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Angry Birds as a Contention for Machine Intelligence Using Probability

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Abstract - Now days, Angry Bird (Strategy Shooter) is a popular game authorized by Finnish company Rovio Entertainment. The sequence emphasis on colorful birds who tries to rescue their eggs from their enemies that are olive-green pigs. The purpose of this contention is to build machine learner agents that can play new levels of angry birds better than the normal human players. The new levels of this game is easily analyzed by the Victorious agents so that they can forecast the physical outcomes of feasible actions in order to select actions that break a given level with a high rating. In this review, we will explain that why this problem is a contention for machine intelligence & why it is essential step for building machine intelligence that can successfully interact with actuality & we will also discuss probability of playing different levels of annoyed/furious birds. A graph shows the probability at (y)axis and different levels at (x)axis and describe the specialty of different angry birds at a particular situation. Different science theories and principles/designs are applied behind the games logic.

Keywords - *Contention Analyze Game Theory, Machine Intelligence, Probability, Graph, Ratings.*

I. Introduction

Angry birds are the chubby mini bird, who tries to rescue their eggs from their enemies that are olive-green pigs.

Those pigs were kidnapped the birds and their eggs also. Hara-kiri birds probing tit for tat, these birds were not joyous instead of they are so angry that they being themselves to the rookie as Hara-Kiri birds with a maroon heated disagreement. All of 120 levels to play in which enough of

time to heat those annoying birds by pitch shooter at the olive-green pigs.

In this game we use the mouse to resolve the gliding edge and shot the pigs directly, we have to hit in such a way that **the maximal number of pigs with the least number of birds**; that's how we obtained high scores in this game. The representation of these birds are well designed and with fanciful description. The easy approach with more dependence aspect; this game depends upon the theory of physics perplex. It has different series or levels with interesting twist. Different movies were animated on these birds "*The Angry Birds Movie* in 3D" in which the red (Jason Sudeikis) bird is focused who can't get past irritations of life.



Fig 1. Introduction to Angry Birds

II. History of Angry Birds

The actual Angry Birds has been known “1 of the most conventional games nowadays”, “1 of the exceptional platform strikes of 2010”, and “the widespread web app lead the whole world has been so far”. Angry Birds was initially an app introduced in 2009 by Rovio Entertainment for the IO smartphones and succeeding tablets. The role and game logics were invented by Jakko Iisalo from Finland and more enhanced by Markus Tupperainen and Peter Urbanics. Their concept further considered as gold since it instantaneously acquire a enormous grow in vogue over the next year, saving Rovio from insolvency. Across this, it was reinvented for uncommon smartphones, Pc's, and video game consoles.

“But what Angry Birds actually is”, we might miracle. The main sketch is that the olive-green pig have stolen the fowl eggs(from which they got angry) and the main thing is to launch the flightless words into the pig's building to harm or damage them. Actually, the boar was decided as the opponent due to the influenza flu outburst as evolution took place.

Moreover the all over abstract is a humorous concept, people were enjoying with the background, graphics and idiosyncratic sound that it contains. Above that, it provides a baffle game

that dwells the interest of participant's in each level. Cellphone users supposed to be carry their phones with them and open the game when they feel bored. While there are millions of games in the play or app store to choose, or there is nothing can equate to the happiness and joyful of our dearest raving small fowl.

III. Levels of Angry Birds

There are all over 597 levels. In which different birds are present of different categories like Red, Blue Bird, Pink Bird, Yellow Bird, Boomerang Bird, Big Brother Bird, Chuck also known as Lazer Bird, Bomb(Firebomb Bird),Ice Bird, Atomic Bird, etc. Some of the level names are:

- Angry Bird seasons
- Bad Piggies
- Golden Eggs. And many more.

According to our playing probability, the easiest Episode Angry Birds Original – Bird day Party. Got good ratings! And surely the hardest was Angry Birds Space - Danger Zone.It is not easy to get high star ratings in the levels of angry birds, because we cannot identify or analyze the whole level at 1 time we have to play 2 or 3 times to complete the level and that leads to low ratings. If we analyze it in one chance than also we get 3star ratings. So here I present a graph that leads to the probability of different persons with different levels.

