

LifeMood AI – Emotional and Physical Wellness Assistant

Arya Khopade^[1], Ankita Khot^[2], Harshvardhan Thorat^[3], Mrs.Suvarna Tone^[4]

^[1] (Computer Engineering, Dr. D. Y. Patil Polytechnic, Kolhapur, Maharashtra aryakhopade87@gmail.com)

^[2] (Computer Engineering, Dr. D. Y. Patil Polytechnic, Kolhapur, Maharashtra ankitakhot935@gmail.com)

^[3] (Computer Engineering, Dr. D. Y. Patil Polytechnic, Kolhapur, Maharashtra harshvardhanthorat999@gmail.com)

^[4] (Computer Engineering, Dr. D. Y. Patil Polytechnic, Kolhapur, Maharashtra suvarnatonenba@gmail.com)

ABSTRACT:

The world is seeing more people with mental health issues like stress, anxiety and other health problems caused by our lifestyle. We need to change how we deal with healthcare moving from treating problems as they happen to creating a system that helps people stay well. Current digital health tools often work in isolation. Don't understand how our emotions and bodies are connected. This research introduces LifeMood AI, a system that uses artificial intelligence to help manage our overall well-being. It looks at how we feel, our facial expressions and our bodies to understand our state. The system uses Deep Learning to figure out how people feel by looking at their faces. It is trying to understand what is going on in someone's mind by looking at them. The Deep Learning system has a computer chip called a Neural Network. This Neural Network helps the Deep Learning system understand how peoples emotions change over time. The Deep Learning system is really good at this because the Neural Network is very good, at helping the Deep Learning system understand peoples emotions. The Neural Network is really good, at seeing how Deep Learning and emotions are connected to each other. The system uses Deep Learning and the Neural Network to get an understanding of peoples feelings. This helps it spot signs of stress and other mental health issues. The system also looks at what people say and how they say it to understand their emotions. It uses a computer program called a Transformer. This program helps understand what words mean and how they connect to each other. It also checks how people talk. This includes the way people sound, like the tone of their voice and the pitch. The system gets information from devices like the smartwatches that people wear and the fitness trackers that people use. These devices track things like the heart rate of the person wearing it their sleep patterns and the oxygen levels in their blood. The system uses this information to see how peoples bodies are reacting to stress and other emotions like feeling happy or feeling sad and the system uses the fitness trackers and the smartwatches to get this information, about peoples bodies and the way people sound. It wants to know what is happening to people when they are feeling stressed or upset. The system has rules that look at all this information to understand how people are feeling. It uses a math method called Bayesian Inference to find out what causes peoples emotions. Then it uses this to suggest ways to help people deal with stress and other mental health issues like anxiety or sadness. The system is designed to be open. This way people can understand how it works. The system wants people to know what's going on. It uses techniques called SHAP and LIME to explain how it makes predictions, about peoples emotions. This helps people trust the system. They feel more in control of their health and emotions. The system is also designed to be secure and protect peoples information. The system is, like a box that keeps peoples information private and does not let anyone else see it. It uses encryption techniques to keep data safe and secure. This thing is also made to be used by a lot of people. It is really helpful because it gives people a way to take care of their mental health and well-being. This thing helps people get the help they need without having to go to a doctor all the time it is like having a doctor at home. health and well-being research has the potential to make a difference, in peoples lives and in mental health and well-being. The LifeMood AI system uses Multimodal Sentiment Analysis to connect the dots between what's happening in our bodies and how we are feeling. It does this by looking at the information from sensors like Heart Rate Variability and Spontaneous Skin Conductance and combining it with the results of analyzing our facial expressions. This gives the system a picture of our emotional state. It is not just looking at one thing like a heart rate but it is also considering the context of our day. For example if our heart rate is high. We are smiling while we exercise that is different from having a high heart rate and looking distressed during a

