

MAGDALÂ Trader Workstation conceptual definition of selected features; Realistic Financial Time Series, Byzantine Time, temporospatial, Data Science Analytics, and GDPR aspects

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Abstract— Multi trillion bond market demands a serious workstation must incorporate with all existed science and technology progression. We work on a similar development two years now. Here and today we present selected conceptual developments from different parts of the trader’s workstation named MAGDALA; “Realistic Financial Time Series” definition, “Skin Borderline” GDPR safe recording and processing of personal data, Personal Development features, Personal Data tracking and Data Science artificial intelligence against complex human intelligence. Some features are very complex while other are almost impossible to reach but we must try. A typical MAGDALÂ layout has an external data collection hardware and software and a Local processing and presentation system. The Trader Workstation is not an academic exercise but we do anything in order to suggest a profitable transaction.

Keywords— Financial trade, workstation, Data Science, Time Series, Byzantine time, bond market, sensors, senses support

I. THE TRADER WORKLIFE INTRODUCTION

Intra-Galactic gravity holds the universe in symmetry. One planet draws here, other effects there, a star demands its planets, a galaxy restricts its planetary systems and finally galaxies are wandering around. All these in perfect order. The global financial system is based upon similar co-operated all together contradictory gravitational tugs. The demanding global financial system must balance between various contradictory forces:

- The unlimited bond market profit margins (no percentage) and the necessity of funds specially for the under-development countries.
- The unlimited bond market power is subject to the big three auditing “long punishment arm”: IMF, ECB, FED.
- The introduction of “Humanitarian Funding” tax over the profitable bonds. Well it seems that they give this money not for actual development but as survival aid. They actually say “live long enough to pay your debts to us”.
- The unlimited power that money issuing Central Banks brings them to the temptation of “printing” more money.
- brought the world to crypto currencies and local money and ICO (Initial Coin Offerings)
- The historical bond redemption compared with global currency reset rumors.

We give the acronym MAGDALA [Matthew 15] . Near MAGDALÂ Pharisees teasing the Lod and he speak to 4

thousand men and more women and children. After that Jesus fed all them with seven breads and a few fishes. Our implication is exactly that today’s trader create wealthy out of nothing.

II. MAGDALÂ CONFIGURATION GUIDELINES

A typical MAGDALÂ layout has systems like:

1. External data collection hardware and software
2. Local processing and presentation systems
3. Actual trade commands through a complex system full of security and advisory knowledge.

A. Hardware



Figure 1, The Trader Workstation base

The initial trader workstation hardware in a typical trade room is shown in figure above. My professors would find terrific but we don’t. Its not human to watch all these monitors and to interpret all various of user interfaces. Our approach is more radical. In science fiction movies the computer operator walks around informative monitors. Our trader must walk to the desired monitor or device and operate simple actions or on a local keyboard. Ernest Hemingway and Donald Rumsfeld, they have not seated in their offices. [Chiotis 2007, Mueen 2010, Han 2015]

Another indicative detail is the color interpretation. Various color theory books suggest very diversified option for color selection [].

B. Workstation user warning

Full range Senses support primarily use is to clarify the thoughts of the trader. The man-machine interface in the financial sector needs evolvment to support our 30 senses approach. [Schulenburg 2001

Several decades now the trader’s user interface is very limited and rather simplified. Under normal circumstances is working fine. The traders are very satisfied and they rely on the screen candles and speaker whistles. This relaxation could be generated by the enemy personnel or devices. Data

Science is an exact knowledge but unfortunately appropriate data preprocessing is not always possible.

C. Software

Once upon the time the software running on the “Trader Workstation” were trustful piece of computer code. Our development is a generation ahead.

In the older software generations, a rather simple program was running on single PC. The trader had an Excel model with embedded simple function calls in a batch mode operation. Today interoperability of interconnected piece of programs and internet sites raised the complexity, feasibility and ease of use. Apart all these the total improvement of the procedure did not bring business significant results due to security incidents.

D. Trade patterns recognition

The most important Financial-Timeseries application is to predict financial instrument value. A lot of money and effort spent and today these applications gained serious reputation amongst traders and brokers.

We evaluated a number of CFD-Forex brokers primarily in Europe where the law did not reach yet full fraud avoidance coverage. We evaluated 10 suspicious cases and we found the following financial events. Of course, this is not a “TimeSeries” embedded problem but the incident was possible only due the adequation of the two centuries design. The broker agency manipulates a certain over the counter low???

