Name : **Dr. V. Manimekalai**
Designation : Assistant Professor
Department : Computer Technology
Qualification : MCA, M. Phil., Ph.D.
Experience : Teaching: 11.5 Years Research: 9 years
Area of Specialization(s) : Data Mining
Email (Official ID) : manimekalaiv@drngpasc.ac.in
Email (Personal ID) : mkalai55@gmail.com

Academic Qualifications

Degree	Branch	Institution / University Name	Year of Graduation
Ph.D.	Computer Science	Sri Ramakrishna College of Arts & Science, Coimbatore	2023
M.Phil	Computer Science	MarudhuPandiyar Arts & Science College,Thanjavur.	2014
PG	MCA	Selvam College of Technology, Namakkal	2011
UG	B.Sc Physics	Holy Cross College, Trichy	2008

Additional Qualifications

Certification	Area of Specialization	Institution / University / Agency Name	Year
Certification	Introduction to C Programming	NPTEL	2017

Research Publications (Indexed)

International:

- V. Manimekalai, J. Bhuvana and P. Dhanasekar, "SECURE PRODUCTION IN CUSTOMIZED WEB SEARCH", International Journal of Modern Trends in Engineering and Research, Vol. 1, No. 6, pp. 49-56, December 2014.Impact Factor: 1.714 & ISSN No.: 2349 – 9745.
- V. Manimekalai, R.Suresh, "RECENT DEVELOPMENTS IN AGRICULTURE USING DATA MINING TECHNIQUES", International Education & Research Journal, Vol. 3, Issue 6, June 2017. ISSN No.:2454 – 9916.
- V. Manimekalai, S. Gomathi @ Rohini, "A SURVEY ON CROSS DOMAIN OPINION MINING", International Journal of Computer Sciences and Engineering, Vol. 6, Issue 10, Oct 2018. E-ISSN No.:2347 – 2693.

- V. Manimekalai, S. Gomathi @ Rohini, “CROSS DOMAIN OPINION MINING USING MAXIMUM ENTROPY BASED CLASSIFIER”,International Journal of Physics, Vol. 1362,Nov 2019, Conf. Ser. 1362 012065.
- V. Manimekalai, S. Gomathi @ Rohini, “ENSEMBLE CLASSIFIER USING FUZZY C5.0 DECISION TREE FOR INFORMATION RETRIEVAL”, Design Engineering, Issue 8, Oct 2021, ISSN: 0011-9342.
- V. Manimekalai, S. Gomathi @ Rohini, “ENHANCED CROSS-DOMAIN SENTIMENT CLASSIFICATION USING ENSEMBLE FUZZY NEURAL NETWORK CLASSIFIER”,
  Neuroquantology, Vol. 20, Issue 8, May 2022, Page: 7483-7489.
- V. Manimekalai, S. Gomathi @ Rohini, “HYBRID RANDOM FOREST AND CONVOLUTIONAL NEURAL NETWORK FOR DEEP LEARNING CROSS DOMAIN
  SENTIMENT CLASSIFICATION”, Journal of Data Acquisition And Processing, Vol. 38, Issue, Jan 2023, ISSN: 1004-9037.
- V. Manimekalai, S. Gomathi @ Rohini, “ENHANCED ACCURACY IN THYROID DISEASE CLASSIFICATION: A COMPARATIVE ANALYSIS OF RANDOM FOREST AND DECISION TREE METHODS”, Journal of Propulsion Technology, Vol. 44, No.6, Dec 2023, ISSN: 1001-4055.
- V. Manimekalai, “A COMPREHENSIVE REVIEW ON REVOLUTIONIZING AGRICULTURAL PRACTICES THROUGH IOT AND MACHINE LEARNING”, IAPQR Transactions, Vol. 49, Issue 02, No. 05, Dec 2024, ISSN: 0970-0102.

Book Chapter Publications

- AI Approaches To Climate Change: Mitigation And Adaptation Strategies Using Machine Learning, Charulatha Publication, Sep -2024, ISBN: 978-93-6260-000-0.

Acted As a Resource Person

- Seminar on “ Computer Networks and Protocol” , Suguna Polytechnic College, 13-Feb-25.

Presentations in Conference

- INTELLIGENT CLOUD MINING FOR DECISION SUPPORT SYSTEM IN MOBILE

ENVIRONMENT , II - National level conference on Cloud Mining, Kongunadu College of Technology, Namakkal, 15-Mar-13.

- CROSS DOMAIN OPINION MINING, in International conference on Research Trends in Computing Technologies ICRTCT - 18, Dr.N.G.P Arts & Science College, 9-Aug-18, 10- Aug- 18.

