Artificial Intuition Device and Real Life Lottery Games

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Abstract

Artificial Intuition is commonly viewed as a special algorithm capable of replicating some properties of human intuition. Unfortunately the software-based Artificial Intuition currently fails to be useful for lottery players and to generate profit. At the same time, multiple publications have show that human ability to win in lotteries, in casinos and to forecast the stock market is variable and correlates negatively with geomagnetic activity. Artificial Intuition Device (AID) employs a hardware solution to Artificial Intuition and replicates some of human intuition abilities on specially-designed scientific equipment. During public testing phase, AID was programmed to forecast the outcomes of Ontario 'PICK-3' lottery and then post these predictions on the Internet, several hours prior to the lottery draws. These predictions were also recorded on an independent computer in London University (UK). During the public testing phase (lasting 1.5 years) AID was capable of generating a profit instead of loss as per null hypothesis. Similarly to human intuition, AID performance is influenced by geomagnetic activity. In geomagnetic-quiet days AID generated profit above $1,300. On geomagnetic-active days, AID produced loss of about $1,000. Accounting for this influence allows us to amplify AID performance by using predictions only from days with suitable environmental conditions.

Introduction

Artificial Intuition is commonly viewed as a special algorithm capable of replicating some properties of human intuition. Unfortunately, despite much development, Artificial Intuition currently fails to be useful in one very special area of real life games. This area is the *'lottery'*. Currently Artificial Intuition is not able to improve chances of lottery players to win and to generate profit. The reason for this is obvious - a well-designed lottery is a series of 100% random events (draws), which can not be forecasted using the computer algorithm.

At the same time, multiple publications show that human ability to win in lotteries (Zilberman 1992), in casinos (Radin and Rebman 1996) and to forecast the stock market trends (Krivelyova and Robotti 2003) is variable and correlates negatively with geomagnetic activity. For example analysis of French and Russian national lotteries (Zilberman 1992) has shown show that:

a. On days with low geomagnetic activity percentage of correct predictions differs significantly ($p<0.002$) from the days with high geomagnetic activity,
b. On days with low geomagnetic activity the percentage of correct predictions exceeds reliably ($p<0.003$) the random level,
c. The percentage of correct predictions in lotteries correlates significantly ($p<0.005$) with geomagnetic activity exactly on draw days (but not the day before or after).

The negative correlation with geomagnetic activity was also noted for the percentage of income, which casinos pay to clients (Radin and Rebman 1996), with quality of prediction of stock-market trends (Krivelyova and Robotti 2003) and in other situations where people's intuition is important. The influence of pure physical factors (such as geomagnetic activity) on human intuition suggests that these abilities may have pure material nature and that we may hope to replicate them on some kind of equipment.

Artificial Intuition Device

The above reasoning leaded me in 2006 to first version of Artificial Intuition Device (AID). AID employs a hardware solution to Artificial Intuition's inability to forecast lottery numbers and thereby replicates some of human intuition abilities on specially-designed scientific equipment. The AID theoretical model as well as a description of AID's hardware and software was published in 2008 (Zilberman 2008). This device is currently patent pending in the USA and Russia.

Artificial Intuition Device Public Testing

To test the Artificial Intuition Device, I programmed it to forecast the outcomes of Ontario public numerical lottery 'PICK-3' several hours prior to the lottery draw. This experiment was started on May 23, 2006 and is continuing

currently. Since August 2008, AID's predictions have been publically available on the Internet (web page www.intuitiontester.com/summary.html) 3 hours prior to the lottery draw. This makes the experiment 100% clean and free from any manipulation, and allows anyone to preview the predicted numbers, analyze the statistics, and potentially even use the posted predictions to play the 'PICK-3' lottery online.

In addition to that, in October, 2008, the Anomalistic Psychology Research Unit (APRU) from Goldsmiths College, University of London, UK developed a daily download process from our website and since October 28, 2008 has been downloading the AID's predictions onto their computer. (Credits for developing the download software belong to Ian Hannent). APRU's download happens every day after predictions are posted on Internet, but before the lottery draw occurs.

