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Analysis of Humanoid Robots Using Additive Ratio Assessment (ARAS) Method

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Abstract

A humanoid robot resembles A human body. These robots are human tools and Designed to interact with customer service Professional service robots. This human figure Robots for inspection and maintenance are used; Humanoid robots have a very unique style. The knees are bent and the body is as stable as possible. Even Boston Dynamics' own Atlas uses this type of squatting to get around. Alternative: Eyebrow Frown, Raise Eyebrows, Up Turn Lip Corners, Open Mouth, Tighten Mouth, Raise Chin. Evaluation Preference: Pleasantness, Discrepancy, Anticipated Effort, Attention Activity, Certainty, Personal Agency, Novelty. From the result it is seen that Personal Agency is got the first rank where as is the Anticipated Effort is having the lowest rank. The value of the dataset for A humanoid robot in ARAS method shows that it results in Personal Agency and top ranking.

1. Introduction

Androids are humanoid robots. Human workers in laborious and dangerous tasks Inspection of power plants to get rid of the human figure in maintenance and disaster response Robots are used. In space travel To carry out routine tasks for astronauts They are ready. While Amega has been the world's most realistic humanoid robot Described, another bout of engineering arts Human-like. 22 in a robot head called Atron there are custom actuators that are human-like Allows the eyes and mouth to move. A machine however sophisticated can never replace real human feelings and emotions. Building a relationship with a robot is strange. The choices we make, the actions we take and ourselves all the emotions we experience at any given time Affected by emotions. Since Siri is basically a robot, her voice is human the emotional, rhythmic and culturally acquired sound of the voice No properties. Robots need electricity, people moves its ZMP backward, which accelerates its Co M from the equation above. Meanwhile, it swings its free leg to take a new step. A humanoid robot is one that resembles a human body Robot. Design with human tools and contexts Communicating, for experimental purposes, is bipedal For the study of movement or for other purposes May be for operational purposes.

2. Humanoid robots

Using Derived from P2 and P3 prototypes Experience, ASIMO Research is our latest dichotomy for this purpose It also benefits the robot. Its name, ASIMO, is innovative Represents an advanced step of movement, and this is all Honda is a collective name for humanoid robots. [**2**]. Humanoid robots are surprisingly complex machines, In The same horrors that humans can overcome Terrain traveling, and challenging control problems and computationally intensive programming Humans with potential outcomes of complications are equally capable of performing the same tasks. This In the episode, humanoid robots navigate through complex and rugged terrain Walk planning to guide and Looking at locomotion. Human form Robots are on their way Have the ability to overcome obstacles and all Allows versatility and agility in directions. [**3**]. without human control or supervision In natural work environments Humanoid robots to act autonomously and safely Designing. We offer them as solutions for specific robotic needs Not designed. Different real world based on our goal Build robots that work in environments. A study of simulations of neural networks and neuroscience models are used, And we can with humanoid robots be used. [**4**]. Consumers' perceived pleasure is fully mediated is done, resulting in human service robots Consumer confidence in utility, (a) Consumer perception Confidence Positive effect on perceived happiness contains and (b) their perceived happiness A positive effect on consumer intentions is human service Using robots. Humanitarian service robots are on the rise, collaborating with public service companies to improve customer service [**5**]. Human figure service robots are a growing reality increasingly changing many human service providers Businesses Humane service reflects the origin of Robots (Hussars) Ask This Business Maginesh Engaging customers through technology How companies can stay competitive through About being able to. Service employees, they Where human or

