

THE FUTURE IS NOW: AI POWERS NEXT-GENERATION ROBOTS

Dr.V .Geetha, Dr.C.K.Gomathy ,Mr.SikharamSaiPushkar, V. LokeshVenkataRamana,

Department of CSE,

SCSVMV Deemed to be University, India

Abstract- *This article explores the transformative effect of synthetic intelligence (AI) on robotics, highlighting key regions where AI is revolutionizing the field. It discusses the evolution of robots, from simple automation to superior AI, and the position of AI in gaining knowledge of, sensing, reasoning, and communication for robots. The article also offers actual-global examples of AI robotics programs, along with self-riding automobiles, warehouse automation, and area exploration. It addresses the social implications of intelligent, self-sufficient robots, along with issues about process displacement, human relationships, and privacy. The article concludes by means of supplying interesting innovations on the horizon for AI robotics, such as smarter and more adaptable robots, more advantageous human-robot collaboration, miniaturization, self-reliant automobiles, and robotics for private use.*

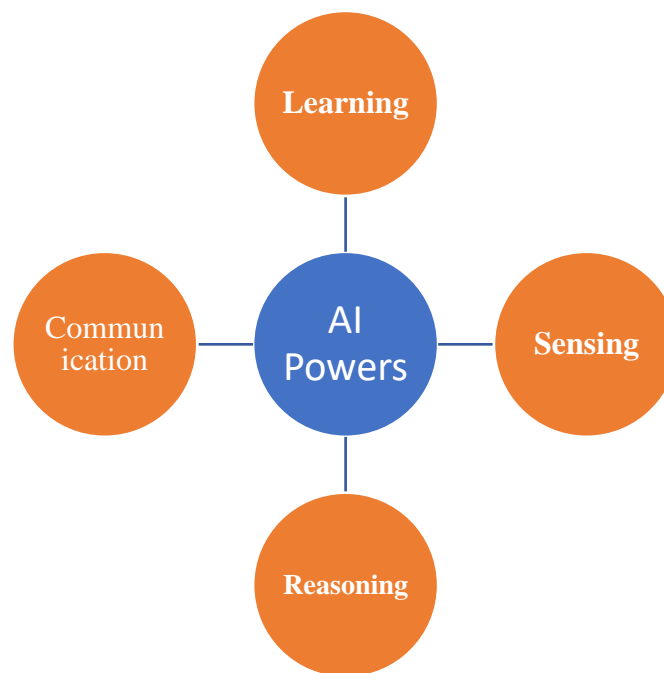
Keywords: *miniaturization, transformative, self-reliant automobiles.*

I. The evolution of robots: from basic automation to advanced AI Modern

Look around you. That smart speaker in the corner, the self-driving car outside, that new robotic vacuum - artificial intelligence is here and changing the world as we know it. AI is driving rapid advances in robotics, and AI-powered robots are beginning to permeate our lives. The robots of the future won't just clean our floors or bring us drinks, they'll be our friends, our colleagues, our patrons.

In the next decade, you will begin to see humanoid robots walking the streets, self-driving cars on the roads, and AI systems managing our healthcare, education, and public services Robot a you know the wisdom years are coming out, and that's exciting and more than a little scary. But whether we're ready or not, the future is now - AI and robotics are changing our world at an alarming rate. The only question is, are you ready to embrace your new robot dominance? The ages of man and machine have come here, there is no backwardness.

The robots are not like the tiny machines of the past. Thanks to advances in artificial intelligence, today's robots are smarter, faster and more capable than ever before.