The public availability of AID lottery predictions provides great opportunity for:

a. skeptics to check the validity of AID predictions,
b. scientists to use published predictions for analysis and correlation with environmental factors,
c. me to prove that AID works even in such 100% controllable conditions.

Artificial Intuition Device and Lotteries

In AID testing, I used the Ontario lottery called 'PICK-3'. It has very simple rules, which are published on the official site of Ontario Lottery and Gaming Corporation www.olg.ca/lotteries/games/howtoplay.do?game=PICK-3. In short, 3 digits from 0 to 9 (ex 2,3,5 or 2,2,3) are selected every day and winners are the people who submitted those exact 3 digits prior to the lottery draw. The probability to correctly predict a 3-digit number combination is 6/1000 in 'box play' mode.

The 'PICK-3' lottery draw selects one 3-digit number from a possible 1000 numbers between 000 to 999. In 'box play', the sequence of wining digits is irrelevant and therefore one 3-digit number selected in a draw produces six numbers, all of which are considered winning numbers. For example when the lottery draw selects the number 1, 2, and 3, combinations 123, 132, 231, 213, 321, 312 all win. Therefore in box play there are 6 winners in a 1000 total possible outcomes, implying the probability of success to be 6/1000.

Ontario 'PICK-3' lottery draws happen at 9:10 PM (EST) and have a cut-off time of 9:00 PM (EST) sharp for draw entries. At 5:49 PM (EST) of each day, the recorded data is analyzed, and then sorted in accordance to AID algorithms published in (Zilberman 2008), and sent via e-mail message to my cell phone. Since 2008, the Artificial Intuition Device has also posted the results of lottery predictions on the Internet (web page www.intuitiontester.com/summary.html) at 5:52 PM(EST), 3 hours in advance of the lottery draw.

The following table (Fig.1) presents the AID predictions posted on the Internet on November 19, 2008 (web page www.intuitiontester.com/summary.html).

Nov-19 538	1	253874	235 285 283 **583** 275 273 573 278 578 378 532 582 382 **385** 253

Fig.1. Example of a prediction posted on the Internet by AID on November 19, 2008.

The left column contains the date and the 3-digit winning number from that day.

The second column presents the real-time Ap-index of geomagnetic activity (Mayaud 1980), downloaded from the 'Solar Terrestrial Dispatch' web page www.spacew.com/www/hourly.html at 5:30 PM (EST).

The third column contains the top 6 numbers predicted by AID. The fourth column contains 15 three-digit combinations derived from the top 5 predicted numbers.

The first two lines of each cell in the fourth column contain 10 unique combinations derived from the top 5 predicted numbers. The third line of each cell in fourth column contains 4 combinations derived from the top 4 and 1 combination derived from the top 3 predicted numbers.

Since the start of testing on May 23, 2006 until the April 30, 2010 AID made 163 correct predictions in 1285 experimental days. Fig.2 shows the profit accumulation

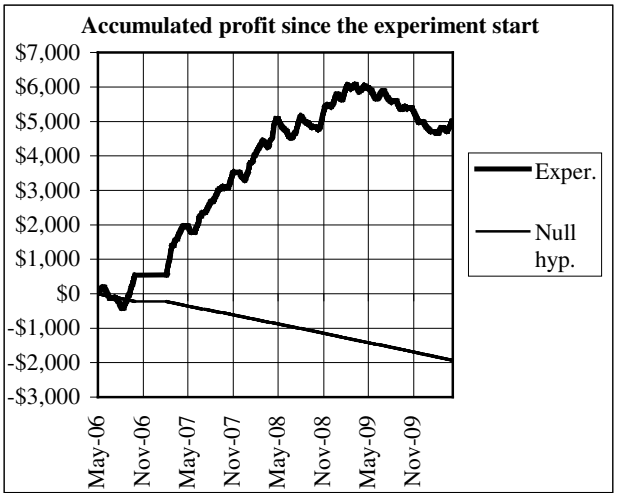

Fig.2 Profit accumulation since the experiment start.

trend since the start of experiment.
The heavy line is the trend of 20-days average.

The lighter line represents the graph of accumulated profit in the null hypothesis.
The horizontal line between Oct.19, 2006 and Feb.23, 2007 belongs to the interval without measurements related to this experiment.