E. MAGDALA subsystems

However, a serious viable workstation must incorporate all existed science and technology progression along the investigation of the brave new world [Beck 2014, Whitney 2001]. Here and today we selected a few independent workouts and present them in narrative conceptual definition:

- “Realistic Financial Time Series” definition as a replacement of the two centuries old fashioned Time Series methodology.
- “Skin Borderline” GDPR safe recording and processing of personal data.
- Personal Development features.
- Personal URL+ Data tracking to find the time and coherence individual logic prior a realization “send-order”
- Data Science artificial intelligence against complex human intelligence

III. REALISTIC FINANCIAL TIME SERIES

Our research started as an ambitious project to adapt the “Financial Time Series” holy grail the current computational environment. The result would be “Realistic Time Series” in order to keep the concept but actually nothing in common with the original development two centuries ago.

However, as engineers we develop “realistic TS” only to assembly a “Trader Workstation” for the demanding multitrillion financial trade market. [Marscinski 2002]

A. Time Series Historic aspects

The old-fashioned time series analysis began in the nineteenth century and were made possible by the invention of regression and the related concept of the correlation coefficient. The birth was ae method of correlation in biology, through the work of Francis Galton on heredity [Galton, 1888, 1890] and of Karl Pearson on evolution [Pearson 1896; Pearson and Filon, 1898].

According to the currently accepted principle that the knowledge half life is 18 months this Time series approach is getting older. This happened only because the computer revolution. The graph below shows the progression. It applies to all sciences but for a two centuries old concept it is more disappointing. [Jakob 1999]

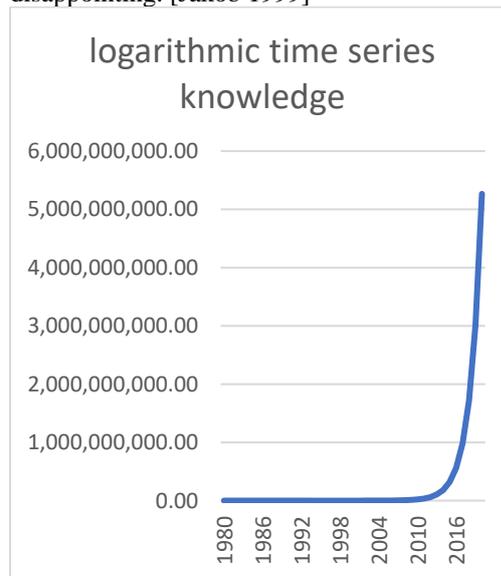


Figure 2, knowledge progression since 1980

B. Byzantine Time

We investigated Byzantine time because in classical Time Series definition we do not believe in the mechanistic repetitive time nature. Initially time of the day/time on which TimeSeries methodology was based on a 24-hour clock. This time is a counter only like the time lapse feature on the video and synchronization recording studio of this speech. Time of the day is something totally different. It is the properties of Sunlight reaching our body. Every moment the light is different. Meteorologists and Astrophysics’ scientists could tell more []. For our research ISO time date standard differs from astronomical and human precepted time, it is only useful as a derived calculated intermediate number. [Leontitsis 2006, Bingham 2014]

In our times watch time or smartphone time replaced actual time. In the computer world we use

- ISO time
- Microsoft time
- Linux time

Time Series fundamental approach divides equally the day into 24 hours. It was not always like that. Most read time is the New testament time and the most important time was [Mohler 2913]. The Byzantine time is based on the day/night starting point.

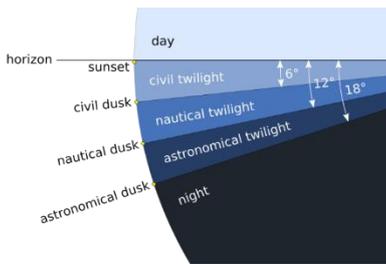


Figure 3, day/night borderline

We read from bible

33Καὶ γενομένης ὥρας ἕκτης σκότος ἐγένετο ἐφ' ὅλην τὴν γῆν ἕως ὥρας ἐνάτης.

33And when the sixth hour was come, there was darkness over the whole land until the ninth hour

For example, various time for 2019 were:

MARCH 2109



Figure 4 day duration 17 March 2019

JUNE 2019



Figure 5 day duration 21 June 2019

Date	Daylight	ISO hour duration in ISO minutes	Byzantine time duration in ISO minutes
21/3/2019	12	60	60
21/6/2019	15	60	75

Figure 6 Byzantine and normal hour difference

There is a 15-minute difference per hour in Byzantine time. This is equally distributed every day. This Byzantine time is more accurate in terms of perception by the human senses:

- Sunlight angle to
- Sunlight quantity

Of course, for all our recordings we use normal time lapse or ISO time standards. Byzantine time is used only to investigate trade signals.