AI powers next-generation robotics in several key ways:

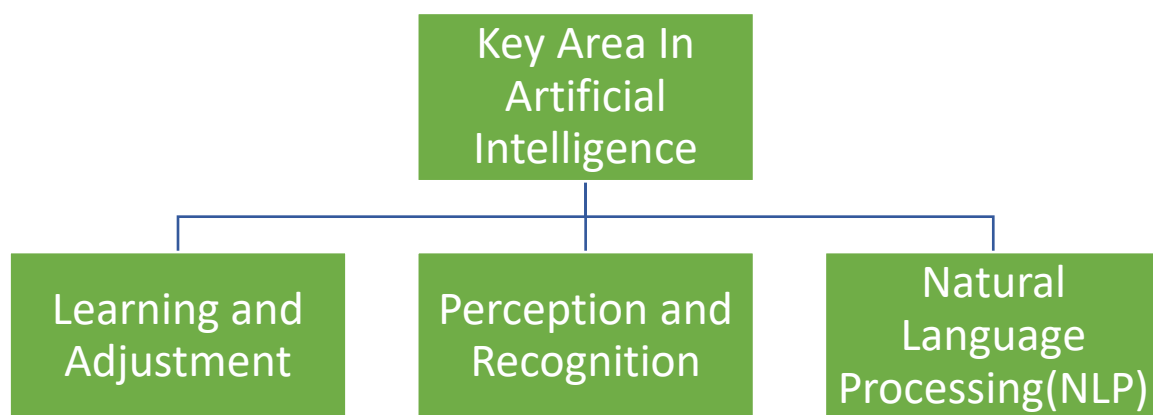
- **Learning:** Robots can now learn in a way similar to humans. Through machine learning algorithms and neural networks, robots can analyse large amounts of data to find patterns, predict and optimize their performance. This allows robots to adapt to new situations and tasks without explicit planning.
- **Sensing:** With computer vision, robots can now see and understand the world around them. They can detect, recognize and track objects, read signs, and navigate independently. Advanced sensors also give robots senses of touch, hearing, and more.
- **Reasoning:** AI enables robots to think for themselves and solve complex problems. They can analyse situations, evaluate options, and make decisions to achieve their goals. Robots powered by means of AI are able to display a degree of intelligence and autonomy unlike whatever visible before.
- **Communication:** Perhaps the most exciting aspect is the ability of robots to communicate and assist humans in a more natural and conversational way. Natural language processing permits robots to understand speech, solution questions, and communicate backward and forward.

In the future, you may see colleagues working with people as helpful robot companions. The age of intelligent robots is here. As AI continues to become more sophisticated and advanced, so too will the robots that harness its power. The future is now, and it's an exciting time to see how robotics and AI will positively impact and shape the world.

II. Key Areas of Robotics in AI

AI is enabling robots to perform a little notable thing these days. There are some key areas wherein artificial intelligence is converting robotics:

Navigation and Movement AI enables robots navigate autonomously and pass with agility. Using sensors and computer vision, robots can come across boundaries, map environments, and plan routes to a destination. Algorithms additionally assist robots walk, seize objects, and manage their limbs with precision.



- **Learning and Adjustment:**

Machine learning lets in robots to examine from experience and adapt to new conditions. Patterns can be recognized, anticipated and their performance stepped forward over time gaining knowledge of and adjustment This lets in robots to excel in responsibilities together with capturing unfamiliar items, taking in new environments, and even interacting with human beings.

- **Perception and Recognition**

AI allows robots to perceive the sector round them. Using recognition cameras, robots can recognize human beings, objects, sounds and events. They can then recognize precise objects, faces, voices, and gestures. This allows robots to engage with the bodily environment in a significant manner.

- **Natural Language Processing**

Some robots can now understand speech and textual content, then generate suitable responses the use of AI. They can interpret human language, decide purpose, and behaviourfundamental conversations. Virtual assistants like Alexa and chatbots are examples of the manner AI permits robots to interact with people in a natural, conversational way.

The destiny has arrived, and AI-powered robots are already transforming our homes, offices and daily lives in dramatic ways. While science fiction robots are nonetheless a long way off, there may be persisted progress in artificial intelligence suggests that greater superior and successful robots should come to be commonplace.

III. AI Robotics Real-World Examples and Applications

AI and robotics are merging in exciting ways. Robots powered via synthetic intelligence are taking over more complicated actual-global obligations and displaying big potential to improve our lives. Let's take a look at a few examples of AI robotics in movement.

- **Self-Driving Cars**

Autonomous automobiles that may navigate roadways and transport passengers to their locations are in development and trying out levels. AI powers the sensors, pc vision, and navigation algorithms as a way to permit self-riding automobiles to understand the surroundings around them, comply with site visitor's laws, and get us in which we need to move. Companies like Waymo, Cruise, Tesla and others are leading the way.