The daily profit was calculated in accordance with the number of correct predictions as [number of correct predictions]*$150, where $150 is the amount which the www.Betslips.com lottery web site pays out for 1 correct prediction. Please note however, in reality I started submitting predictions online not from beginning of experiment but rather after Jan.1, 2008.

During the public testing period (August 13, 2008 - April 30, 2010), AID made 65 correct predictions in 622 experimental days. This generated profit of +$420. In null hypothesis we should however expect a loss of -$933 for the same period.

Geomagnetic Activity Influence and Amplification of AID Performance

Publications (Zilberman 1992), (Radin and Rebman 1996) and (Krivelyova and Robotti 2003) show that predictive abilities of human work better when geomagnetic activity (GA) is low. Exactly the same result was observed for AID performance also. When GA is low - the performance of Artificial Intuition Device is better.

Influence of GA on AID performance was first noted during the private phase of AID testing, reported in 2008 in UK and was published in (Zilberman 2008). This observation was also confirmed during the public AID testing started since August of 2008.

Because parameters of geomagnetic activity are posted on the Internet in real time and are forecasted several days in advance, we have an opportunity to improve the AID performance by making predictions only on days with low geomagnetic activity. Fig. 3 and 4 show the profit accumulation trend since the start of experiment for the days with Ap-index of GA lower and higher than 5. This threshold Ap<5 separates all totality of 1285 experimental days into 2 almost equal samples. Between May 23, 2006 and April 30, 2010 there were 622 geomagnetic-quiet days (Ap<5) and 663 geomagnetic-active days (Ap>=5).

I used Ap-indices from the "Solar Influences Data analysis Center - RWC Belgium". Their Web page, http://sidc.oma.be/registration/registration_main.php, provides a free subscription to daily e-mails from SIDC with various Solar-Earth data.

Fig. 3 and 4 were built for geomagnetic-quiet and geomagnetic-active days. They have the same scale (from -$1,000 to +$5,000) and the same time interval, but show very different trends.

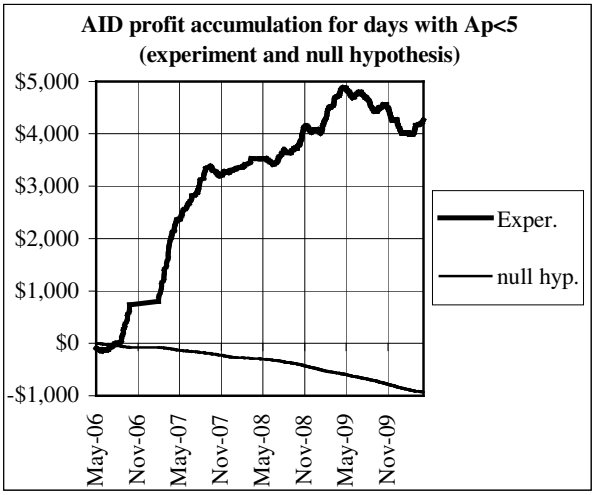

Fig.3. AID profit accumulation since the start of experiment for geomagnetic-quiet days (Ap<5) and null-hypothesis graph.

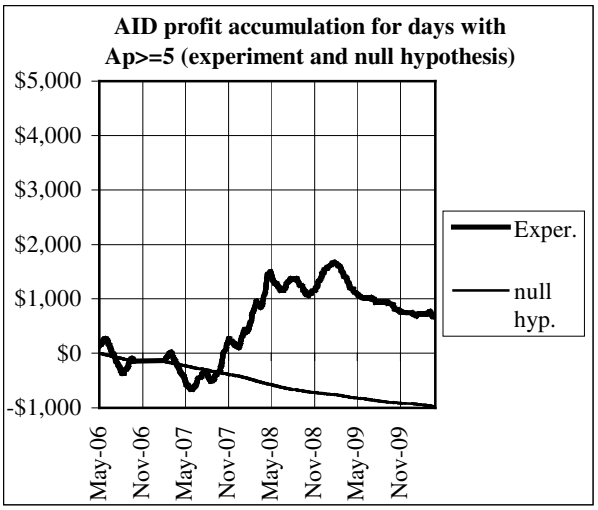

Fig.4. AID profit accumulation since the start of experiment for geomagnetic-active days (Ap>=5) and null-hypothesis graph.

