

(12) PATENT APPLICATION PUBLICATION(21) Application No.202431093353 A(19) INDIA(22) Date of filing of Application :28/11/2024(43) Publication Date : 06/12/2024

(54) Title of the invention : "Cardiovascular Diseases Prediction using Multimodal Methodology in Deep Learning"

<div>(51) International classification:G06N0003080000, G16H0050200000, G16H0010600000, G06N0003045000, G06N0003044000</div> <div>(86) International Application No:NA Filing Date:NA</div> <div>(87) International Publication No: NA</div> <div>(61) Patent of Addition to Application Number:NA Filing Date:NA</div> <div>(62) Divisional to Application Number:NA Filing Date:NA</div>	<div>(71)Name of Applicant : 1)SWAMI VIVEKANANDA UNIVERSITY Address of Applicant :Telinipara, Barasat - Barrackpore Rd, Bara Kanthalia, West Bengal – 700121 Barasat ----- Name of Applicant : NA Address of Applicant : NA</div> <div>(72)Name of Inventor : 1)Ms. SUMANA CHAKRABORTY Address of Applicant :SWAMI VIVEKANANDA UNIVERSITY, Telinipara, Barasat - Barrackpore Rd,Bara Kanthalia, West Bengal – 700121 Barasat ----- ----- 2)Mr. Anupam Chowdhury Address of Applicant :SWAMI VIVEKANANDA UNIVERSITY, Telinipara, Barasat - Barrackpore Rd,Bara Kanthalia, West Bengal – 700121 Barasat ----- ----- 3)Sourav Saha Address of Applicant :SWAMI VIVEKANANDA UNIVERSITY, Telinipara, Barasat - Barrackpore Rd,Bara Kanthalia, West Bengal – 700121 Barasat ----- ----- 4)Sangita Bose Address of Applicant :SWAMI VIVEKANANDA UNIVERSITY, Telinipara, Barasat - Barrackpore Rd,Bara Kanthalia, West Bengal – 700121 Barasat ----- ----- 5)Jayanta Chowdhury Address of Applicant :SWAMI VIVEKANANDA UNIVERSITY, Telinipara, Barasat - Barrackpore Rd,Bara Kanthalia, West Bengal – 700121 Barasat ----- -----</div>
---	--

(57) Abstract :  
This invention relates to a deep learning-based system and method for predicting cardiovascular disease (CVD) risk using multimodal data sources. The system integrates medical imaging data, electronic health records (EHR), and sensor data to predict the likelihood of CVD in a subject. A hybrid deep learning model, comprising convolutional neural networks (CNN) for processing imaging data and recurrent neural networks (RNN) or long short-term memory (LSTM) networks for analyzing sensor data, is employed to enhance prediction accuracy. The system incorporates a feature selection process to optimize the input data, improve model performance, and reduce computational complexity. The method allows for both early detection of CVD and real-time monitoring of cardiovascular health, offering personalized risk assessment and treatment recommendations. Additionally, the system provides real-time alerts when a subject's CVD risk exceeds a predefined threshold. The invention improves CVD prediction by leveraging the fusion of multimodal data, advanced deep learning techniques, and feature selection, offering a significant advancement in personalized healthcare and preventive medicine.

No. of Pages : 17 No. of Claims : 10