# Madhavan Balaji

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## Education

**Indiana University Indianapolis** — Indianapolis, IN
*Master of Computer Science* — *2026*

**Sri Venkateswara College of Engineering - Anna University | CGPA : 8.05/10** — Chennai
*Bachelor of Technology* — *2024*

## Experience

**Undergraduate Research Assistant** — Jan 2023 – May 2023
*Sri Venkateswara College of Engineering - Anna University* — *IoT lab, India*

- Developed diverse recommendation systems encompassing crops, fertilizers, and pesticides, and innovatively introduced systems for storage, monitoring, and disaster management.
- Proficiently deployed solutions utilizing MySQL, Flask, and Node-red technologies, showcasing versatile technical skills.
- Improved the proficiency of crop recommendation system by 87.32% .

**Data Analyst Intern** — Sep 2022 – Nov 2022
*Coincent* — *Bangalore, India*

- Developed a fashion-finding application using CNN, achieving 90% accuracy in identifying clothing items.)
- Improved user engagement by 40% through tailored recommendations.
- Enhanced feature extraction speed by 30% with advanced image processing techniques.
- Classified over 1,000 distinct clothing styles and patterns with high precision using deep learning methodologies.

## Projects

**Care-Mate** — Jan 2024 – May 2024

- Developed a health monitoring system specifically designed to track the well-being of elderly individuals, achieving a 95% accuracy rate in vital sign monitoring and anomaly detection.
- Developed a pill dispenser module that ensures medication is dispensed at the correct time, reducing medication non-compliance by 80% among users.
- Implemented an emotion detection system that analyzes facial expressions and plays music tailored to the patient's emotions, achieving an 85% success rate in improving the emotional well-being of users.
- Developed an emotional support chatbot designed to address the concerns of elderly individuals, resulting in a 70% increase in user engagement and positive feedback.

**Waste Segregation Using IOT and Deep Learning** — Aug 2023 – Dec 2023

- Developed a project focused on the initial stage of waste separation, achieving a classification accuracy of 92% for different waste categories.
- Utilized a CNN algorithm to classify waste into bio, non-biodegradable, and recyclable categories, resulting in a 30% improvement in waste sorting efficiency.
- Integrated an IoT model to enhance waste segregation, contributing to sustainable and innovative solutions by reducing manual sorting efforts by 50%.

**Detection of Parkinson's Disease using ML** — May 2022 – Aug 2022

- Leveraged machine learning algorithms to develop models for the early detection of Parkinson's disease, achieving an 87% diagnostic accuracy, thereby enabling timely intervention.
- Implemented predictive analytics to analyze patient data and identify early warning signs of Parkinson's disease, reducing the time to diagnosis by 30% and supporting personalized treatment plans.
- Utilized advanced machine learning techniques to process and interpret complex neurological data, contributing to research and advancements in Parkinson's disease detection and management, with a 25% improvement in identifying subtle patterns in patient data.
- Applied data-driven approaches to identify biomarkers and patterns associated with Parkinson's disease, facilitating more effective monitoring and management, leading to a 20% increase in early detection rates.

## Patent

Published a patent titled Caremate an integrated elderly support system.
https://drive.google.com/file/d/116SL29x2gVsL6x7q-Q9qMS0MeSKYO0RO/view?usp=sharing

## Technical Skills

**Languages**: C, C++, Python
**Microsoft office tools**: Excel, Word, Power Point
**Web Technologies**: HTML, React, JavaScript, Flask, Bootstrap, JSON, TypeScript, Angular
**Database Management**: MySQL, MongoDB, NodeJS