robotic, Representing the company and the client-company It can affect the relationship. Thus, how the hussars Organizations to understand service robots are valued and responded to by customers. [6]. Humanitarian service robots have made rapid advances in assisting global health care in crisis. COVID-19 International Distribution. This case provides an overview of the inclusion of robots in health care in relation to pre- and intra-atomic environments. The human figure, size and movement are particularly focused on humanoid service robots Favorable in the use of physics spaces designed for humans [7]. Natural and human-like Designing robot behavior is easy for non-professional users Not. of extracted rules for an interface to design robot behavior Basically this instructive function, recommending algorithms, is for new users and experts Natural and human-like To design the robot behaviors It is believed to be possible. Numeric input to shape the behavior for this interface Not required, to improve simplicity of design Intuitive buttons on the right. Innovations that employ unskilled newcomers Contributed to the development of an instructional interface. Human Robot Behavior and Professional Robot Designers facilitate human behavior Designing. That our approach is correct The evaluation test results indicate that [**23**]. Convention proposed by researches Different from the sensors, the PIF sensor cover The entire body hovers around the surface of the robot We propose to override Robots A body that can detect various external force vectors Failure to perceive PIF on surfaces and surfaces. Through such sensitive haptic devices By touching and feeling the interface all over the body Robots are identified and understood in detail by PIF can take [**24**] During offline training, the interface system is four mana Shown a training note representing one of the levels. In the states. All three MI levels, to avoid confusion "Cal Image" means that it is better to choose a side One of the series of subjects to call. In the chair He sat comfortably and watched the scene. For the first 4 seconds, The beginning of the experiment is the text marked A and a solid The circle appeared on the screen. After the break, MI The test is one of three MI specifications, motor tasks Lessons were initiated to imagine Tried [**25**]. Several human-adaptive characteristics of a A human robot system is included. Shared Under control, the human-robot interface is human The skill level of the operator depends on the skill level modifies. In production, one under control Soft to understand material is shared level and clipper by adjusting alignment steps Adjusted, the amount and speed of alignment correction. It is conditional and error based. [**26**]. The design of robots is suitable for their purpose, E.g. It is to locate and reach victims in disaster zones or Keeping the elderly or disabled stable and safe Designed to get out of bed. So, such robots It is not always possible to have human-like faces. However, It is more useful for them because it is a basic social Shows signal and clear signs. In our study, inhumane we focus on emotional body language for robots. An emotionally expressive robot we propose a design framework for modeling motions [**11**]. Emotional expression in concerts is the musician's Includes important cues arising from body movement. Movement is musical achievement and emotion intent Related to expressions. In this experiment, a Different from the same character to the pianist Heard with the intention of expressing with feelings. operating instructions are fundamentally different Movement is very sensitive by trying to determine Its purpose is to verify that the Two Detects temporal profiles of motion cues Analysis by an automated system capable of Conducted: Overhead body movement and head Speed [**8**]. Traditionally, most of the research done on sensing robots Researchers focus on facial expressions and facial expressions. A few are full body Research only in systems. So far, few Interactive upper-body robots with humans in mind designed to be interesting. For example, Emotional Expression Humanoid Robot Professor WE-4RII and developed by his students. 59 in the University Degrees of Freedom (DOF) A robot has a face contains It is seeing, hearing, being tactile and olfactory abilities. In addition, it is proposed for better social interactions Expresses six basic facial expressions; however, there is no body under it. On the contrary, it is stable land [**9**]. Since then, many sophisticated full-body Bipedal anthropomorphism has been developed Robots have been created. DOF and emotions By Sadness and Fury, ASIMO and QRIO by Honda and Sony respectively were improved. These robots have their human voice, Kai The idea that robots can talk through gestures Broadcasted by colleagues. [**10**].

3. ARAS Method

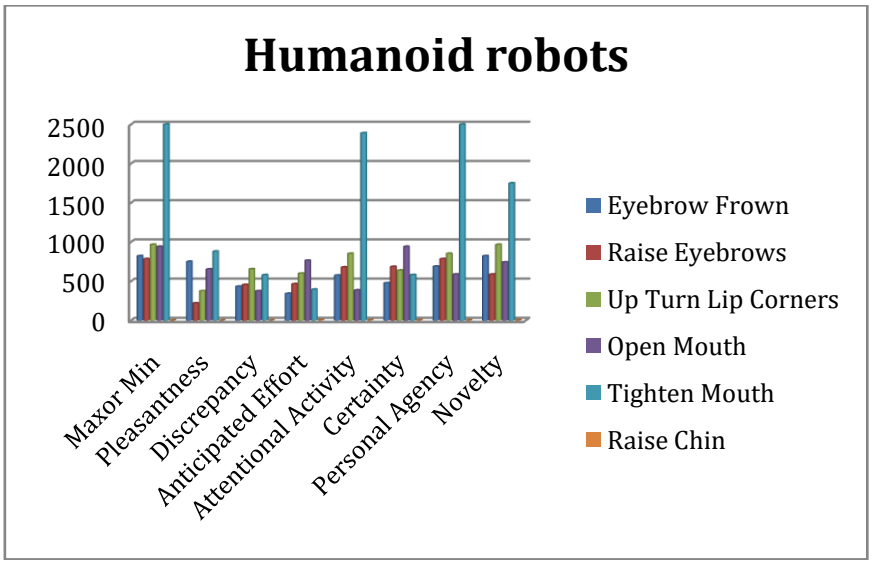
[4] the most controversial is the lower temperature limit, this is due to active discussion and significant dispersion Causes classified data. Below 1000 K In the absence of reliable shock tube ARAS measurements temperature, as this temperature range is critical a more detailed study is needed. Hydrogen ignition region [5] for Choice Hydraulic fracturing treatment. However, in the manufacturing sector a Hybrid Type-2 Fuzzy-ARAS Approach Above Significant published in literature review Manuscripts revealed. Therefore, the purpose of the present study is to question the problem a fuzzy coupled MCDM approach is to create. [6] This assessment method is for two-wheelers at junctions using ARAS Focusing on the collision warning system. Two wheelers licensed and new A study of 30 test subjects who were riders carried out. The reliability model Basically Monte-Carlo time-series Simulation was used to calc accident reduction effect. [7] The ARAS approach addresses phenomena in a complex world Simple Applications for decision makers Comparison to help understanding. Their method, a utility function value is a complex comparison of possible alternatives Determines capacity. [10] ARAS Method 64 Using simple relative comparisons of phenomena in the complex world It is based on the argument that it can be understood. University of England Downloaded by Libraries. For personal use only Normalized and weighted parameters describing the alternative considering the sum of values, describes the optimal alternative of the values of normalized and weighted measurements Achievable by substitution in comparison to the sum is optimal. [11] More using DSS in making useful decisions Research has been done, such as Siafrida's conclusion whose job in selling laptops is up for grabs