- CYBER SECURITY USING ARTIFICIAL INTELLIGENCE, in National Conference on Emerging Trends in Mathematics with Computer Applications ETMCA – 19, Dr.N.G.P Arts & Science College, 12-Sep-19, 13-Sep-19.

- EYE GAZE COMMUNICATION SYSTEM in Second International National Conference on Emerging Trends in Computing Technologies ICRTCT– 20, Dr.N.G.P Arts & Science College, 28-Feb-20 to 29-Feb-20.

- IOT BASED DOMESIC WASTE MANAGEMENT USING SMART BINS in International Conference on Computational Intelligence and Communication Technology, Dr.N.G.P Arts & Science College, 04-Jan -24.
- IOT SECURITY CHALLANGES: ATTACKS, INTRUSIONS, THREAT LANDSCAPES AND VULNERABILITIES in Recent Trends in Computer Science and Data Analytics – 2024 (ICRTCSDA-24), KPR College of Arts Science and Research, 02-Feb -24.
- EFFECTIVE CLASSIFICATION OF THYROID DISCEASE USING HYBRID RANDOM FOREST AND CONVOLUTIONAL NEURAL NETWORK, in International Conference on Computational Intelligence and Communication Technology, Dr.N.G.P Arts & Science College, 03-Jan -25.
- ARTIFICIAL INTELLIGENCE IN PERSONALIZED ELDERLY CARE in Third International conference on Recent Trends in Computer Science and Data Analytics – 2024 (ICRTCSDA-24), KPR College of Arts Science and Research, 13-Feb -24.

Participation in Conference

***International*:**

- Emerging Education Models for 21st Century Learner (NCEEM – 2015), Association of Principals of Colleges of Bharathiar University, Dr.N.G.P Arts & Science College, 1-Aug-15.

- A study on Factors influencing as a best practice for image classification in

International conference on signals, communication and embedded system ICSCES -2020, ICT academy global Technology forum, 14-oct-20 to 18-Oct-20.

Participation in Seminars

- ICTACT Youth leadership Summit 2015 Organized by ICT Academy of Tamil Nadu, CodissiaTrade Fair Complex, 23- Sep-15.

Participation in Workshop

- Computer Programming, IIT-Bombay, Selvam College of Technology, 16-Jun-2014 to 21- Jun-2014.
- Computer Network, IIT-Bombay, Selvam College of Technology, 30-Jun-2014 to 5-Jul-2014.
- Cyber Security conducted by IIT-Bombay, Selvam College of Technology, 10 to 20-Jul-2014.
- MOOCs, e-content Development and Open Educational Resources (UGC – Sponsored), UGC – HRDC, BharathiyarUniversity, 22 to 26-Oct-2018 and obtained 'A' Grade.
- Short term training programme on Recent Trends and Challenge in Data Science by Hindusthan College of Arts &Science, 4 to 9-Jan-21.
- Awareness workshop on NIRF – INDIA RANKINGS - 2021 for Higher Educational Institutions by Institute for Academic Excellences in collaboration with collegiate education & technical education department, Govt of Telangana, 18 to 19-Jan-21.
- One day workshop on Outcome Based Education by Dr.N.G.P Arts and Science College, 04- Mar-2023.
- Nine days workshop on National Level Workshop on DEVOPS (Online) by SRM Institute of Science & Technology, Ramapuram, Chennai, 16.06.2023 to 24.06.2023.
- One day workshop on Microsoft Excel using AI by OfficeMaster, 29-Dec-24.

Participation in Faculty Development Programme

- SKILL DEVELOPMENT PARTNERSHIP WITH NITTTR, Selvam College of Technology, Namakkal , 2-May-2012 to 4-May-2012.
- ENTREPRENEURSHIP & CURRENTLY NEED OF EMPLOYMENT PARTNERSHIP

WITHNITTTR, Selvam Arts & Science College, Namakkal, 5-Jun-2012 & 6-Jun-2012.

