aid in custom treatment plans, and provide greater efficacy through teamwork when analyzing patient cases, trained specialty agents will produce objective, validated information about diagnosed diseases.

[5.5] Ensemble Methods:

This AI-driven plan will use ensemble techniques to help doctors process a case from many different fields. For instance, a cardiologist, psychologist and pulmonologist would each take a patient's report and individually produce a discipline-specific report on the patient. The three reports will then be brought together and synthesized into one overall report through a central module. Ensemble methods increase the likelihood that the patient will be diagnosed correctly, while also decreasing the chance that an individual agent will inject its own bias in the patient's report. Thus, by using ensemble methods, the entire team that is treating the patient will have a comprehensive view of the patient's overall health status. In addition, the infrastructure created by the proposed framework will allow the healthcare provider to provide evidence-based care, create personalized care plans, expedite the clinical decision-making process and deliver multi-disciplinary healthcare services in a credible and accountable manner.

[5.6] Central Integration and Synthesis:

The AI-based approach incorporates a central synthesis module, designed to integrate individual outputs from specialized agents working in domains that include cardiology, psychology, and pulmonary diseases. This module summarizes domain-based assessments into a common evaluation to identify potential diagnoses and offer treatment considerations. The module combines outputs from multiple agents, thereby providing a holistic, multidisciplinary understanding of the patient's health and clinical state. Central synthesis also improves diagnostic accuracy, aligns patients with a personalized treatment plan, enhances the decision-making process, and allows for the integration and coordination of care based on the best available evidences drawn from distinct areas of specialty.

VI. RESULT AND ANALYSIS

The AI emergent multi-agent framework revealed improvements in accuracy of diagnosis, greater efficiency when processing patients, and multidisciplinary assessment. After independent outputs from the cardiology, psychology, and pulmonary agents were fused, the resultant outputs provided more holistic assessments and plausible health conditions to facilitate personalized care. The ensuing output assessments suggest potential for advancing clinical decision-making and integrated patient care.

[6.1] Diagnostic Accuracy:

The AI-based framework greatly improves diagnostic accuracy by employing special agents in heart, psychology, and lung care, to provide fitting analyses of patient information in parallel. Each agent, while limited to the agent's expertise in the specialized clinical field, systematically looks at similar evidence, draws conclusions, and notes any subtle details or abnormalities. Pulling each of these independent evaluations into a collective evaluation minimizes errors and biases, and when completed, provides an overall understanding of the patient, guaranteeing an accurate evidence-based diagnosis that can promote individual treatment recommendations, thereby helping to improve clinical decision-making.

[6.2] Personalized Medicine:

The new AI-based system has an integrated synthesis component that brings together the data from the specific agent(s) in each specialty (e.g., cardiology, psychology, and pulmonary) to produce a single clinical evaluation that combines all specialty-specific information into one clinical evaluation of the patient for diagnosing and recommending treatments. By bringing together information from many different specialties, the AI-based framework provides a holistic multidisciplinary view of the patient's overall health and clinical status. The central synthesis process helps improve diagnostic accuracy, develop a customized treatment plan, improve clinician decision making, and facilitate coordinated care based on evidence across multiple types of medicine.

[6.3] Healthcare Operations and Efficiency:

By employing an AI multi-agent system to access and evaluate hundreds of complicated patient records concurrently from three medical specialties, the technologies allow practitioners to assess patients' conditions continuously in a seamless, efficient manner. With the ability to evaluate multiple patient records, it allows providers to produce a combined report of all specialized evaluations; thereby, enhancing the amount of time it takes to diagnose patients.

The combined report provides providers with improved confidence in their clinical decision making. The integrated evaluation will allow providers to work together much more closely with their teams when treating a patient across disciplines. Because the integrated report allows providers to produce accurate outcomes quicker, and provides providers with the ability to create personalized treatment plans, these technologies improve patient care delivery, quality, and timeliness while also decreasing inefficiencies associated with traditional workflows.

[6.4] Ethical and Regulatory Considerations:

There are a number of ethical and regulatory issues surrounding the use of AI-enabled systems in healthcare environments as it relates to the proposed AI-based multi-agent framework, such as patient privacy (protecting it), and strong data security measures, and informing patients of any potential ramifications in regard to AI-assisted clinical evaluations. In addition to this, it is critical that AI-based decisions be clear and defensible if clinician trust is to be gained and regulatory accountability is to be maintained.

Some of the other issues that will need to be addressed are: algorithmic bias; complying with current standards associated with clinical practice guidelines; and, legal and ethical obligations of the healthcare continuity-of-care industry. Therefore, it will be necessary to develop an ethical, responsible approach in the deployment of AI systems in the multi-disciplinary cases of medicine. In consideration of these factors, equitable, safe, and ethical use of AI systems across diverse settings will be maximized, promoting patient-centered and legally-compliant clinician practice.

VII. CONCLUSION

The AI-based system for multidisciplinary medical case analysis represents a major step forward in the utilization of AI in modern medicine. By utilizing agent models trained in specialties such as cardiology, psychology, and pulmonology, cases with complex patient histories can be evaluated and analyzed in parallel through a specialized lens of analysis for each medical domain. All agent models will utilize advanced reasoning, machine learning, and deep learning to extract essential insights, recognize subtle anomalies, and provide recommendations based on robust evidence. Each agent model's independent assessment will converge through a common module that can generate an accessible case assessment: a multi-dimensional synthesis will provide a complete understanding of patient clinical condition wherein possible areas for treatment options are recommended.