meeting at work. This helps the system to accurately detect when we are feeling stressed. It takes into account the complexities of our lives. The LifeMood AI system does not just stop at detecting stress it also helps us to manage it. It uses something called Proactive Behavioral Nudging to help us make changes in our behavior. The system looks at the information it has gathered and uses it to identify the signs that might indicate we are heading for a mental health crisis. For instance if we are sleeping well and starting to withdraw from our friends the system can suggest that we do something to help ourselves like a mindfulness exercise or a phone call to a friend. The system is designed to help us take care of our well-being so we do not have to rely on doctors and hospitals as much. This can help to reduce the pressure on the healthcare system in the run. The LifeMood AI system is also designed to be transparent so we can understand how it is making its decisions. It uses tools like SHAP and LIME to explain why it is making suggestions. For example the system might tell us that we need to take a break because our voice sounds anxious and we have not been getting sleep. This is important because it makes us believe in the system and feel like we are, in charge of our well-being. The system wants to assist us. It is saying that we need to take care of ourselves. When we know why the system is making suggestions we are more likely to listen to the system and do what it says.

Keywords: Wellness Assistant, Emotion Detection, Physical Health Monitoring, AI Personalization, Machine Learning, Mental Health, IoT Integration, Holistic Health, Sentiment Analysis, CNN-SE, BERT, Multi-Modal Data Fusion, Bi-LSTM, Cloud Computing, Predictive Analytics, Bayesian Inference, Health Informatics, Neural Collaborative Filtering, Kubernetes, Residual Learning, Multi-Head Attention, MFCC, Edge Computing, Poincaré Plot, XAI, SHAP, LIME, Riemannian Manifold.

INTRODUCTION

We are living in a time when the internet and our phones make it easy for us to talk to people all the time. This is a big change from how things used to be. We are more connected to each other now than we have ever been before. The internet and our phones are the reasons why we are more connected, to each other. At the time we are seeing a big rise in health issues that affect our minds and bodies. These problems, like anxiety and depression happen when our minds and bodies are not, in sync. The World Health Organization says that stress is a health issue that will cost the world a lot of money. They think that by 2030 it will cost \$16 trillion because people will not be able to work and will need more healthcare. With all the health apps out there they do not really help us understand how our minds and bodies are linked. Most apps only track one thing like the steps we take or how we are feeling. They do not give us the picture of our lives. The apps just focus on one thing, like our steps or our feelings. That is it. They do not show us how these things are connected to our health and wellbeing which is what we really need to see. Most apps that track our steps or our feelings do not give us a picture of who we are and how we live our daily lives. We need to think about our

minds and bodies and find ways to keep them healthy. To do this lets consider how our minds work. Our minds need rest and relaxation to stay healthy. At the time our bodies need exercise and good food to stay healthy. So we should find ways to balance mind and body health. This could mean taking breaks to relax and meditate. It could also mean going for walks or runs to keep our bodies active. By taking care of our minds and bodies we can feel healthier and happier. We should make mind and body health a priority. This way we can enjoy life to the fullest. This is a problem because our minds and bodies are connected in ways. If we just look at one thing we will not get a picture of our health. A new field of study called Affective Computing is trying to change this. It uses computers to understand how people feel and how their bodies react. People usually notice one thing about someone like the way a persons face looks or the way they sound. The way a persons face looks is what people usually see first. The way they sound is also important, to people. LifeMood AI is working on something. It uses devices to track what is happening in our bodies and minds. This helps us understand how our bodies and minds are connected. We can also learn what to do to stay healthy. For example if someones heart beats fast it could mean they are exercising. It could