C. Temporospacial definitions

AT the end of our Time Series classroom I ask from four students to stand at the north, west, east and west corners of an Amphitheatre with dimensions 70X50 m(students 1,2,3 and 4 respectively). Every student writes down the time frame of a certain moment collecting real time data for a Time Series problem.

Consider the movement of the earth's surface with respect to the planet's center. The earth rotates once every 23 hours, 56 minutes and 4.09053 seconds, called the sidereal period, and its circumference is roughly 40,075 kilometers. Thus, the surface of the earth at the equator moves at a speed of 460 meters per second--or roughly 1,000 miles per hour.[Herman 2009]

In simplified words for every 46 meters there is a 1/10 second difference. The students Three and Four has different time while students 1 and 2-has different Byzantine time.



Figure 7 University Amphitheatre

The **Unix epoch** (or **Unix time** or **POSIX time** or **Unix timestamp**) is the number of seconds that have elapsed since January 1, 1970 (midnight UTC/GMT), not counting leap seconds (in ISO 8601: 1970-01-01T00:00:00Z). Literally speaking the epoch is Unix time 0 (midnight 1/1/1970), but 'epoch' is often used as a synonym for 'Unix time'. Many Unix systems store epoch dates as a signed 32-bit integer, which might cause problems on January 19, 2038 (known as the Year 2038 problem or Y2038).

Yr: 2019 Mon: 5 Day: 9 Hr: 7 Min: 30 Sec: 10 GMT: Human d

Epoch timestamp: 1557387010
 Timestamp in milliseconds: 1557387010000
 Human time (GMT): Thursday, May 9, 2019 7:30:10
 Human time (your time zone): Thursday, May 9, 2019 10:30:10 GMT+03:00

Figure 8, epoch timestamp number

Yr: 2019 Mon: 5 Day: 9 Hr: 7 Min: 30 Sec: 11 GMT: Human date to Timestamp

Epoch timestamp: 1557387011
 Timestamp in milliseconds: 1557387011000
 Human time (GMT): Thursday, May 9, 2019 7:30:11
 Human time (your time zone): Thursday, May 9, 2019 10:30:11 GMT+03:00

Figure 9 Epoch number in milliseconds

Epoch timestamp: 1557387011
 Timestamp in milliseconds: 1557387011000
 Human time (GMT): Thursday, May 9, 2019 7:30:11
 Human time (your time zone): Thursday, May 9, 2019 10:30:11 GMT+03:00

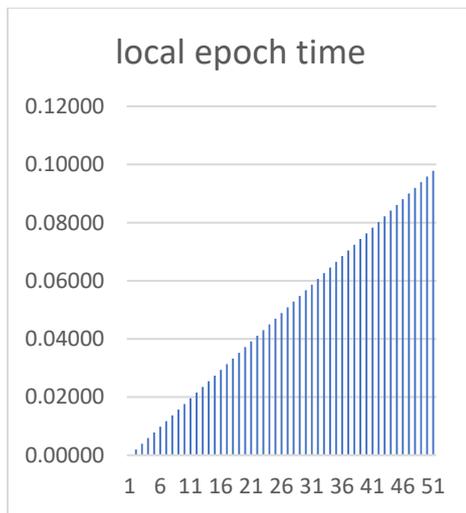


Figure 10, Amphitheatre time difference

Student row and sitting student local time

The table above describe the time difference for every student in my classroom.

D. Realistic Financial Time Series Replacement options

First of all, TimeSeries need a Temporospatial supplement to reach Time Space scientific standard. [Palit 2012] On the other hand we are confused with the TS acronym definition with at least four different meaningful options. Today we use “TS” for:

1. Time Series, the traditional 19th century definition.
2. Table Series; as used in Matlab to define a more universal structure.
3. Tempo Spatial; a minimum accepted structure for real life events.
4. Time Space; a more popular name for Euclidian Space plus time recordings.

Time series is still good to watch and evaluate a pump rotor. Traditional time series cannot define complex socioeconomic sciences. They belong to a no computer centuries and there will be replaced before Bitcoin stops mining. []

TS endorsement gained mathematical society interest but such a use is closer to astrology than astronomy.

Realistic Financial Time series redefinition headlines could incorporate features like:

- At least four-dimensional space base index to be integrated into an associated unique time-frame-space locator.
- The under the skin Big Personal data ergometric and medical recordings.
- The Personal URL plus any other data a person gets in touch every single moment through any legal collection methodology. The person here could be any legal entity, company family etc.
- An open standard to incorporate concise but complex structures. The foundation could be based on the reference magazine of “Journal of Time Series Econometrics” in order to avoid commercialization [].