- INTRODUCTION TO J2EE, ICTACT, Knowledge Institute of Technology, 4 & 5-Dec-2014.
- INTRODUCTION TO R PROGRAMMING, ICTACT, Dr.NGP Arts & Science College,

  Coimbatore, 30-Aug-2018 & 31-Aug- 2018.
- QUALITY INITIATIVES IN HIGHER EDUCATION, Dr. N.G.P. Arts and Science

  College, Coimbatore, 3-Dec-18 to 9-Dec-18.
- RESEARCH METHODOLOGY AND PEDAGOGY FOR TERTIARY EDUCATION,

  Dr. N.G.P. Arts and Science College, Coimbatore, 15-Jun-21 to 21-Jun-21.
- AMAZON WEB SERVICES, Aditya Engineering College in collaboration with Brain o Vision Solutions, India, 22-Aug-22 to 27-Aug-22.
- DEVOPS, SRM Institute of Science and Technology, 16-Jun-23 to 24-Jun-23.
- EMPOWERING EDUCATION FOR INNOVATION - A NEP PERSPECTIVE, Dr. N.G.P. Arts and Science College, Coimbatore, 30-June-23 to 04-July-23.
- EXPLORING NEW FRONTIERS IN TEACHING TOOLS, AI AND DATA ANALYTICS, MEASI Institute of Information Technology,Chennai, 29-July-24 to 02-Aug-24.
- MICROSOFT AZURE AI ENGINEER, ICT Academy, 03-Feb-25 to 07-Feb-25.

Reviewer

- Acted as a reviewer in the two-day international conference on sustainable advanced computing (ICSAC – 2024) organized by the department of computer science, CHIRST (Deemed to be University), Bangalore, India, during 22-23 March, 2024.
- Reviewer in International Conference on Electrical Electronics and Computing Technologies organized by Sharada school of Engineering and Technology, Sharada University, Uttar Pradesh, 29-Aug-24 to 31-Aug-24.

MooC Course Completion

- Advanced CPP - IIT Bombay, Spoken Tutorial on 15.9.23 (42 hrs)
- Oracle 9i Course Bundle – Infosys springboard, Spoken Tutorial on 12.12.23 (42

hrs)

- JavaScript - IIT Bombay, Spoken Tutorial on 05.10.24

Conference / Seminar / Workshop Organized

- Co-Coordinator, "Trigger-13", A National Level Technical Symposium, Selvam College of Technology, Namakkal, 24-Jan-2013.
- Co-Coordinator, "Trigger-14", A National Level Technical Symposium, Selvam College of Technology, Namakkal, 14-Jan-2014.
- Coordinator, "CAC-13", One Week Computer appreciation Course, Selvam College of Technology, Namakkal, 15 to 18-Apr-2013.
- Coordinator, IIT-BOMBAY Spoken Tutorial Workshop Selvam College of Technology, Namakkal, on 23 & 24-Jul-014.
- Organizer, Organized 4 IIT-BOMBAY Spoken Tutorial online courses during the year 2015 –2016.
- Organizer, Organized 5 IIT-BOMBAY Spoken Tutorial online courses during the year 2016 –2017.
- Organizer, Organized 7 IIT-BOMBAY Spoken Tutorial online courses during the year 2017 –2018.
- Organizer, Organized 4 IIT-BOMBAY Spoken Tutorial online courses during the year 2018 –2019.
- Organizer, Organized 3 IIT-BOMBAY Spoken Tutorial online courses during the year 2019 –2020.
- Organizing Committee member in second international conference on Research Trends in Computing Technologies during 28-Feb-2020 to 29-Feb-2020.
- Organizer, Organized 3 IIT-BOMBAY Spoken Tutorial online courses during the year 2019 –2020.
- Organizer, Organized 2 IIT-BOMBAY Spoken Tutorial online courses during the year 2020 –2021.
- Organizer, Organized 3 IIT-BOMBAY Spoken Tutorial online courses during the year 2021 –2022.
- Organizer, Organized 4 IIT-BOMBAY Spoken Tutorial online courses during the year 2022 –2023.
- Organizer, Organized 3 IIT-BOMBAY Spoken Tutorial online courses during the year 2023 –2024.
- Organizing Member, National Seminar on Integration of traditional knowledge system into modern higher education: NEP Perspective, 04-July-24 to 05-July-24.

Awards / Honors

Awards / Honors	Agency / Institute	Year of Award
Favorite Teacher	Care Trust, Namakkal	2012
Best Faculty	Selvam College of Technology, Namakkal	2014
Best Mentor	IIT – Bombay	2020
Active SPOC in NPTEL	NPTEL	From Jul- Dec 2022 to till now
Appretition for spreading awareness and holding Software Training workshops at Dr. NGP arts and science college	IIT – Bombay	2024

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A COMPREHENSIVE REVIEW ON REVOLUTIONIZING AGRICULTURAL PRACTICES THROUGH IOT AND MACHINE LEARNING

Dr. V. Manimekalai Assistant Professor, Department of Computer Technology, Dr. N.G.P. Arts Science College, Coimbatore
Dr. T. R. Anand Assistant Professor, Department of Computer Technology, Dr. N.G.P. Arts Science College, Coimbatore
Mrs. P. Nivetha Assistant Professor, Department of Electronics and Communication Engineering, Dr. N.G.P. Institute of Technology, Coimbatore.