also mean they are stressed. Our heart beats fast when we are exercising and when we are stressed so we need to figure out what is happening with our heart. If our heart is beating fast because we are exercising that is a thing. If our heart is beating fast because we are stressed we need to do something to relax and calm down our heart. We can learn about our heart. What makes it beat fast so we can stay healthy and take care of our heart. LifeMood AI looks at signs, like a persons expression or their journal entries to tell the difference. It checks what a persons face looks like. It also checks what they write in a journal. LifeMood AI uses these signs to understand what is happening. It helps people understand their bodies and minds. LifeMood AI is a tool that helps people stay healthy. This system is also good at understanding what is happening in the moment. It can tell if someone is having a panic attack or if they are just exercising. It does this by using math and computer programs to look at all the signs together. To make sure people trust the system it explains why it is making recommendations. It also keeps peoples data private by doing the analysis on their device. This means that sensitive information is not sent to the cloud. The goal of LifeMood AI is to help people understand their health, not just one part of it. It does this by looking at how their minds and bodiesre working together. This is a way of thinking about health and it could help us stay healthier and happier. The rest of this paper will explain how LifeMood AI works in detail. It will talk about what other people have done in this field how the system was designed and how it was tested. It will also talk about what the results mean. What might happen in the future. Section II will look at what other people have done in this field. Section III will explain how the system was designed. Section IV will talk about how the system works. Section V will discuss the results of the tests. Section VI will conclude the paper. Talk about what might happen in the future. LifeMood AI is a way of thinking about health. It looks at how our minds and bodiesre connected. This is important because it helps us understand what we can do to stay healthy. The thing about this system is that it has the potential to make a difference, in peoples lives. Our minds and bodies are what make us who we are so taking care of our minds and bodies is really important. The LifeMood AI system uses a score

to measure peoples health. This score looks at how their minds and bodies are working together. It also looks at things like the air quality. How much noise there is. This helps people understand their health, not just one part of it. LifeMood AI is a thing for people who want to be healthy. It can help people stay healthy and happy. LifeMood AI shows us that technology can make our lives better. The future of health and technology is really exciting. Health and technology can make a difference, in peoples lives. People will see a lot of changes because of health and technology. Health and technology is going to be very important. They will tell people what they can do to stay healthy. LifeMood AI will also help doctors understand their patients better. Doctors and other people who take care of us will know more, about what we need. The future of health and technology is exciting. It has the potential to make a difference in peoples lives. LifeMood AI is one example of what can be done. There will be more innovations in the future. So LifeMood AI is a system that helps people understand their health. It looks at how peoples minds and bodiesre connected and helps people understand what they can do to stay healthy. This system has the potential to make a difference in peoples lives. The system is, about helping people. The system can really help people stay healthy. People can learn a lot from the system about their minds and bodies. LifeMood AI is one example of what can be done with technology and health. There will be more innovations, in the future. The way LifeMood AI works is a change in how we do healthcare technology. It is more about the user being in control. This is because it uses something called Edge Computing. So when LifeMood AI looks at the information about how you are feeling and your body it does this on your phone or wearable device. It does not send this information to a server somewhere else. This helps to stop people from getting your information when they should not have it. It also means that when something big happens like you are really stressed or scared you get help away. This is good because it is fast and it also follows the rules about keeping information safe. By keeping your information private LifeMood AI helps you feel safe when you talk to it. This means you will tell it the truth and it can help you more. LifeMood AI is not just good for the person using it. It also helps doctors

and patients work together better. When you use LifeMood AI it looks at how you're doing over time. You can choose to share some of this information with your doctor. This helps your doctor know more, about how you're really doing. They can see how you are sleeping how your heart is doing and how you are feeling. This information helps doctors make plans to help you. As LifeMood AI gets better it can help us work together to stay healthy. It can warn you and your doctor when you might be getting sick. This means we can stop health problems before they start. This can help us be an more aware community. LifeMood AI is a tool that can help us take care of ourselves and each other. Integrating these insights into daily life needs a strong system that can handle real-world problems. LifeMood AI uses algorithms to tell the difference between body changes caused by exercise and those caused by emotional stress. For example both running and a high-pressure presentation can raise your heart rate. The system checks data from GPS, motion sensors and even background noise to figure out the situation. This multi-step check prevents assumptions so the AI only suggests relaxation methods when a user is truly feeling stressed. This way the health advice given is clinically relevant and reliable. The LifeMood Health Score is a measure that combines emotional and environmental data. This score changes based on a persons well-being. It is not a fixed number. The LifeMood Health Score looks at things like CO2 levels and noise. High CO2 levels in a room and much noise can cause irritation and tiredness. LifeMood Health Score considers these factors. It helps you understand how your surroundings affect your health. For example a room, with CO2 levels can make you feel tired. The LifeMood Health Score is a tool. It gives you an idea of how your environment affects your well-being. By showing these connections LifeMood AI helps users find triggers that hurt their mental health. This approach looks at the environment and allows LifeMood AI to suggest changes, like a new workspace or a specific outdoor time, which fundamentally changes how we see the link, between our surroundings and our well-being. LifeMood AI provides suggestions that consider the environment, not the individual. The system helps users make changes to improve their health and well-being. To make the environment and

