MADHUSOODHAN TIRUNANGUR GIRINARAYANAN

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SUMMARY

Master's student in Computer Science at Illinois Institute of Technology with a Bachelor's in Information Technology from Rajalakshmi Engineering College. Strong background in AI, machine learning, and robotics, with hands-on experience in software development, computer vision, and IoT. Creator of a patented Smart Gloves system for paralyzed individuals and award-winning autonomous robots. Skilled in Python, C++, and Machine Learning, with multiple accolades, including top honors at TechnoVision competitions. Committed to AI and robotics innovation with real-world impact

EDUCATION

College Of Computing, Illinois Institute Of Technology, Chicago, IL
Master of Science, Computer Science — May 2026

Rajalakshmi Engineering College, Thandalam, Tamil Nadu, India
Bachelor of Technology, Information Technology — May 2024

SKILLS

PROGRAMMING LANGUAGES: Mastered C, C++, C#, and Python to engineer efficient, high-performance software solutions, driving optimization and innovation across various projects
GAME DEVELOPMENT: Engineered immersive experiences leveraging Unreal Engine 4 & 5, Unity3D, and Blender, while managing version control with Git
Microsoft Office: Utilized Word, Excel, and PowerPoint to streamline document creation, data analysis, and presentations
LANGUAGES: Applied fluency in English, Tamil, Hindi, and Sanskrit to drive effective communication, foster collaboration, and bridge cultural gaps across diverse teams in both professional and academic environments
SOFTWARE: Executed XAMPP for local server management, utilized MySQL for robust database solutions, and harnessed Tableau to create data-driven visualizations that informed key business decisions
HARDWARE: Leveraged Raspberry Pi, Arduino Uno and Nano, and ESP8266 to design and perform innovative embedded systems, driving automation and IoT solutions
Machine Learning: Utilized TensorFlow, PyTorch, Keras, and NumPy to design, optimize, and deploy advanced deep learning models, significantly boosting performance and accelerating machine learning workflows

WORK EXPERIENCE

UCAL
Vendor, Chennai, India — December 2024 - February 2025

- Developed and deployed a Tire Pressure Monitoring System (TPMS) with optimized pressure detection timeouts, improving battery life by 20% while ensuring real-time monitoring and mobile app integration for enhanced vehicle safety
- Developed an Android application successfully monitored and displayed real-time tire pressure data with 95% accuracy, using sensor integration for precise detection
- Implemented notification and alert features, reducing the risk of tire-related issues by 40% through proactive warnings for abnormal pressure levels
- Designed an intuitive user interface, achieving a 25% faster user interaction time and enhancing user satisfaction based on feedback surveys

UCAL R&D
Research Intern, Chennai, India — July 2022 - August 2022

- Boosted ignition efficiency by 25% with the CDI (Capacitor Discharge Ignition) system, improving engine performance, enabling smoother acceleration, and reducing fuel consumption
- Programmed a CDI (Capacitor Discharge Ignition) system to optimize ignition timing and developed a tire pressure monitoring system, reducing detection time by 30%. Synced the system with a mobile application for real-time alerts, boosting vehicle safety and performance
- Enhanced graph of Capacitor Discharge Ignition for bikes by 30% helped it to revamp the beats per ignition

PROJECTS

Robotic Arm Chennai, India

Leveraged By a Team of 3 December 2023

- Collaborated as part of a 3-member team to design and build a robotic arm tailored for precision tasks in cinematography and industrial operations
- Connected robotic arm with smart glasses for seamless user control, achieving a response time of less than 100 ms
- Engineered a seamless integration of Arduino UNO with a servo motor and camera to improve automation and precision control

Auto Aim Ammunition Bot (Winner Of Inno-Vision 23) Chennai, India

Leveraged By a Team of 4 November 2023

- Designed and implemented a bot capable of detecting enemy faces and accurately shooting targets with over 90% precision, using advanced computer vision techniques
- Demonstrated a hit rate of 92% during testing, with a detection time of under 2 seconds per target

Project R (Winner Of Inno-Vision 22) Chennai, India

Leveraged With a Team of 4 November 2022

- Built a rover capable of identifying obstacles and retracing its path with 85% path-recovery accuracy in real-world environments
- Incorporated a solar panel self-aligns using a light-dependent resistor (LDR) system, overhauling solar charging efficiency by 30%

Smart Gloves For Paralyzed People (Patent Published) Chennai, India

Leveraged With a Team of 3 August 2021

- Designed smart gloves with myoelectric sensors aimed at assisting paralyzed individuals in performing basic tasks. The conceptual design prioritized gesture recognition with a projected response accuracy of 95%
- Focused on integrating myoelectric sensors with Arduino UNO and Raspberry Pi to ensure seamless communication and functional compatibility
- Integrated with Arduino UNO, Raspberry Pi, Myoelectric sensor, Blender (for visualization)

LEADERSHIP

Secretary Of The Elite Club Of Information Technology

Secretary, Chennai, India October 2022 - May 2024

- Secured sponsorships from 5+ industry leaders, increasing event funding by 30%
- Led 5+ team-building workshops, revamping collaboration and problem-solving among 50+ club members
- Organized 5 project expos, inter & intra-college competitions, engaging 200+ participants across disciplines

WORKSHOP ATTENDED

Training in ML OPS

Sri Venkateswara College of Technology, Tamil Nadu

- Learning about operating tools for machine learning
- Gained knowledge of various tools on ML OPS and Teachable Machine. Smart ways of leveraging tools in machine learning