Abstract
Smart farming technologies have emerged as transformative tools in modern agriculture, enabling farmers to optimize resources, increase productivity, and reduce environmental impacts. By integrating Internet of Things (IoT) devices and machine learning (ML) algorithms, agricultural practices are becoming more data-driven, precise, and efficient. This paper explores the current advancements in IoT and ML applications in smart farming, their benefits, real-time implementations, results, and the challenges associated with their adoption. A collaborative project between a tech company and corn farmers integrated IoT sensors with ML models. As a result, yields increased by 25% and pesticide use was reduced by 30% over two growing seasons. In this article, we separately review existing approaches to smart agriculture and IoT and ML-based agriculture. We also propose new concepts on how ML-IoT can be combined with these applications.

Keywords –
Internet of Things (IoT), Machine Learning (ML), Smart Agriculture, Smart Farming.

I. Introduction

The agricultural sector is under increasing pressure to produce more food while minimizing resource use and environmental damage. Traditional farming methods often lack the accuracy needed to meet these challenges. Smart agriculture, powered by IoT and ML technologies, offers innovative solutions to improve productivity and sustainability. IoT enables real-time monitoring and data collection, while ML facilitates predictive analytics and decision-making. The agricultural sector is undergoing a major transformation due to the integration of cutting-edge technologies such as the Internet of Things (IoT) and machine learning (ML). These technologies provide a data-driven approach to agriculture that enables precise resource management, increased productivity, and improved sustainability [2]. As the world population grows and climate change presents new challenges, traditional agricultural methods are becoming increasingly inadequate. IoT and ML have emerged as game-changing solutions, bridging the gap between traditional practices and modern-day demands for efficiency and sustainability.

IoT enables realtime data collection from diverse sources, with soil sensors, weather stations, and livestock monitoring devices. These interconnected systems generate huge amounts of data, provided that farmers with actionable insights into their operations. For example, IoT based irrigation systems optimize water use by monitoring soil moisture levels, reducing waste and ensuring better crop health. Similarly, IoT applications in livestock management enhance animal welfare by tracking health metrics and movement patterns, preventing diseases and improving productivity.

On the other hand, ML algorithms excel in processing and analyzing complex datasets generated by IoT devices. They provide predictive capabilities that empower farmers to make informed decisions. For example, ML-based models can forecast crop yields, identify diseases through image recognition, and predict weather patterns to optimize planting schedules. These insights help farmers minimize risks, reduce costs, and maximize profits. Furthermore, ML-driven resource optimization ensures efficient utilization of inputs like fertilizers and pesticides, reducing environmental harm while maintaining high yields.

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Contents

AI APPROACHES TO CLIMATE CHANGE: MITIGATION AND ADAPTATION STRATEGIES USING MACHINE LEARNING

[1]Dr.V.Manimekalai, Assistant Professor, Dr. N.G.P. Arts and Science College, Coimbatore

[2]Dr.M.Aruna, Associate Professor, Dr. N.G.P. Arts and Science College, Coimbatore

I. INTRODUCTION

Climate change represents one of the most pressing challenges of our time, impacting ecosystems, economies, and communities globally. The need for innovative solutions is critical to mitigate the adverse effects and adapt to the changing environment. Artificial Intelligence (AI) and Machine Learning (ML) offer transformative potential in addressing climate change through advanced data analysis, predictive modeling, and automation. This chapter explores how AI and ML can be harnessed for climate change mitigation and adaptation, presenting case studies, methodologies, and future directions. AI and ML offer unprecedented capabilities in analyzing vast amounts of data, identifying patterns, and making accurate predictions. These technologies can enhance our understanding of climate dynamics, optimize resource usage, and develop proactive measures to mitigate and adapt to climate impacts. By integrating AI-driven solutions into climate strategies, we can improve efficiency, reduce greenhouse gas emissions, and bolster resilience against climate-related disruptions.

II. ROLE OF AI AND MACHINE LEARNING IN CLIMATE SCIENCE

Artificial Intelligence (AI) and Machine Learning (ML) are revolutionizing climate science by providing sophisticated tools to analyze vast amounts of data, improve predictive models, and generate actionable insights. These technologies are enhancing our understanding of complex climate systems and enabling more accurate forecasting, which is crucial for both mitigating and adapting to climate change [1].

a. Understanding Climate Data

Climate data is extensive and varied, sourced from satellites, ground-based sensors, and historical records. The sheer volume and complexity of this data present significant challenges.