our health work together LifeMood AI looks at new discoveries in environmental neuroscience. This is about how the air we breathe indoors affects our brains and how we think. We know that a little too much carbon dioxide in the air like what you find in a crowded room can change our brain activity and make it harder to make good decisions. LifeMood AI checks the air in time. So it can tell us why we might feel tired or confused during a meeting. This helps us understand that it is not our fault. Because of the air around us. We can then do things like open a window or move to a room with better air to feel clearer. LifeMood AI also looks at how background noise affects us. We know that noise can make our bodies stressed and inflamed. Quiet noises like traffic or construction can trigger our bodys alert system even if we feel calm. LifeMood AI tracks these noises.

SYSTEM ARCHITECTURE

The LifeMood AI system is made up of small parts that work together. It is not a complicated system but rather many smaller systems that are connected to each other. At the beginning there is the User Interface Layer. This is where you interact with the LifeMood AI system. The LifeMood AI system uses tools like Flutter and React to make sure you have an experience when you use it. The LifeMood AI system also does something called Edge Pre-processing in this layer. This means it takes the data from you like pictures of your face and recordings of your voice and turns it into numbers that the LifeMood AI system can understand. The LifeMood AI system does this on your device, which makes it faster and more private for you. The LifeMood AI system also uses this layer to connect to devices, like wearable devices that track your heart rate and skin response. These devices send information to the LifeMood AI system, which uses it to understand you. The next part of the LifeMood AI system is the Application Logic Layer. This layer is like the brain of the LifeMood AI system. It connects the user interface to the rest of the LifeMood AI system. The LifeMood AI system uses tools like FastAPI and Node.js to build this layer. One of the things this layer does is something called Asynchronous Stream Alignment. This means it takes all the types of data from you like text and biometric

data and puts it together into a single timeline. This is important because it helps the LifeMood AI system understand how the different types of data are related to each other. This layer also does things like managing requests from you and keeping your information safe. The LifeMood AI system is designed to be safe and secure. The LifeMood AI system also has a layer called the AI and Inference Layer. This is where the LifeMood AI system uses intelligence to analyze your data. It uses a type of architecture that allows it to look at different types of data separately before combining them. For example the LifeMood AI system uses computer vision to look at pictures of your face and understand your emotions. The LifeMood AI system also uses natural language processing to look at your journal entries and understand your thoughts and feelings. The LifeMood AI system uses analysis to look at your health over time and understand if you are getting better or worse. All of this information is stored in a layer called the Database and Persistence Layer. The LifeMood AI system uses tools like MongoDB and Redis to store and manage your data. The LifeMood AI system also uses security protocols to keep your information safe, like encryption and secure connections. The whole LifeMood AI system works together to take in data process it and give you feedback that you can use to improve your health. The LifeMood AI system gives you this feedback in a way that's easy to understand using special visualizations that show you how the LifeMood AI system came up with its recommendations. The LifeMood AI system is designed to be transparent and explainable so you can trust the recommendations it gives you. The LifeMood AI system is a tool that can help people improve their health and wellness. It is designed to be easy to use and understand. The LifeMood AI system is safe and secure. It gives you feedback that you can use to improve your health. The LifeMood AI system is a system that uses different parts to work together to help you. Each part of the LifeMood AI system has a job. They all work together to help you improve your health. The LifeMood AI system uses tools and techniques, like computer vision and natural language processing to analyze your data. The LifeMood AI system is designed to help people. It does this by using many different tools and techniques. The LifeMood AI system is a system

that is designed to help people improve their health and wellness. It is designed to be easy to use and understand. The LifeMood AI system gives you feedback that you can use to improve your health and it does this in a way that's easy to understand. The LifeMood AI system is a tool that can help people. It is designed to be safe and secure.