- **Warehouse Automation**

Many major retailers and logistics companies have implemented AI-powered robotics to help automate warehousing and order fulfilment. Robotic arms and mobile robots can lift, move and organize inventory with a high degree of accuracy and efficiency. Companies like Amazon, Walmart, FedEx, etc. use AI-based robotics to streamline supply chain operations.

- **Space Exploration**

AI and robotics are crucial for space missions where conditions are unsafe or impractical for humans. Interplanetary rovers like NASA's Curiosity and Perseverance explore the surface of Mars. AI helps the rovers navigate autonomously, avoid hazards and choose optimal paths. AI may even help select samples for the rovers to collect and analyse. Robotics paired with AI are unlocking our access to space in ways never before possible.

AI and robotics have significant potential to transform and improve our world in the coming decades. From transportation to healthcare, education to agriculture, AI-powered robots are poised to take on more complex real-world tasks and enrich human lives. The future is now, and AI robotics are leading the way.

IV. The Social Implications of Intelligent, Autonomous Robots

The upward thrust of advanced AI and robotics brings with it many questions on how this technology may impact society. As intelligent robots turn out to be greater independent and included into our daily lives, it's vital to consider how they might have an effect on human nicely-being and relationships.

One place of concern is how self-sufficient robots may additionally affect human jobs. Many routines, repetitive jobs are at high risk of automation. While this could free up humans to pursue more creative work, it may also significantly disrupt labour markets. Policymakers and companies will need to find ways to retrain and support workers in transition.

There are also worries about how social robots and virtual assistants might influence human relationships and emotional well-being. These technologies are designed to simulate social interaction and empathy, but they lack the depth of human relationships. Relying on them for companionship could increase loneliness and reduce real social interaction. Researchers recommend using them in moderation and maintaining real-world social connections.

Privacy and data security are additional issues. Intelligent robots and virtual assistants accumulate personal details which could be vulnerable to hacking or misuse. Strict policies on data collection, storage, and use will be needed to protect people's private information. While advanced AI and robotics offer many promising applications, we must be proactive and thoughtful about how they're integrated into society. With open discussion and policies centred on human values like privacy, security and well-being, these technologies can be developed and applied responsibly.

Overall, the future with smart robots looks bright, as long as we are willing to form it accurately.

V. Conclusion

So, there you have got it—the future is now. AI-powered robots are here and they may be only going to get smarter and extra capable through the years. Whether they're serving liquids at your nearby bar, assisting doctors carry out complicated surgeries, or exploring remote planets, artificial intelligence is driving robots to new heights. While the chance of advanced AI nevertheless makes a few humans uncomfortable, those robots are designed to assist, no longer harm, people. The destiny is vivid, so sit down back, relax, and welcome your new robotic overlords. Just kidding—however significantly, the age of clever robots is upon us. The most effective query now could be, what's going to they do subsequent? The possibilities are countless on this exciting new frontier of technology.