A. Scores Of The Players At Different Levels

4players representing their scores on different levels-

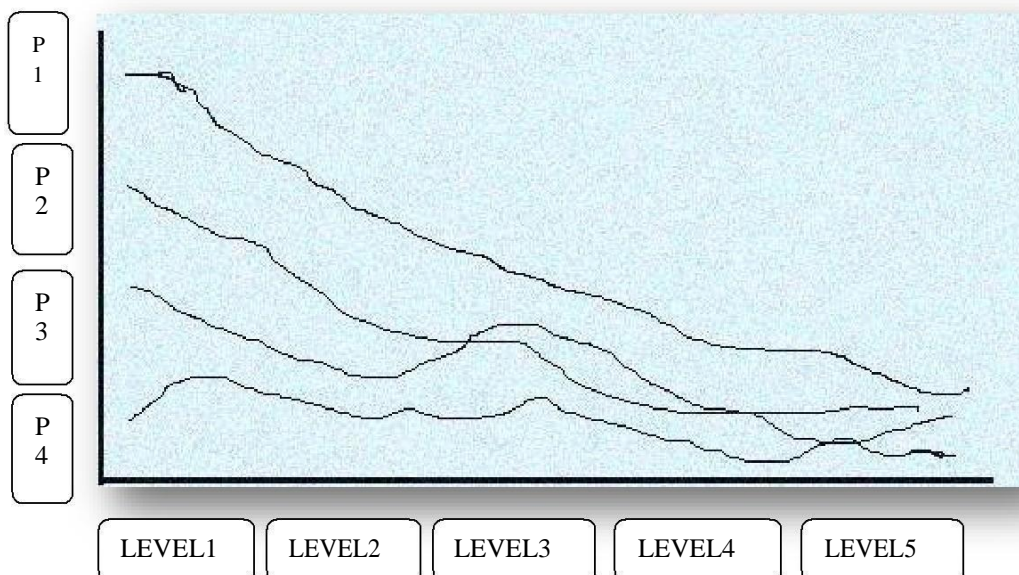


Fig 2. Graph representing the scores

- P1:PLAYER1
- P2:PLAYER2
- P3:PLAYER3
- P4:PLAYER4
- Curves representing ratings or high scores.

B. Observations From The Above Graph

- This graph explains that as the level increases, the probability of playing game with high score or with high rating also decreases, because the human player cannot analyze the whole puzzle in 1guess. That's why there is a need of AI agent who hit the whole pigs in 1trial.
- My ratings for Angry Birds Space OF red planet
- It has 20 levels and expected high scores are 76660 and my score for playing 1level was 39440 with 2 stars. It is also difficult to getting 3 stars.

C. Probability Analysis

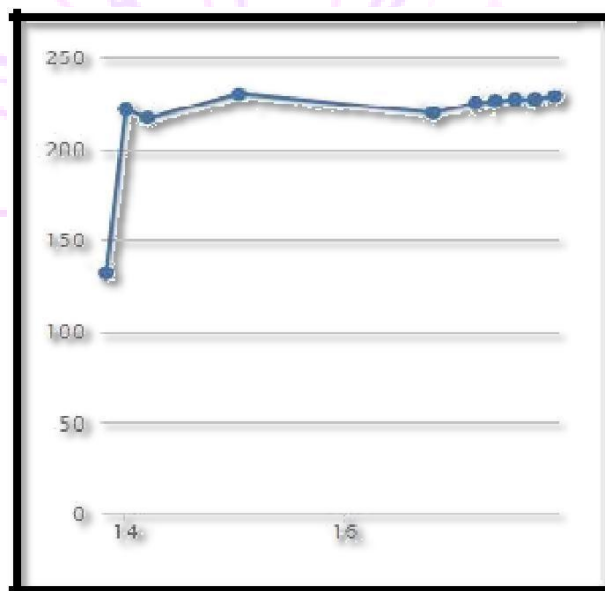


Fig3: Probability graph

IV. Previous Approaches Used for Playing Angry Birds

- Contention of Angry Birds for Machine Intelligence is such a fascinating game that it impresses millions of people in all over world^[1].
- Different approaches, algorithms, theories have been applied in the logical strategy to playing the game. Some of them are that they Use a Analytical Ranking Procedure for making a good decision.
- Their goal is to hit in the best way, they describe 5measures and also define their respective description, and then diagnose the best hit by appraising the value of these approaches.
- Another approach is that they use a bush type of construction to show the entity in the game spot, & plan the dilemma of choosing an entity for hitting as a reversal problem.
- They relate with each couple of entity material and bird a Bayesian linear regression model, creating decision on the basis of best forecasting of the whole model. And many more approaches like Physical properties, case-based angry bird's agents as choice-based model, some declarative knowledge's and simulation based theories. Existing approach also defines the normal players as we described in the graph "G1".