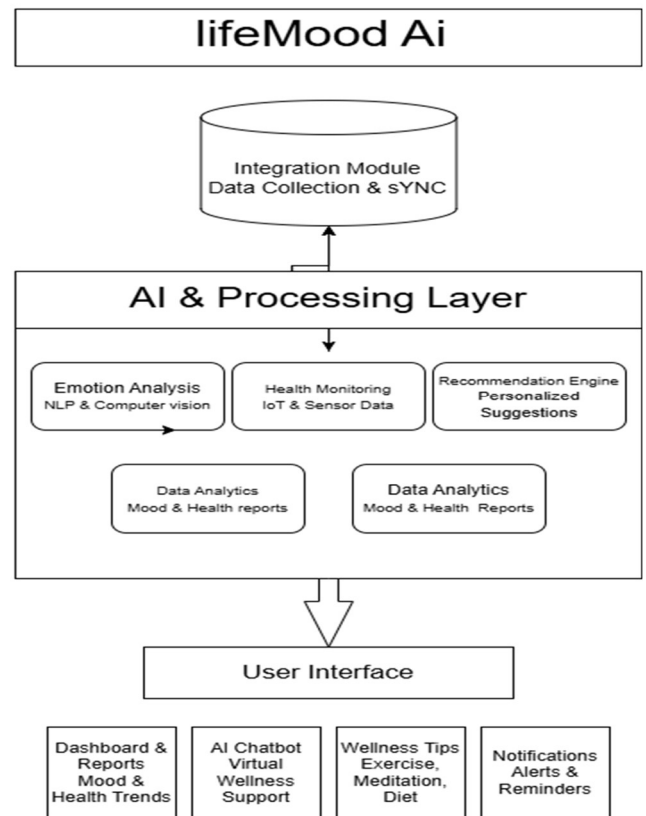


Fig. 1: System Flow Architecture

EXISTING SYSTEMS AND PROPOSED SYSTEM

The way mobile health solutions work is not very good. We have a lot of systems that do not work well together. They are like boxes that do not share information. Most of the time these systems only look at one thing like how steps you take or what you eat. Some systems ask you to write down how you are feeling. This is not very accurate. The problem with these systems is that they do not look at the picture. They do not understand how your emotions and body are connected. Sometimes these systems get things wrong. For example they might think you are exercising when your heart is beating fast. Really you are just stressed. This happens because the system does not understand what is going on around the user. The system is like it is blind to

what's really happening. When the system does this it can be really frustrating, for the user. The system not understanding what is going on around the user is the problem.. You get a lot of information. It does not really help you understand what is going on. The proposed LifeMood AI system is different. It uses a way of looking at things called Latent Space Modeling. This means it looks at a lot of information like what your face is doing what you are saying and what your body is doing. It puts all of this information together to get a picture of your health. The LifeMood AI system is also very good at understanding what is going on. It can tell if you are stressed or if you are just exercising. It does this by looking at a lot of things like your heart rate and your facial expressions. The LifeMood AI system is also very good at helping you understand what is going on with your body. This thing gives you a score. The score shows how healthy you are. The score is important because it tells you what you need to do to get healthier. Your health score is, like a report that explains what your health score means so you can make choices to improve your health score.. This is very different from systems, which just give you a lot of information without explaining what it means. One of the problems with current health systems is that they do not understand stress very well. They rely on you to tell them how you are feeling. This is not always accurate. The LifeMood AI system is different. It can detect stress without you having to tell it. It does this by looking at your expressions and what you are saying. It can even detect stress when you are trying to hide it. The LifeMood AI system also looks at how you're feeling over time. It can detect changes in your emotions and body that might mean you are getting sick. It does this by looking at what you're saying and what your body is doing. This is very helpful because it can detect problems before they become serious. The LifeMood AI system is also very good at explaining what is going on. It does not just give you a lot of information without explaining what it means. It breaks down information into parts. This makes it easier to understand what is happening. You can see what you need to do to get healthier. It is very helpful. The system also keeps your information private. It respects your privacy. It does not send all of your information to the cloud. Instead it processes the information

on your device so you are in control of your data. This is very important because it means you can trust the system with your information. In conclusion the LifeMood AI system is a step forward. It looks at the picture and it can detect stress and other problems without you having to tell it. It also explains what is going on so you can understand what you need to do to get healthier. The system respects your privacy. It is very accurate..