- Complex computer structures like multidimensional tables in the new Microsoft SQL-Server.

One drawback is the necessity of backwards compatibility. We evaluate all existing FTS research to present our Realistic Financial Time Series structure initially for the purposes of our workstation. We hope that Economics community could evaluate our approach.

To our fellow Data Science Big Data scientists, we remind that despite of their effort to analyze everything through Temporospatial classification results will be poor and their effort is hopeless. Every moment is unique in the ten billion years of history and ten billion light years of universe size.

IV. “SKIN BORDERLINE” GDPR SAFE RECORDING

A. Audio text variations

In our agony to regain our personal data we investigated to whom belong a conversation and the penalties involved. European laws [] and GDPR super law [] forbid any public release of a recorder personal conversation or communication without prior consensus. The penalties for a public perform of a private conversation are very tough. Such a prosecution applies to a TV broadcasting and Internet posting primarily in Social Media. Traditional paper newspapers law was forgotten in another century. An example would clarify the situation and possibly we regain our dialogues:

- A crosstalk occurs between two persons. Person A records in Audio-Video the talk and he upload it in the Internet. The result is a felony with years hanging on Person A body.
- The person B uses the recording to feed an automatic audio to ASCII text computer program. The conversation is uploaded to Social Media as a text message. The case is still a felony but without serious penalties.
- The person B arranges the above ASCII text to be printed in a newspaper in the exact form that the automated program generated. This action is an offence with zero to nothing actual penalties.

Our little story reveals the problem of the personal data owner. A person has not property rights in his own speeches and hearings.

B. Skin borderline

A technical solution to the problem is to isolate the personal from the public space through the skin or the cloths of the subjected person. [] The above audio recording example has a simple solution the laryngophone. It is an inexpensive consumer device that is activated direct by the larynx speech. Therefore it records only one part of the conversation without the answer and another surround noise. It looks simple and archaic but very useful to prove the real victim in a sexual harassment cage and a felony without reliable witnesses.

We proved that is legal and ethical to write our voice in digital form. It is also legal to record senses like We examine the following senses [Mavromatidi]: Sight, Hearing, Taste, Smell, Touch, walking Balance, Neurological suffering and

other internal senses. No from time being we cannot record and/or interpret human attraction more known as Love but this could be possible in the future after Big Data Processing. Current cheap Chinese technology offers sensors, devices and integrated system to record and archive everything.

- Electro-chemical physiology sensors
- Neurobiology sensors
- Neuropsychology sensors
- Bio-radiation sensors
- Hormone and Hormonal transmission sensors
- Chemical signal sensors
- Bio-electric sensors
- Brainwave sensors
- Bio-sensitivity sensors
- Bio-electric information transfer sensors
- Sensory coding sensors
- Bio-magnetic navigation sensors
- Bio-electronic systems sensors
- Bio-electric field detection sensors
- Electrophysiological studies
- Pheromone and pheromone transfer sensors
- Multi-stability in perception sensors
- Subliminal perception sensors
- Neuro-magnetic response sensors
- Bio-infrared and bio-ultraviolet perception sensors

Most of them are not wearable or even transportable. They need special trimming care and everyday check. That is why the trader has to return to the office.

We try to find resources for a number of systems. Two indicative systems are :

- Inertial body Cartesian system, an independent very detailed positioning system. It could record and define vector movements of any arm and leg along with face grin and stomach punch.
- Cloth cartesian coordinating schema is a more generic development. In our case it replaces skin in the personal space boundaries concept.

V. MAGDALÂ PERSONAL DEVELOPMENT FEATURES

We present two workstation features: the zero and the infinity. An astrological idolatry and a Syrian Orthodox monk opinion.

A. Biorythms

From the dawn of mankind astrology and superstitions were significant part of human activity. In the dawn of pseudo-computerized age there was a biorhythm calculator. Biorhythms is a pseudo-science []

The calculator delivered his promises and it calculated prediction about your life.



Figure 11, Casio Biorhythm pseudo-science

The fulfillment of such a prediction is another (sad) story, credulousness is close to poverty and current society status outside of our Patriarchic principles.

B. Saint John Damascenus Virtues

Franciscan monks [Lenhart 1943] analyzed Osios John Damascenus work in virtues. These 240 Virtues have appropriate computer complex structure but we present them here in the original and archaic language because there is not an acceptable translation till our times.