As we see, during the experimental period May 23, 2006 - April 20, 2010, geomagnetic-quiet days generated the profit above $4,000 and geomagnetic-active days generated the profit less than $1,000. Calculations show that Return On Investment was 47.2 % for geomagnetic-quiet days and only 6.5% for geomagnetic-active days.

The public test period (August 13, 2008 - April 30, 2010) showed an even stronger difference between geomagnetic-quiet and geomagnetic-active days. The above-mentioned threshold Ap=5 separates 622 days recorded during the public test into 398 days with Ap<5 and 224 days with Ap>=5. Sample of 398 geomagnetic-quiet days (with Ap<5) produced profit of $1,080. However sample of 224 geomagnetic-active days (with

Ap>=5) produced *loss* of $660 for the same period. This result stresses the importance of geomagnetic conditions for AID performance estimation.

Let's note, that strictly speaking we should use the threshold Ap=4 instead of threshold Ap=5 for the public test period (August 13, 2008 - April 30, 2010). This is because the Ap value, which separates the days into almost equal samples above and below the threshold, was equal to 4 during this period and not 5.

This correct threshold of Ap=4 makes results even stronger. There were 308 geomagnetic-quiet days (with Ap<4) and 314 geomagnetic-active days (with Ap>=4). However these almost identical samples produced even stronger difference in the profit and accumulation trends. Fig. 5 and 6 present the profit accumulation in days with low and high geomagnetic activity. They have the same scale (-$1,200 to +$1,500) and the same time interval. However they exhibit entirely different trends.

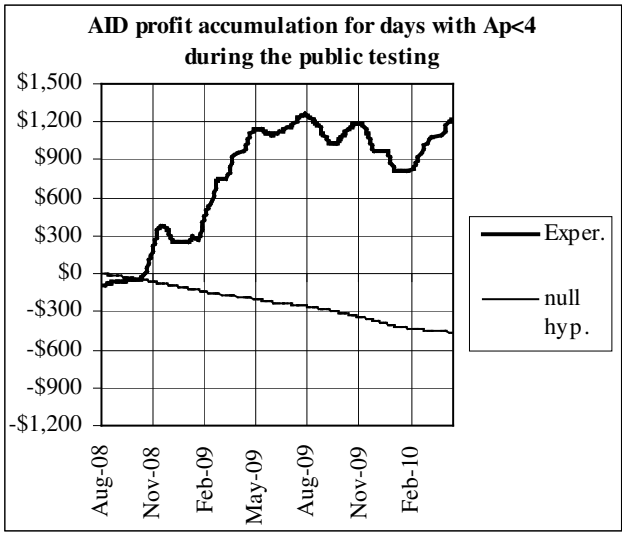

Fig.5. AID profit accumulation during the public phase for geomagnetic-quiet days (Ap<4) and null-hypothesis graph.

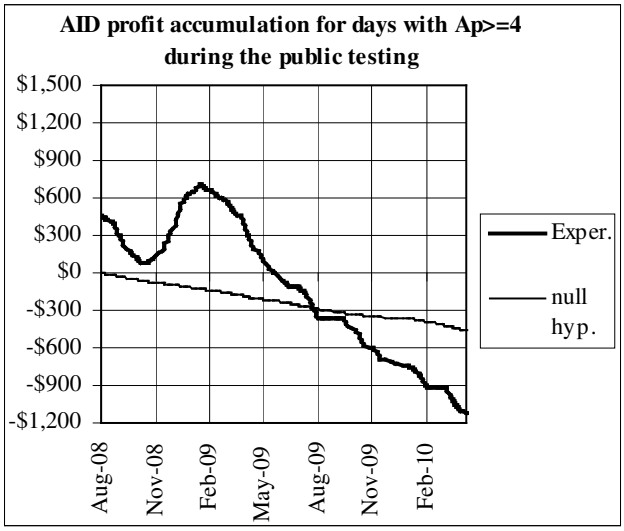

Fig.6. AID profit accumulation during the public phase for geomagnetic-active days (Ap>=4) and null-hypothesis graph.