VI. References

1. Dr.V.Geetha,Dr.C K Gomathy, ARTIFICIAL INTELLIGENCE CHATBOT USING PYTHON , Journal Of Engineering, Computing & Architecture, Volume: 12 Issue: 03 March - 2022, Impact Factor:6.1, ISSN:1934-7197.
2. Dr.V.Geetha,Dr.C K Gomathy, REAL-TIME FACE MASK DETECTION MODEL USING PYTHON, Journal Of Engineering, Computing & Architecture, Volume: 12 Issue: 03 March- 2022,Impact Factor:6.1, ISSN:1934-7197.
3. Dr.V.Geetha,Dr.C K Gomathy, SMART CITY USING WEB DEVELOPMENT, Journal Of Engineering, Computing & Architecture, Volume: 12 Issue: 03 March - 2022 , Impact Factor:6.1, ISSN:1934-7197.
4. Dr.V.Geetha,Dr.C K Gomathy, SMART VEHICLE TRACKING SYSTEM USING JAVA, Journal Of Engineering, Computing & Architecture, Volume: 12 Issue: 03 March - 2022 , Impact Factor:6.1, ISSN:1934-7197.
5. Dr.V.Geetha,Dr.C K Gomathy, WEATHER FORECASTING APPLICATION USING PYTHON, Journal Of Engineering, Computing & Architecture, Volume: 12 Issue: 03 March – 2022, Impact Factor:6.1, ISSN:1934-7197.
6. Dr.V.Geetha,Dr.C K Gomathy, ANALYSIS OF MUSIC GENRE CLASSIFICATION, Journal Of Engineering, Computing & Architecture, Volume: 12 Issue: 03 March – 2022, Impact Factor:6.1, ISSN:1934-7197.
7. Dr.C K Gomathy, TELEHEALTH FOR INDIA: A HEALTHCARE REVOLUTION., International Journal of Scientific Research in Engineering and Management (IJSREM) Volume: 07 Issue: 12 | Dec 2023, ISSN: 2582-3930, Impact Factor:8.176.
8. Dr.V.Geetha,Dr.C K Gomathy, THE FUTURE OF AI: TRANSFORMING TOMORROW, International Journal of Scientific Research in Engineering and Management (IJSREM) Volume: 07 Issue: 11 | Nov 2023, ISSN: 2582-3930.
9. Dr.V.Geetha,Dr.C K Gomathy, Artificial Intelligence: Transforming Our World., International Journal of Scientific Research in Engineering and Management (IJSREM) Volume: 07 Issue: 11 | Nov 2023, ISSN: 2582-3930, Impact Factor:8.176.
10. Dr.V.Geetha,Dr.C K Gomathy, VEHICULAR AUTOMATION IN ARTIFICIAL INTELLIGENCE, International Journal of Scientific Research in Engineering and Management (IJSREM) Volume: 07 Issue: 11 | Nov 2023, ISSN: 2582-3930.
11. Dr.V.Geetha,Dr.C K Gomathy, NOVEL STUDY ON NATURAL LANGUAGE PROCESSING., International Journal of Scientific Research in Engineering and Management (IJSREM) Volume: 07 Issue: 11 | Nov 2023, ISSN: 2582-3930.
12. Dr.V.Geetha,Dr.C K Gomathy, SEARCH STRATEGIES IN ARTIFICIAL INTELLIGENCE., International Journal of Scientific Research in Engineering and Management (IJSREM) Volume: 07 Issue: 11 | Nov 2023, ISSN: 2582-3930.
13. Dr.V.Geetha,Dr.C K Gomathy, UNDERSTANDING BAYES' RULE: BAYESIAN NETWORKS IN ARTIFICIAL INTELLIGENCE., International Journal of Scientific Research in Engineering and Management (IJSREM) Volume: 07 Issue: 11 | Nov 2023, ISSN: 2582-3930, Impact Factor:8.176.
14. Dr.C K Gomathy, THE ROLE OF NATURAL LANGUAGE PROCESSING., International Journal of Scientific Research in Engineering and Management (IJSREM) Volume: 07 Issue: 11 | Nov 2023, ISSN: 2582-3930, Impact Factor:8.176.
15. Dr.V.Geetha,Dr.C K Gomathy,. PROBABILITY IN DECISION MAKING, International Journal of Scientific Research in Engineering and Management (IJSREM) Volume: 07 Issue: 11 | Nov 2023, ISSN: 2582-3930, Impact Factor:8.176.