Decide whether to apply. This in the study, determining Bank Loan Borrowers The authors used the ARAS method. [12] The first objective is to develop and grow across the board Criterion decision-making development and Uncertainty in the saturation sector coping mechanisms related to supply the new Approximate Addition Rate Estimation (ARAS) approach. [13]. As a result, many such Using benchmarking methods allows consideration of the views of all stakeholder groups in the process. AHP, ARAS and MCGP for solving MCDM problems popular methods, they are strong and not only considering the intangible criteria, is an airline better at catering many choices also consider aspiration levels when choosing a supplier. use better methodology and precise criteria to analyze and solve exam problems want Throughout the research and development, several goals have been set forth. Through the development and presentation of a new Approximate Addition Rate Estimation (ARAS) approach of a methodology for handling Group-level multi-criteria decision-making in the field of uncertainty, development and saturation related to The second objective of this thesis is that transport Bridging the gaps in performance indicators in logistics subsystem.

TABLE 1. Humanoid robots in ARAS

	Eyebrow Frown	Raise Eyebrows	Up Turn Lip Corners	Open Mouth	Tighten Mouth	Raise Chin
Maxor Min	821	784	967	941	2500	0.342
Pleasantness	750	220	375	653	880	0.342
Discrepancy	432	455	654	375	580	0.971
Anticipated Effort	342	465	598	764	395	6.119
Attentional Activity	574	678	852	385	2390	4.283
Certainty	476	685	638	941	580	4.128
Personal Agency	689	784	853	587	2500	2.315
Novelty	821	587	967	742	1750	3.732

Showing the highest value, lowest value this table. Eyebrow Frown it is seen that Novelty is showing the highest value for Anticipated Effort is showing the lowest value. Raise Eyebrows it is seen that Personal Agency is showing the highest value for Pleasantness is showing the lowest value. Up Turn Lip Corners it is seen that Novelty is showing the highest value for Pleasantness is showing the lowest value. Open Mouth it is seen that Certainty is showing the highest value for Discrepancy is showing the lowest value. Tighten Mouth it is seen that Personal Agency is showing the highest value for Anticipated Effort is showing the lowest value. Raise Chin it is seen that Anticipated Effort is showing the highest value for Pleasantness is showing the lowest value. Alternative: Eyebrow Frown, Raise Eyebrows, Up Turn Lip Corners, Open Mouth, Tighten Mouth, Raise Chin. Evaluation Preference: Pleasantness, Discrepancy, Anticipated Effort, Attentional Activity, Certainty, Personal Agency, Novelty.



Alternative: Eyebrow Frown, Raise Eyebrows, Up Turn Lip Corners, Open Mouth, Tighten Mouth, Raise Chin. Evaluation Preference: Pleasantness, Discrepancy, Anticipated Effort, Attentional Activity, Certainty, Personal Agency, Novelty.