During the public phase (August 13, 2008 - April 20, 2010), the geomagnetic-quiet days generated the profit above $1,200 (Fig. 5). However the geomagnetic-active days (Fig. 6) generated the *loss* about $1,000 for the same period. Calculations show that Return On Investment was 30% for geomagnetic-quiet days and -20% for geomagnetic-active days.

The found link between AID performance and geomagnetic activity allows us to increase the profit using predictions done on only geomagnetic-quiet days.

A priori and a posteriori analyses

Comparison of AID performance with the data published by geomagnetic observatories provides valuable source for analysis. However it may take several days (if not weeks) before parameters of geomagnetic activity from the different observatories around the globe will be refined and finally published on the Internet. A posteriori values are very useful for scientific analysis. However the lottery players are more interested in the 'a priori' analysis, when estimation of AID performance done and posted on the Internet *before* the lottery prediction. Because of this, AID posts on the page with predictions also the latest available real-time Ap-index, even if it has provisional character. The latest Ap-index is downloaded from the 'Solar Terrestrial Dispatch' web page www.spacew.com/www/hourly.html at 5:30 PM (EST).

Obviously we need to check if use of this provisional Ap-index available in real time really allows users to amplify the AID performance. To do this I calculated the distribution of AID profit by Ap-index, which was posted in the Internet together with prediction during the public testing.

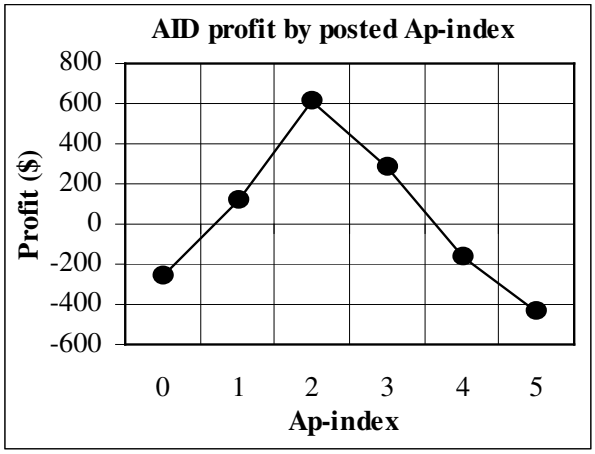

Fig.7. Distribution of AID profit by real-time Ap-index posted on web site together with AID lottery prediction.

Fig.7 presents the distribution of AID profit by real-time Ap-index posted on web site together with AID lottery prediction. Each point of this graph presents the accumulated profit during the public test period for the specified real-time Ap-index. Each point contains not less than 40 days of statistics. As it was mentioned above the public test period covers the interval from August 13, 2008 to April 30, 2010.

As we see from the graph fig.7 the real-time Ap-index posted on web site gives the user fairly good estimation of AID performance. As soon as the Ap-index is in the interval from 1 to 3 - the AID generates triple-digit profit. Even if lottery player follows a simple rule to only use AID predictions on days with posted Ap<5, he/she is still accumulates the profit of $600 (instead of *loss* of $660 as per null hypothesis). Effect of geomagnetic field influence to AID performance was published in August of 2008, before the start of public testing (Zilberman 2008) and therefore the suggestion to use only geomagnetic-quiet days is made 'a priory'.

Summary of results

1. In the area of lottery games the hardware approach to Artificial Intuition exceeds the 'software-only' approach, allowing players to forecast the winning numbers and to generate the profit.

2. The quality of Artificial Intuition Device predictions and generated profit depends on geomagnetic activity.

3. The provisional real-time values of geomagnetic activity posted on the site www.intuitiontester.com/summary.html together with predictions provide the good estimation of AID performance and allow users to amplify profit using AID predictions only in the best environmental conditions.

4. Presented results are based on public test period (August 13, 2008 - April 30, 2010) when AID predictions were posted on the Internet in 3 hours *before* the lottery draw and were recorded on the independent computer of the London University (UK) also *before* the lottery draw. This way the paper material is 100% transparent and publicly available. Winning numbers are publicly available on the Internet, as are geomagnetic activity indices.

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