

Project Topic: Innovating Artificial Intelligence (AI) Applications for Elderly Healthcare



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Global Program on "Innovation & Entrepreneurship"
Innovating Education & Building New Skills for Digital Economy
(IEDE THU 2024)

Certificate Program on
Tsinghua University Global Program on
Innovation & Entrepreneurship for the
Digital Economy (IEDE THU 2024)

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The Team Healthcare AI



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Outline

1. Introduction
2. The Objective
3. Opportunities for AI-Powered Elderly Healthcare in Emerging Countries
4. The Impact of AI and Robotics on Elderly Care: A Comparative Analysis Between Developed (USA, Japan, Italy) and Developing Countries
5. Intelligent Robotics for elderly care by Dufera Amanuel (Aman)
6. Method Design Cyber healthcare system and Intelligent Robotics for Elderly by Dessy Novita
7. Conclusion



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Teams Members and Contributions

Names	ID nubmber	Introductions & Back ground Problem statement	Degree	Significance of research , hypotheses ,and objectives	Methods	Robotics in elderly care and Geriatric Rehabilitation and AI	Opportunities for AI-Powered Elderly Healthcare in Emerging Countries and Impact of research work	Class attendance (out of 10 classes)
1.LOVTEE WAH	2024015	contributed	MSc	Contributed			Contributed	10
2. Dessy Novita	2024174		MSc		Contributed		Contributed	9
3. Samuel Aboagye	2024183	Contributed	PHD				Contributed	9
4. Dufera Amanuel Tafese	2024004		MSc			Contributed	Contributed	
5.JACOB MOLON	2024017	Contributed	MSc				Contributed	10
6. Precious Nachula	2024016		MSc				Contributed	
7.Bereket Samuel DEA	2024225		MSc				Contributed	



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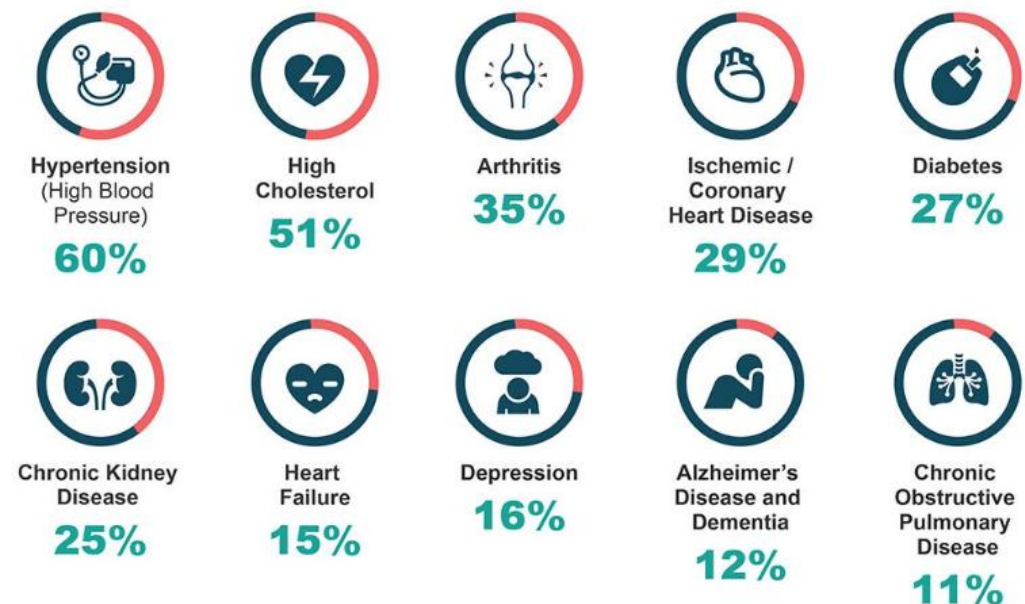
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1. Introduction

Epidemiology

Annually, one-third of community-dwelling adults over 65 fall, leading to significant morbidity and mortality. In 2012, 24,190 fatal and 3.2 million medically treated injuries were reported, resulting in substantial healthcare expenses.