TABLE 2. Humanoid robots in ARAS

	Eyebrow Frown	Raise Eyebrows	Up Turn Lip Corners	Open Mouth	Tighten Mouth	Raise Chin
Maxor Min	821	784	967	941	2500	2.923977
Pleasantness	750	220	375	653	880	2.923977
Discrepancy	432	455	654	375	580	1.029866
Anticipated Effort	342	465	598	764	395	0.163425
Attentional Activity	574	678	852	385	2390	0.233481
Certainty	476	685	638	941	580	0.242248
Personal Agency	689	784	853	587	2500	0.431965
Novelty	821	587	967	742	1750	0.267953

Table 2 shows the Humanoid robots Max or Min value Eyebrow Frown =821, Raise Eyebrows = 784, Up Turn Lip Corners = 967, Open Mouth = 941, Tighten Mouth = 2500, Raise Chin = 2.923977 = 7 Divide formula

TABLE 3. Humanoid robots in ARAS Normalization of DM

	Eyebrow Frown	Raise Eyebrows	Up Turn Lip Corners	Open Mouth	Tighten Mouth	Raise Chin
Maxor Min	0.16738	0.168313	0.163787	0.174647	0.215983	0.355849
Pleasantness	0.152905	0.047231	0.063516	0.121195	0.076026	0.355849
Discrepancy	0.088073	0.097681	0.110772	0.069599	0.050108	0.125335
Anticipated Effort	0.069725	0.099828	0.101287	0.141797	0.034125	0.019889
Attentional Activity	0.117023	0.145556	0.144309	0.071455	0.206479	0.028415
Certainty	0.097044	0.147059	0.108062	0.174647	0.050108	0.029482
Personal Agency	0.140469	0.168313	0.144478	0.108946	0.215983	0.05257
Novelty	0.16738	0.12602	0.163787	0.137713	0.151188	0.03261

Table 3 shows the Normalization of DM Alternative: Eyebrow Frown, Raise Eyebrows, Up Turn Lip Corners, Open Mouth, Tighten Mouth, and Raise Chin. Evaluation Preference: Pleasantness, Discrepancy, Anticipated Effort, Attentional Activity, Certainty, Personal Agency, Novelty. These values are calculated using by formulas.

TABLE 4. Humanoid robots in ARAS Normalization of DM

	0.21	0.18	0.22	0.15	0.13	0.11
	Eyebrow Frown	Raise Eyebrows	Up Turn Lip Corners	Open Mouth	Tighten Mouth	Raise Chin
Maxor Min	0.03515	0.030296	0.0360332	0.026197	0.028078	0.039143
Pleasantness	0.03211	0.008502	0.01397358	0.018179	0.009883	0.039143
Discrepancy	0.018495	0.017583	0.02436992	0.01044	0.006514	0.013787
Anticipated Effort	0.014642	0.017969	0.0222832	0.021269	0.004436	0.002188
Attentional Activity	0.024575	0.0262	0.03174797	0.010718	0.026842	0.003126
Certainty	0.020379	0.026471	0.02377371	0.026197	0.006514	0.003243
Personal Agency	0.029498	0.030296	0.03178523	0.016342	0.028078	0.005783
Novelty	0.03515	0.022684	0.0360332	0.020657	0.019654	0.003587

Table 4 shows the Weighted Normalized DM 0.21, 0.18, 0.22, 0.15, 0.13, 0.11 value Alternative: Eyebrow Frown, Raise Eyebrows, Up Turn Lip Corners, Open Mouth, Tighten Mouth, and Raise Chin. Evaluation Preference: Pleasantness, Discrepancy, Anticipated Effort, Attentional Activity, Certainty, Personal Agency, Novelty. Weighted normalised matrix values are derived by using the formula.

TABLE 5. Humanoid robots in ARAS Si& Ki

	Si	Ki
	0.19489761	1
Pleasantness	0.12179127	0.624899
Discrepancy	0.09118877	0.46788
Anticipated Effort	0.08278804	0.424777
Attentional Activity	0.1232092	0.632174
Certainty	0.10657764	0.546839
Personal Agency	0.14178234	0.727471
Novelty	0.13776514	0.706859

Table 5 shows the Si & ki value using the Sum formula.