Why Angry Birds as a Challenge for Machine Intelligence?

Now a days ,the angry bird game is very popular among the youth and this game is based on some physics-based simulation game which we also call it as (PBSG).^[2] All the physics specifications like mass, friction, density of object, gravity as well as the location and the properties are inwardly known. The levels of the game will be solved if executing in a sequential series of actions and the main motive of the game is to destroy all the enemies (green pigs) in one stroke in order to complete the level of the game.

Now the question arises here that why this is a challenge for machine learning, the challenge of the Angry birds is to build an Machine learning player the can play the new levels of the game as good or better than the HUMAN PLAYERS.

A. Angry Birds with Machine Intelligence

The image representing the Angry Birds Easter .A nice shot will hit the roly-poly pebbles on the head right which will stimulate the demolition of the left half of the formation. Today, machine intelligence is spread whole over the world in such a way that it changes the basic theories of life. If we want to make our own agent we had to simply write lines of code to make it to play the game wisely and try to solve the puzzle as a whole. "It is a Machine Learning challenge for us". The task of this contention is to make a expert strategy that can successfully play the game. The goal behind to developing these agents is to playing new levels better than the normal human players. This a great problem as it needs machine learner agents to analyze the result of actual influence without having full knowledge of the world, and selecting a best action out of endless many actions. This is an important ability of future MI systems that interact with the actuality. The Angry Birds MI contention gives a easy and managed framework for developing and testing these potential. The

graph of probability shows that these agents are developed for playing game so that they can easily examined the whole level in one eye.



Fig4: Angry Birds with Machine intelligence

B. Graph Illustrating Agents That Are Successfully In Playing Game

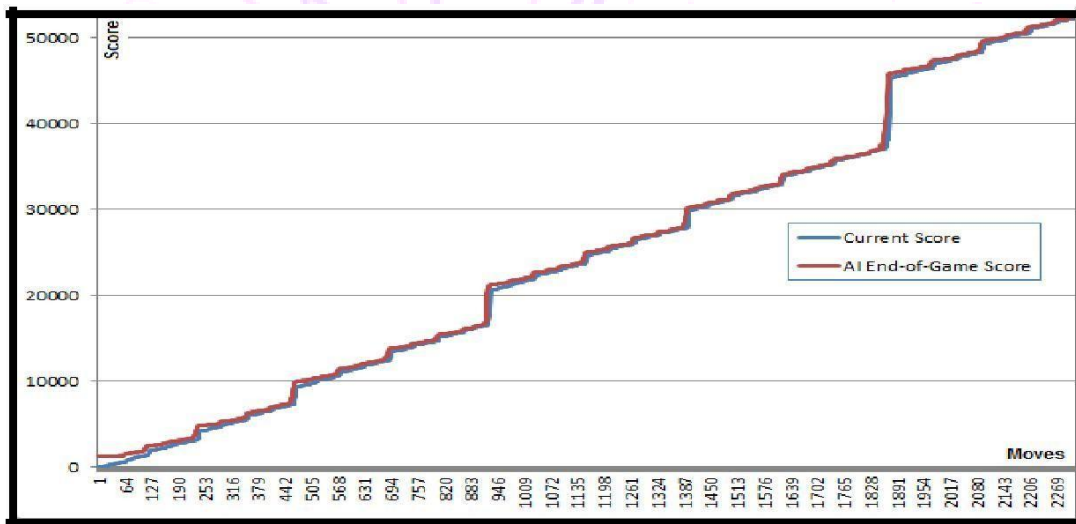


Fig 5: Probability of Playing

V. Advanced Modification of Contention

This game achieve its popularity as an application for IO devices and than for desktops, play stations and introduced a dispatch of retail products in market, it becomes a pop symbol as thankful to its crazy assumptions.