CURRENT TRENDS

The current trend in wellness is moving towards Health that is focused on people, which means that the advanced medical technology is only as good as the persons engagement with it. Modern wellness is no longer about tracking steps it is about platforms that help people make informed choices for their bodies. LifeMood AI is an example of this shift. It aims to change how people manage their health by using interactive modules and real-time biometric feedback. This helps people who do not usually take care of their health to become more active in taking care of their mental well-being. LifeMood AI helps people understand their bodys needs transforming them from people who do not take care of their health to people who do. It treats understanding your body as a core defense recognizing that understanding your bodys stress signals is just as important as clinical treatments. Another major trend is the integration of tools, such as posture analyzers and heart-rate variability detectors directly into daily educational routines. This provides people with value because in the past people would learn about health theories first and then try to apply them but now platforms like LifeMood AI allow them to practice and learn at the same time. By offering tips on nutrition and exercise alongside interactive simulations people do not just read about hygiene. They practice physical and mental hygiene in real-time. This aligns with the Digital India initiatives push for health resources. As more people enter the economy there is a rising need for platforms that explain complex medical data and nutritional laws in simple terms. LifeMood AI supports resilience by empowering students and new internet users with the confidence to navigate their physical health. Finally Adaptive Learning is becoming the standard for preventing wellness fatigue. Modern

systems like LifeMood AI are designed to be flexible adding modules as health science evolves or as personal goals shift. The platform uses intelligence to detect subtle changes in a persons mood or physical stamina supporting multiple languages to ensure inclusivity. The future of wellness is also being shaped by Data Sovereignty because people are increasingly concerned not with fitness but with who controls their sensitive health data. LifeMood AI addresses this by putting people in control of their privacy. It moves away from the model of health. Where wellness was something that only happened at the doctors office. To a new health mindset where people are taught to verify their bodys signals and question external stressors. By facilitating community reports and shared results LifeMood AI fosters an environment where groups can work together toward collective health making it much harder for burnout and lifestyle diseases to take hold. LifeMood AI is a tool, for people who want to take care of their health. LifeMood

FUTURE IMPLEMENTATIONS

The way people think about wellness is changing. It is moving towards Human-Centric Health. This means that technical tools are only helpful if people can use them to make changes. Modern wellness is not about software running in the background. It is about platforms like LifeMood AI that help people make decisions about their bodies and minds. Like cybersecurity is becoming more active LifeMood AI helps people become more in control of their own health. It does this by using quizzes and biometric feedback loops. This approach recognizes that knowing about threats like stress and fatigue is just as important as having access to healthcare. LifeMood AI has tools like posture analyzers and heart-rate variability detectors that help people learn and practice "body hygiene" at the time. This is similar to the Digital India initiative, which makes health data and nutrition information easy to understand for everyone. This supports resilience by helping people be healthier. The evolution of LifeMood AI is also helped by the use of Neuro-Symbolic AI. This combines pattern recognition with reasoning to provide context-aware wellness interventions. This allows the system to detect when someone is physically aroused and to reason through