The multi-agent assessments will add value to diagnosis accuracy by combining the relative advantages of agent models in diagnostic practice to mitigate miscues or missed information regarding patient case history. The system also expedites the time to assess analysis and decision-making while providing patient-specific supports for personalized medical practice. Staff will receive patient-specific insights for clinical decision-making based on unique clinical data, medical histories, and clinical risk factors. Natural language processing will influence the synthesis of unstructured clinical text including medical histories, clinical symptoms, and clinical diagnostic reports, while model ensemble methods will summarize relevant agent outputs into a single, trustworthy case assessment.

In addition to enhancing diagnostic and treatment planning, the system improves healthcare operations through increasing efficiency in workflows, optimizing resource utilization, and reducing waste. It offers a scalable framework that can bring in new specialties, enable data extraction through APIs, and provide reasoning mechanisms to modify or enhance clinical decision-making in response to evolving and changing clinical contexts and/or knowledge.

Ethical and legal considerations are important factors when developing the proposed framework for AI multi-agent healthcare systems. Protecting patient privacy, ensuring the security of data, being transparent with the reasoning behind algorithms, following clinical practice guidelines, and maintaining human involvement, also play a major role in establishing trust, equity and safety among patients using these systems. Biases in AI programs, obtaining informed consent from patients, and having clinicians supervise the use of AI systems for patient care are all additional factors related to the use of AI in the responsible delivery of healthcare services.

The potential benefits of using the proposed AI multi-agent framework are substantial; it will help facilitate higher-quality, faster, and more patient-centered medical evaluations across different medical specialties. Also, by filling gaps in existing clinical processes, the proposed framework will encourage the use of evidence-based and individualized approaches for treating patients. Given the success of the initial efforts to develop the first-generation architecture and positive results from pilot projects using this type of technology, there is significant potential to innovate in various forms, through the use of AI within healthcare, which can greatly increase the quality of care provided to patients by better supporting healthcare professionals in making complex diagnostic and management decisions.

VIII. FUTURE ENHANCEMENT

Focusing on future improvement and adequately managing challenges will allow for AI's transformative capacity within healthcare to be fully leveraged, resulting in better improvements in patient outcome, optimized clinical process, as well as enhanced population level health and well-being.

REFERENCES

- [1] Stafie,C.,etal.(2023) This paper explains how Artificial Intelligence is being increasingly used in clinical healthcare. It highlights the role of AI in diagnosis, patient monitoring, treatment recommendations, and hospital workflow optimization. The study gives a broad multidisciplinary review of how AI supports different medical domains.
- [2] Pedersen,A.,etal.(2022) This research focuses on the use of AI during multidisciplinary team meetings, especially in radiology. It discusses how AI can assist radiologists in analyzing medical images and improving communication among healthcare professionals during case discussions.
- [3] Kimura,T.,etal.(2024) The authors introduce MDAgents, a system where multiple large language model agents collaborate to support medical decision-making. Each agent contributes a different perspective, helping improve the accuracy and reliability of clinical decisions.
- [4] Chen,H.,etal.(2025) This work proposes a conversational multi-agent LLM framework that improves diagnostic capabilities. Multiple AI agents interact with each other like a medical team, which enhances reasoning and provides better diagnosis suggestions.
- [5] Osei-Bonsu,K.,etal.(2025) This paper emphasizes the importance of multi-agent systems in clinical decision support while also addressing ethical AI governance. It focuses on fairness, transparency, accountability, and safe use of AI in healthcare environments.
- [6] Zhang,W.,etal.(2025) The study presents an LLM-based multi-agent cooperative framework specifically for cardiology case retrieval. It helps doctors find similar previous medical cases and supports faster, more informed decision-making in heart-related conditions.
- [7] OpenAI(2024) The GPT-4o System Card explains the capabilities, strengths, limitations, and safety measures of the GPT-4o model. It is useful for understanding how advanced AI systems can be responsibly applied in healthcare applications.
- [8] ACC/AHAGuideline(2023) This guideline provides standard clinical recommendations for the diagnosis and management of heart failure. It is widely used as an authoritative medical reference and can be integrated into AI-supported decision systems.
- [9] AmericanPsychiatricAssociation(2022) The DSM-5-TR is a standard reference manual used for diagnosing mental health disorders. It provides diagnostic criteria for psychiatric conditions and is essential in AI systems dealing with mental health case analysis.
- [10] GOLDReport(2023) This report provides global clinical guidelines for the diagnosis, management, and prevention of Chronic Obstructive Pulmonary Disease (COPD). It is an important clinical reference for respiratory healthcare systems.
- [11] Lee,J.,etal.(2020) This paper introduces Bio BERT, a biomedical language model trained specifically on medical and biological text data. It improves tasks such as disease detection, clinical text understanding, and medical information extraction.
- [12] Char,D.S.,etal.(2018) This study discusses ethical challenges in implementing machine learning in healthcare, including privacy concerns, fairness, accountability, and patient safety. It is an important reference for responsible AI design.
- [13] Obermeyer,Z.,etal.(2019) This paper highlights racial bias present in healthcare algorithms. It shows how biased training data can lead to unfair treatment recommendations, stressing the need for ethical and unbiased AI systems.
- [14] Giannos,P.,etal.(2025) This systematic review explores the use of AI agents in clinical medicine. It summarizes recent advancements, practical applications, benefits, and limitations of intelligent agents in healthcare.
- [15] Chapman,W.W.,etal.(2001) This foundational paper introduces an algorithm for identifying negated medical findings in clinical discharge summaries, such as recognizing "no fever" or "no diabetes," which is critical for accurate medical text analysis.



INTERNATIONAL
STANDARD
SERIAL
NUMBER
INDIA



INTERNATIONAL JOURNAL OF INNOVATIVE RESEARCH

IN SCIENCE | ENGINEERING | TECHNOLOGY

 9940 572 462  6381 907 438  ijirset@gmail.com



www.ijirset.com

Scan to save the contact details