16. Dr.C K Gomathy,. NAVIGATING THE AI LANDSCAPE: A SYSTEMATIC GUIDE TO SOLVING COMPLEX CHALLENGES, International Journal of Scientific Research in Engineering and Management (IJSREM) Volume: 07 Issue: 11 | Nov 2023, ISSN: 2582-3930, Impact Factor:8.176.
17. Dr.V.Geetha,Dr.C K Gomathy,. DESIGN AND IMPLEMENTATION OF A SECURE QR PAYMENT SYSTEM, International Journal of Scientific Research in Engineering and Management (IJSREM) Volume: 06 Issue: 12 | Dec 2022, ISSN: 2582-3930, Impact Factor:8.176.
18. Dr.V.Geetha,Dr.C K Gomathy,. CLOUD NETWORK MANAGEMENT SYSTEM, International Journal of Early Childhood Special Education (INT-JECSE), DOI:10.9756/INTJECSE/V14I5.69 ISSN: 1308-5581 Vol 14, Issue 05 2022
19. Dr.C K Gomathy, Article: A Study on the Effect of Digital Literacy and information Management, IAETSD Journal For Advanced Research In Applied Sciences, Volume 7 Issue 3, P.No-51-57, ISSN NO: 2279-543X,Mar/2018
20. Dr.C K Gomathy, Article: An Effective Innovation Technology In Enhancing Teaching And Learning Of Knowledge Using Ict Methods, International Journal Of Contemporary Research In Computer Science And Technology (Ijcrct) E-Issn: 2395-5325 Volume3, Issue 4,P.No-10-13, April '2017
21. Dr.C K Gomathy, Article: Supply chain-Impact of importance and Technology in Software Release Management, International Journal of Scientific Research in Computer Science Engineering and Information Technology (IJSRCSEIT) Volume 3 | Issue 6 | ISSN : 2456-3307, P.No:1-4, July-2018.
22. C.K.Gomathy.(2010),"Cloud Computing: Business Management for Effective Service Oriented Architecture" International Journal of Power Control Signal and Computation (IJPCSC), Volume 1, Issue IV, Oct - Dec 2010, P.No:22-27, ISSN: 0976-268X .
23. 15. Dr.C K Gomathy, Article: A Study on the recent Advancements in Online Surveying , International Journal of Emerging technologies and Innovative Research (JETIR) Volume 5 | Issue 11 | ISSN : 2349-5162, P.No:327-331, Nov-2018
24. Dr.V.Geetha,Dr.C K Gomathy,. ATTENDANCE MONITORING SYSTEM USINGOPENCV, International Journal of Early Childhood Special Education (INT-JECSE), DOI:10.9756/INTJECSE/V14I5.68 ISSN: 1308-5581 Vol 14, Issue 05 2022.
25. Dr.C K Gomathy,Dr.V.Geetha, FAKE JOB FORECAST USING DATA MINING TECHNIQUES, International Journal of Early Childhood Special Education (INT-JECSE), DOI:10.9756/INTJECSE/V14I5.70 ISSN: 1308-5581 Vol 14, Issue 05 2022
26. Dr.C K Gomathy,Dr.V.Geetha. THE VEHICLE SERVICE MANAGEMENT SYSTEM, International Journal of Early Childhood Special Education (INT-JECSE), DOI:10.9756/INTJECSE/V14I5.66 ISSN: 1308-5581 Vol 14, Issue 05 2022
27. Dr.C K Gomathy,Dr.V.Geetha. MULTI-SOURCE MEDICAL DATA INTEGRATION AND MINING FOR HEALTHCARE SERVICES, International Journal of Early Childhood Special Education (INT-JECSE), DOI:10.9756/INTJECSE/V14I5.67 ISSN: 1308-5581 Vol 14, Issue 05 2022
28. Dr.C K Gomathy,Dr.V.Geetha. AN EFFICIENT WAY TO PREDICT THE DISEASE USING MACHINE LEARNING, International Journal of Early Childhood Special Education (INT-JECSE), DOI:10.9756/INTJECSE/V14I5.98 ISSN: 1308-5581 Vol 14, Issue 05 2022
29. Dr.V.Geetha,Dr.C.K.Gomathy, CYBER ATTACK DETECTION SYSTEM, International Journal of Early Childhood Special Education (INT-JECSE), DOI:10.9756/INTJECSE/V14I5.71 ISSN: 1308-5581 Vol 14, Issue 05 2022
30. Dr.C K Gomathy,Dr.V.Geetha. MUSIC CLASSIFICATION MANAGEMENT SYSTEM, International Journal of Early Childhood Special Education (INT-JECSE), DOI:10.9756/INTJECSE/V14I5.72 ISSN: 1308-5581 Vol 14, Issue 05 2022