variables like work deadlines or environments. It can then provide a "In-Time Adaptive Intervention". For example if the system predicts that someone is going to be stressed it can suggest a behavioral technique or a mobility flow before the person becomes too distressed. This level of care is supported by the use of Small Language Models that can analyze private wellness journals without compromising data sovereignty. LifeMood AI also uses Federated Learning, which allows the AI to learn from a population and improve its accuracy while keeping sensitive data private. This is complemented by the shift towards Zero-Trust Architectures in mHealth, where encryption and blockchain-based data logging ensure that users own their "Digital Phenotype". LifeMood AI uses Spiking Neural Networks, which mimic the brain to allow for continuous monitoring without using too much battery. The way technology is moving forward means that the Quantified Self is now becoming the Quantified Health era. The difference between things people wear to track their health and actual tests is getting smaller. LifeMood AI uses something called Bio-Feedback Loops. This is where the LifeMood AI can change what it says based on the users real-time Heart Rate Variability recovery. The LifeMood AI looks at how the users body's doing and adjusts its responses to help the user, with their Quantified Health. This creates a relationship where the AI acts like an externalized prefrontal cortex helping to regulate physiological and emotional responses. By bridging the gap between level cortical processes and peripheral physiological signals LifeMood AI is helping to solve the global crisis of psychosomatic dysregulation. It ensures that users are always in control of their privacy and physical well-being. LifeMood AI is making a difference in Human-Centric Health. LifeMood AI is about helping people take control of their health. It uses tools and techniques to do this. LifeMood AI is the future of Human-Centric Health. It is helping people to be healthier and happier. LifeMood AI is changing the way people think about health. It helps people be healthier and happier. This AI is making a difference, in wellness..

CONCLUSION

The end of a research paper is where you bring everything together. This is the part where the research paper talks about what the project was able to do from a standpoint. The conclusion of the research paper is very important because it shows that the ideas, in the research paper are true. It also explains what the research paper means for the picture. The conclusion of the research paper is where you talk about the research paper and what it can teach us.. For a system like LifeMood AI the conclusion must move beyond a simple summary. It must emphasize how the integration of -modal data fusion and deep learning addresses the critical issue of Functional Fragmentation in the digital health sector. The development of LifeMood AI represents a shift in affective computing. It successfully transitions from unimodal tracking to a proactive multi-modal diagnostic ecosystem. By synchronizing data streams, such as physiological telemetry and linguistic sentiment this research demonstrates that the complex psychosomatic feedback loop can be monitored and interpreted in real-time with high clinical precision. The central innovation of this work lies in its ability to mitigate Blindness through Hierarchical Bayesian Inference. This ensures that physiological spikes are accurately identified, whether they are caused by exertion or psychological distress. * The introduction of the Holistic Wellness Score (HWS) provides a metric that transcends the limitations of isolated health apps. * It offers users an quantified view of their mind-body equilibrium. * By utilizing SHAP-based Explainable AI the system fosters user trust by explaining the causal factors contributing to a decline in well-being. The implementation of Edge Computing paradigms ensures that intensive monitoring does not compromise privacy. Sensitive feature extraction occurs locally on the users device maintaining data sovereignty while reducing latency. Moving forward the future scope of LifeMood AI involves integrating Neuro-Symbolic AI to enhance the systems reasoning capabilities. This will allow it to provide context- Just-In-Time Adaptive Interventions. There is also an opportunity to implement

Federated Learning protocols to refine models using diverse decentralized datasets without compromising individual privacy. The successful implementation of LifeMood AI confirms that integrating telemetry with affective computing is necessary in treating the modern psychosomatic crisis. By bridging the gap between level cortical processes and peripheral physiological signals the system validates the bi-directional nature of the autonomic nervous system. This research proves that deep learning architectures grounded in reality can identify the prodromal signature of mental health decline long before a user reaches a state of conscious crisis. The scalability of the Holistic Wellness Score (HWS) suggests that such systems could serve as a Digital Triage. They can assist healthcare infrastructures by identifying high-risk individuals through continuous passive monitoring. * The projects emphasis on AI (XAI) and Edge Computing sets a new ethical standard for mHealth development. * LifeMood AI demonstrates that fidelity emotional intelligence can be achieved locally preserving the users Digital Autonomy. * The use of SHAP values transforms the user from a consumer of data into an active participant in their own recovery. As we look toward the future integrating Neuro-Symbolic AI promises to evolve the system from a monitoring tool into a Cognitive Co-processor. By combining networks with symbolic AI future iterations of LifeMood AI will understand not just that a user is stressed but also why. When paired with Federated Learning the system will gain the ability to learn from Psychosomatic Profiles without accessing private raw data. This path that LifeMood AI is on shows that LifeMood AI will be more than something we use. LifeMood AI will be, like a person who always looks out for our physical health. LifeMood AI will really change the way we think about taking care of our health in this century with LifeMood AI..