In advanced modification training will be giving to students about machine learning and related to its logical, quantitative reasoning's. Through these training sessions the students are able to apply their own logics and master plans in implementation of code.^[3] Contention modification is easily applied by some communication protocols. The main aim is to inspire those agents to determine the stages and to assess there working instead of by getting a nice stroke. Moreover it creates the contention more fascinating in the research of game methodologies.

A. How We Get 4 And 5 Star Ratings In Angry Birds Without Spending Cash

As we touch the bird twice it will shows more power than of the single hit. The developers are not nonsense. There is no such a fixed way of achieving the valuable things in the game. Open the egg to increase the chance of getting more powers. The first thing we have to do that: Save the gems that we get as a gift for completing the level. They are not much enough but do not lavish them by purchasing 20golden to stand your special fowl as they take a moment to gather. Important thing is that wait for an action that occurs plenty. The Get Strong Fowl action is an action, as it enhances or enlarges the fortunate of germ cell in conjunction with a extraordinary 4 and 5 star bird after hatching an egg.

B. Popularity Of Angry Birds In Comparison To Nintendo ds Sales

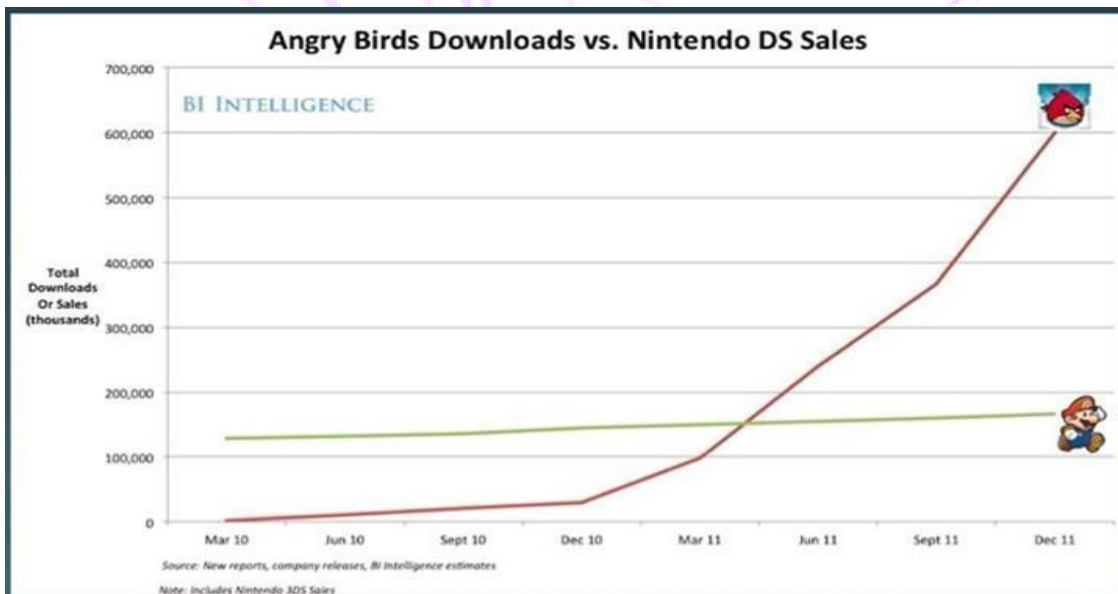


Fig6: Angry Birds Downloads Vs.Nintendo DS Sales

VI. Result analysis

We start our project with the developing of an agent of MI, in which we go ahead as follows:
 - Agents are examined at each level. Suppose the learner agent play different levels for plentiful repetitions. In each repetition, has the score that agent may be actually gets. The ratings of every level are the summation of each repetition high scores. The table below represents the highest scores for some levels. Every level is tried 8 or 9 times. As if more training and with wisely we use these agents for long time, the ratings will be improved. [4]

Level	Level1	Level6	Level9	Level18
High-Score	31940	64570	62870	51470



Fig 6: Showing the ratings

In the 2nd result we get that we made probability of playing humans and learner agents by graph through which we get that machine made agents are more flexible and powerful. By mixing graph G1 and G2 the result is as follows:-