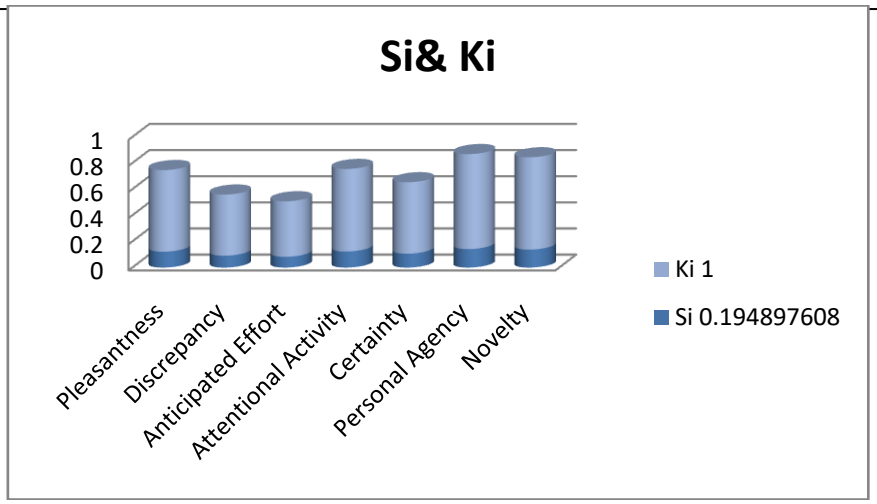


FIGURE 2. Si & Ki

Figure 2 shows the Si & ki value using the Sum formula.

TABLE 6. Rank

	Rank
Pleasantness	4
Discrepancy	6
Anticipated Effort	7
Attentional Activity	3
Certainty	5
Personal Agency	1
Novelty	2

Table 6 shows the final result of this paper the Personal Agency is in 1st rank , Novelty is in 2nd rank , Attentional Activity is in 3rd rank , Pleasantness is in 4th rank, Certainty is in 5th rank , Discrepancy is in 6th rank, Anticipated Effort is in 7th rank.

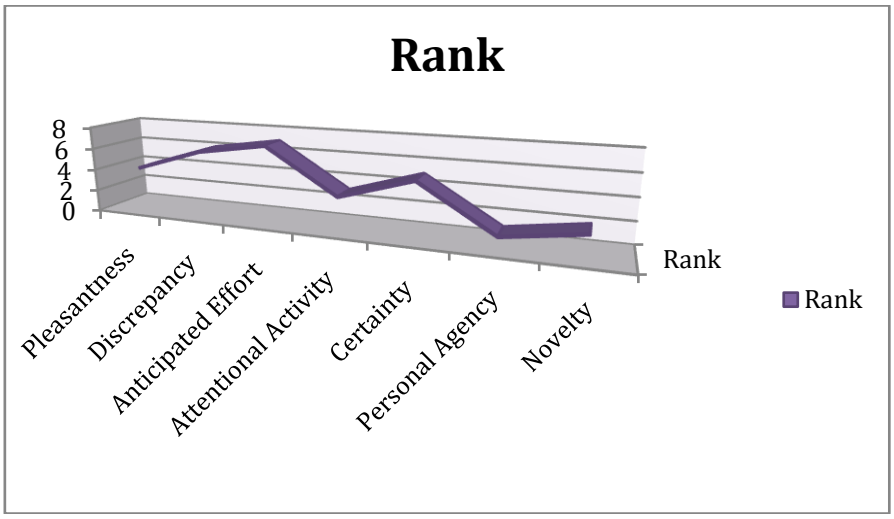


FIGURE 3. Rank

Figure 3 shows the Personal Agency is in 1st rank , Novelty is in 2nd rank , Attentional Activity is in 3rd rank , Pleasantness is in 4th rank, Certainty is in 5th rank , Discrepancy is in 6th rank, Anticipated Effort is in 7th rank.

4. Conclusion

From the result it is seen that Personal Agency is got the first rank where as is the Anticipated Effort is having the lowest rank Convention proposed by researches Different from the sensors, the PIF sensor cover The entire body

hovers around the surface of the robot We propose to override Robots A body that can detect various external force vectors Failure to perceive PIF on surfaces and surfaces. Through such sensitive haptic devices by touching and feeling the interface all over the body Robots are identified and understood in detail by PIF can take Humanitarian service robots have made rapid advances in assisting global health care in crisis. COVID-19 International Distribution. This case provides an overview of the inclusion of robots in health care in relation to pre- and intra-atomic environments. The human figure, size and movement are particularly focused on humanoid service robots Favorable in the use of physics spaces designed for humans the first objective is to develop and grow across the board Criterion decision-making development and Uncertainty in the saturation sector coping mechanisms related to supply the new Approximate Addition Rate Estimation (ARAS) approach. As a result, many such Using benchmarking methods allows consideration of the views of all stakeholder groups in the process. AHP, ARAS and MCGP for solving MCDM problems popular methods, they are strong and not only considering the intangible criteria, is an airline better at catering many choices also consider aspiration levels when choosing a supplier.

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