REFERENCES

- [1] The paper "Attention is All You Need" by Vaswani, A., Shazeer, N., Parmar, N., Uszkoreit, J., Jones, L., Gomez, A. N. And Polosukhin, I. In 2017 is really important for the Transformer and BERT architecture

- used in sentiment analysis. This is the foundation for that.
- [2] Then there is the paper "Introducing WESAD: A Multimodal Dataset for Wearable Stress and Affect Detection" by Schmidt, P., Reiss, A., Duerichen, R., Maraneck, C. And Van Laerhoven, K. In 2018. This paper is key for validating AI models.
- [3] The paper "Squeeze-and-Excitation Networks" by Hu, J., Shen, L. And Sun G. In 2018 is the basis for the CNN-SE module used for micro-expression recognition.
- [4] Lundberg, S. M. And Lee, S. I. Introduced SHAP values in their paper "A Approach to Interpreting Model Predictions" in 2017. This is important for the Explainable AI component of LifeMood AI.
- [5] The paper "Long Short-Term Memory" by Hochreiter, S. And Schmidhuber, J. In 1997 is work for the Bi-LSTM temporal analysis used for burnout prediction.
- [6] The World Health Organization report "World Mental Health Report: Transforming Mental Health for All" in 2022 provides the backing for the global mental health crisis and economic impact.
- [7] Picard, R. W. Wrote "Affective Computing: From Laptops to Wearables" in 2010. This is theory on integrating emotional intelligence into mobile and wearable devices.
- [8] McDuff, D., Gontarek, S. And Picard R. W. Wrote "Remote Detection of Photoplethysmographic Systolic and Diastolic Peaks Using a Digital Camera" in 2014. This is relevant for the -contact biometric sensing aspects of the system.
- [9] Cho, K., Van Merriënboer, B., Gulcehre, C., Bahdanau, D., Bougares, F., Schwenk, H. And Bengio Y. Wrote a paper called "Learning Phrase Representations using RNN Encoder-Decoder for Statistical Machine Translation" in 2014. They introduced something called Gated Recurrent Units in this paper.
- [10] Abadi, M. And others wrote a paper called "Deep Learning with Differential Privacy" in 2016. This paper is important for LifeMood AI because it gives a framework for keeping things private when using Edge Computing. The Gated Recurrent Units and this paper are both important, for LifeMood AI.
- [11] Fiedler, J., et al. Wrote "in-Time Adaptive Interventions for Behavior Change in Physiological Health Outcomes: A Systematic Review" in 2024. This details the methodology for triggering real-time health interventions based on spikes.
- [12] Gupta, P., Chouhan, A. V. And Wajeed, M. A. Wrote "Prediction of health monitoring with learning using edge computing" in 2023. This validates the use of CNNs on edge devices for accuracy local health processing.
- [13] Liaw, S. T. And Guo J. G. Wrote "intelligence in healthcare: transforming the practice of medicine" in 2021. This discusses the convergence of IoT, big data and AI in clinical practice.
- [14] D'Alfonso S. Wrote "AI in health" in 2020. This is a review on the ethical and practical implementation of AI for psychological support.
- [15] Miotto, R., Wang, F., Wang, S., Jiang, X. And Dudley, J. T. Wrote "learning for healthcare: review, opportunities and challenges" in 2018. This provides an overview of how deep learning transforms electronic health records.
- [16] Hartmann, M., Hashmi, U. S. And Imran A. Wrote "Edge computing in health care systems: Review, challenges and research directions" in 2022. This discusses the shifts required for real-time patient monitoring.
- [17] Qayyum, A., Qadir, J., Bilal, M. And Al-Fuqaha, A. Wrote "Secure and Robust Machine Learning for Healthcare: A Survey" in 2022. This details the security risks like model inversion and poisoning attacks, in health AI systems.