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has participated / presented a paper entitled AI TOOLS USING FOR INNOVATION IN ENTREPRENEURSHIP

at the One Day International Conference on "Recent Trends in Research and Innovation" held at VLB Janakiammal College of Arts and Science on 14th March 2025.

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EFFECTIVE CLASSIFICATION OF THYROID DISEASES USING HYBRID RANDOM FOREST AND CONVOLUTIONAL NEURAL NETWORK

Dr. V. Manimekalai [1], Dr. T. R. Anand [2]

[1, 2]Assistant Professor, Department of Computer Technology, Dr. N.G.P. Arts Science College

Abstract

Rapid diagnosis of lifestyle-related conditions is often unavailable in rural areas, emphasizing the need for intelligent prediction systems leveraging advanced computational techniques. This research introduces an enhanced classification model, employing a Hybrid Random Forest and Convolutional Neural Network (HRF-CNN) algorithm, to improve thyroid disorder identification. The study evaluates the performance of the HRF-CNN algorithm against traditional machine learning approaches such as Random Forest and Decision Tree. Utilizing datasets from the UCI Machine Learning Library, these models classify patients into hyperthyroidism and hypothyroidism categories. The HRF-CNN integrates the feature-selection capabilities of Random Forest with the feature-learning strengths of CNN, aiming to establish an optimized diagnostic framework. Performance metrics such as accuracy and precision were analysed to assess the efficacy of the models. The HRF-CNN algorithm achieved an accuracy of 98.3%, significantly outperforming the Fuzzy Neural Network (97.2%), Decision tree (97%) and Maximum Entropy (87%) models. Similarly, the HRF- CNN's precision rate was recorded at 93%, compared to Fuzzy Neural Network (90%), Decision tree (86%) and Maximum Entropy (86%) models., respectively. The comparative analysis demonstrates that the Hybrid Random Forest and Convolutional Neural Network algorithm surpasses traditional methods in detecting thyroid disorders, offering a robust and efficient solution for early diagnosis in resource-limited settings.

Keywords: HRF-CNN, CNN, Fuzzy Neural

1. Introduction

The medical research increasingly confronts challenges in delivering early and precise disease diagnosis due to the world's growing population. In this context, disease prediction has become a critical focus within the domain of data mining. Data mining involves analysing and uncovering hidden patterns in large datasets, facilitating insights that can inform healthcare decisions. Clinics and hospitals amass substantial patient data, which provides a valuable resource for identifying risk factors associated with various diseases.

This study focuses on thyroid disease, a condition influenced by hormones produced by the thyroid gland. The thyroid gland regulates the body's metabolism by secreting two essential hormones: triiodothyronine (T3) and thyroxine (T4). These hormones play crucial roles in maintaining physiological processes such as body temperature, heart rate, blood pressure, and reproductive functions. Imbalances in T3 and T4 levels can lead to conditions such as hyperthyroidism (elevated T3 levels with normal T4) and hypothyroidism (reduced T3 levels with normal T4). If left untreated, hypothyroidism can result in complications like obesity, arthritis, infertility, and cardiovascular diseases. Addressing inconsistencies in thyroid condition datasets and refining clinical analyses remains a significant challenge in achieving accurate thyroid disorder diagnosis.

Machine learning has emerged as a powerful tool for predictive analytics, offering promising results in disease detection, prognosis, and treatment planning. This research employs a dataset from the UCI Machine Learning Repository to design a diagnostic model capable of identifying thyroid

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To

Date: 06.02.2025

Dr V Manimekalai
Assistant Professor
Department of Computer Technology
Dr N G P Arts and Science College
Kalapatti,
Coimbatore 641014.

Sub: Invitation to serve as a Resource Person at Suguna Polytechnic College

Respected Mam,

I am writing to you on behalf of Suguna Polytechnic College to extend a cordial invitation for you to serve as a resource person at our upcoming seminar on "Computer Networks and Protocols".

Your extensive experience in Networking makes you an ideal candidate to share insights and guide our students.

EVENT DETAILS:

Date: 13/2/2025

Time: 10:30 AM -12:30 PM

Venue: Seminar Hall

During the seminar, we would appreciate it,if you could address TCP/IP and 802.X protocols. Additionally, there will be a segment for audience questions, which we believe will benefit greatly from your expertise.

We kindly request your confirmation by 10/2/2025 so that we can finalize the seminar schedule.

Thank you for considering our invitation. We look forward to the opportunity of welcoming you to "Suguna Polytechnic College" and to a successful and engaging seminar.

Warm Regards,

6/2/2025

Principal

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