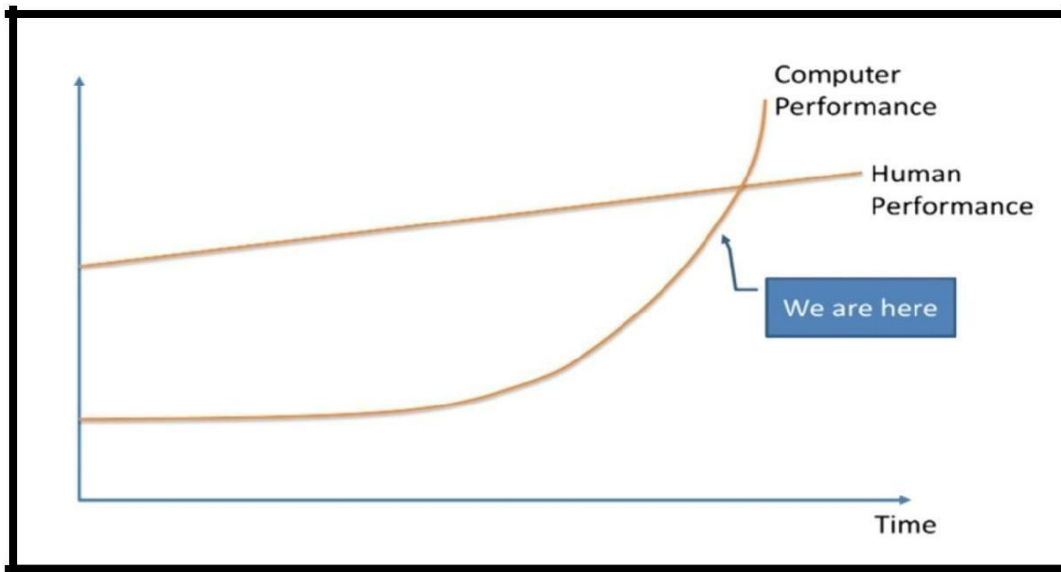


Fig7: Probability of graph between humans and AI gents

In above graph we easily say that these agents were successfully get there victory as the falling probability of graph shows the natural players and increasing probability played by learner agents. In this paper, we use different previous assumptions to understand the theory behind logical reasoning of the game by applying our probability theory and quick way of making agent by implement coding and programs. More theories and models are vital to prediction. Another contention is to indulge the various model and algorithms with more knowledge and skills, We trust the Machine Learning to play more wisely.

VII. Conclusion

It is a powerful contention of playing angry birds for machine intelligence. We applied probability of playing, a idea of building agent and how we get more ratings rather than spending cash and dollars,, as we know there is much space for enhancement of many chances in future work. Assimilate with most useful algorithms and methodologies and efficiently mixing data leads to a vital role on the acquirements of our invention, may be our theory results presenting a standard quality of learning in Angry Birds.

VII. References

- [1] [Calimeri et al., 2016] Francesco Calimeri, Michael Fink, Stefano Germano, Andreas Humenberger, Giovambattista Ianni, Christoph Redl, Daria Stepanova, Andrea Tucci, and Anton Wimmer. Angry- hex: an artificial player for angry birds based on declarative knowledge bases. *IEEE Transactions on Computational Intelligence and AI in Games*, 8(2):128–139, 2016.

[2] Mnih et al., 2013 Volodymyr Mnih, Koray Kavukcuoglu, David Silver, Alex Graves, Ioannis Antonoglou, Daan Wierstra, and Martin Riedmiller. Playing atari with deep reinforcement learning. arXiv preprint arXiv:1312.5602, 2013.

[3] Paul and Hullermeier, 2015 " Adil Paul and Eyke Hullermeier. A cbr approach to the angry bird's game. In " ICCBR (Workshops), pages 68–77, 2015.

[4] Narayan-Chen et al., 2013 Anjali Narayan-Chen, Liqi Xu, and Jude Shavlik. An empirical evaluation of machine learning approaches for angry birds. In International Joint Conference on Artificial Intelligence, 2013methods,167 (2008).