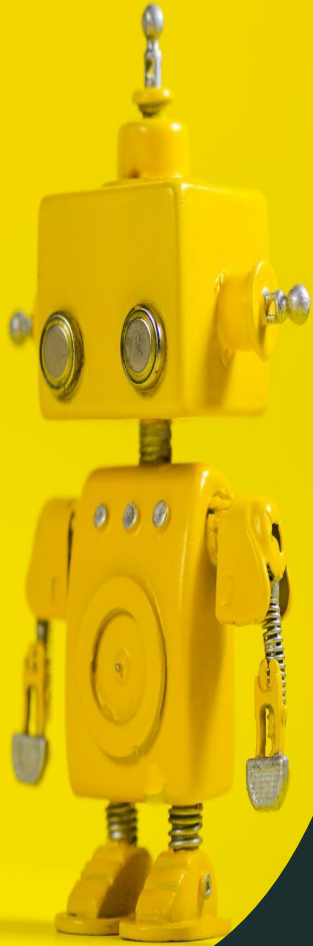
10 Common Chronic Conditions for Adults 65+





2. The objective

1. To establish and put together a cohesive framework for ongoing monitoring of the health of the elderly.
2. To evaluate the suggested system's acceptability and viability using a user-centered method that includes geriatricians.
3. To generate a machine learning model that uses the Modified Early Warning Score (MEWS) to forecast the health condition of senior citizens.
4. To assess how well the integrated system serves older people, caregivers, and doctors by offering helpful support.



Fall Detection and Prevention: Advanced sensors on autonomous robots enable them to identify falls and maybe stop them by notifying emergency services or caregivers. By taking a proactive stance, older persons who live alone are safer and less likely to sustain injuries.





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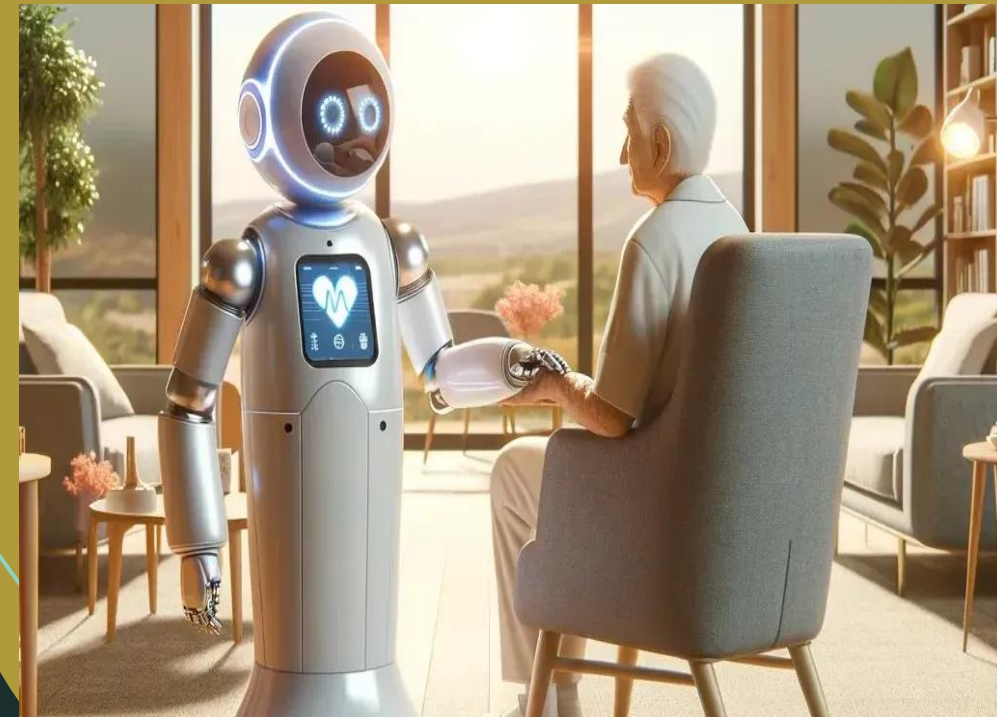
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3. Opportunities for AI-Powered Elderly Healthcare in Emerging Countries

Aging in Rich vs. Poor Countries

- Conditions in the richer **Japan**, **Italy**, and the **United States**, and in the less rich **Cuba**, **Egypt**, **Ethiopia**





Japan:

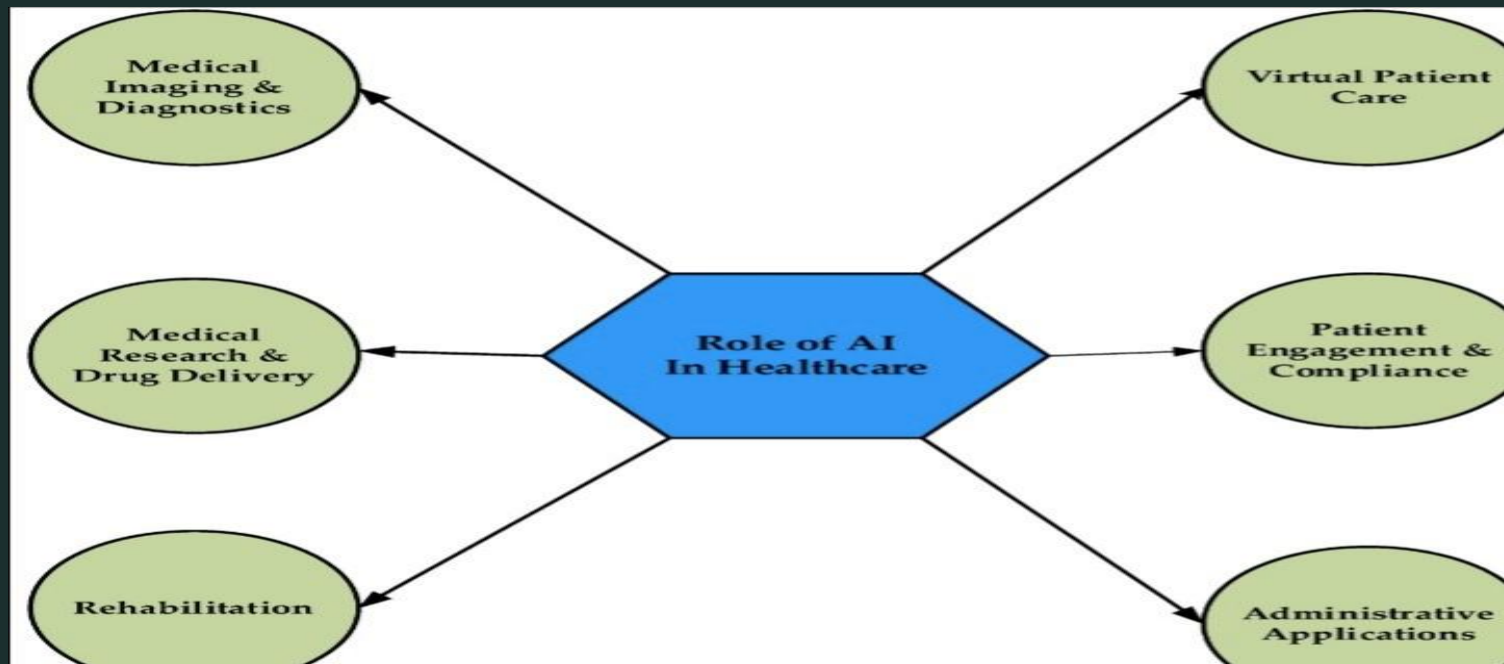
- World Leader in Robotic Care: High technological advancement and acceptance.
- Robots for Social Interaction and Mobility: Paro (therapeutic robot) and HAL (exoskeleton).
- Government Support: Substantial investment in elder care robotics.

Italy:

- Research and Development: Focus on robotic companions and assistive devices.
- EU Funding: Supports projects like ACCRA, which develops assistive care robots.
- Aging Population: High demand for robotic solutions in healthcare.

The United States:

- Innovation Hub: Cutting-edge research in AI and robotics.
- Market-driven Solutions: Companies like Intuition Robotics (ElliQ) focusing on elder care.
- Regulatory and Ethical Considerations: Ongoing discussion about privacy and autonomy.



4. The Impact of AI and Robotics on Elderly Care: A Comparative Analysis Between Developed (USA, Japan, Italy) and Developing Countries

Context: Global aging population challenges and the role of technology in addressing these challenges.

Key Areas:

- ❖ Health Monitoring and Personal Care (e.g., Japan's Paro robot).
- ❖ Assistive Robots for daily tasks and mobility (USA examples).
- ❖ Cognitive Assistance and Social Interaction (AI platforms in Italy)



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