Αγαθότης	Θεολογία
Αγάπη	Θεού ενόικησις
Αγιασμός	Θέρμη
Αγιωσύνη	Θεωρία
Αγνεία ψυχής	Θλίψις
Αγρυπνία	Θρήνος
Αγχίνοια	Ικεσία
Αγών	Ισχύς
Αδημονία	Καθαρά προσευχή
Αιδώς	Καθαρότης καρδίας
Αίσθησις	Καθαρότης νοός
Αίτησις	Καθαρότης συνειδήσεως
Ακακία	Καθαρότης σώματος
Ακατακρυσία	Καθαρότης ψυχής
Ακενοδοξία	Καλοεργία
Ακεραιότης	Καλοήθεια
Ακτημοσύνη	Καλολογία
Αλήθεια	Καρτερία
Αλουσία	Κατά Θεόν κοινωνία
Αμεριμνία εκ πάντων	Κατάνυξις
Ανάγνωσις δια Χριστόν	Κατάστασις ηθών
Αναιχμάλωτος λογισμός	Κατόρθωμα
Ανδρεία	Κλαυθμός
Ανεξικακία	Κόπος
Ανοχή	Μακροθυμία
Απάθεια	Μεγαλοπρέπεια
Απεριεργία	Μεγαλοφυχία
Απερπερία	Μελέτη
Απλότης	Μεταμέλεια
Απλότης ψυχής	Μετάνοια
Αποταγή του διαβόλου	Μίσος ζωής

Αποταγή των βιοτικών	Μνήμη	Επιστροφή προς Θεόν	Συμπάθεια
Αποχή κακών	Μνήμη θανάτου	Επιτηδειότης	Σύνεσις
Απροσπάθεια	Μόνωσις	Εργασία των καλών	Συνέχεια
Αρετή	Μόχθος	Έρεισμα θείον	Σύννοια
Άρνησις εαυτού	Μωρία δια Χριστόν	Έρευνα των θείων Γραφών	Συναγωγή Χριστού
Αρπαγή νοός	Νηπιότης εν Χριστώ	Ευγνωμοσύνη	Συντριμμός
Ασφάλεια	Νηστεία	Ευθυμία	Σχολή κατά Θεόν
Αταραξία	Νήψις	Ευθύτης	Σωφροσύνη
Αυτάρκεια	Νοός τήρησις	Ευλάβεια	Τα κατά φύσιν έργα
Άφεςις των οφειλομένων	Νουθεσία και παραίνεσις σύμμετρος και βιαστή	Ευπείθεια	Τα υπέρ φύσιν έργα
Αφιλαργυρία	Ξηροκοιτία	Ευσέβεια	Ταπεινώσις
Αφιλενδειξία	Ξηροφαγία	Ευσπλαχνία	Τελειότης εν Χριστώ
Αφιλοδοξία	Οδηγία	Ευσχημοσύνη	Τήξις σώματος
Αψευδής έλλαμψις	Οδύνη	Ευταξία	Τήρησις εντολών
Βασιλεία	Οδυρμός	Ευτολμία	Το ευπροσήγορον
Βουλή	Οικονομία	Ευτονία ψυχής και σώματος	Το ευπρόσιτον
Γαλήνη	Οικτιρμός	Ευφημία	Υγεία τελεία ψυχής
Γλυκύτης	Ολιγοδεΐα	Ευφυΐα	Υιοθεσία
Γνώσις	Ολολυγμός	Ευχαριστία	Υμνωδία
Γονυκλισία	Ομολογία	Ζέσις Πνεύματος	Υπακοή
Γυμνότης	Ομόνοια	Ζήλος θείος	Υπομονή
Δάκρυα της συνέσεως	Οσιότης	Ημερότης	Υποταγή
Δάκρυον ψυχικόν	Παγίωσις	Ηπιότης	Φιλadelphia
Δέησις	Παίδευσις	Ηρεμία	Φιλανθρωπία
Διάθεσις πνευματική	Παράκλησις	Ησυχία	Φιλοθεΐα
Διάκρισις	Παράστασις	Θανάτου	Φιλοσοφία εσωτερική
Διδασκαλία ως δει	Παρθενία	καταφρόνησις	Φόβος
Δικαιοσύνη	Πείνα	Θάρσος	Φρόνησις
Διόρασις	Πένθος	Θεία ζήτησις	Φροντίς
Δίψα	Πίστις	Θεία μέριμνα	Φυγή του κόσμου
Δοξολογία	Πόθος θανάτου αγαθός	Θείος έρως	Φυλακή ψυχής
Εγκράτεια	Ποίωσις	Θείος πόθος	Φωτισμός
Εγρήγορσις	Πόνος ψυχής	Θελημάτων εκκοπή	Χαρά πνευματική
Εδραΐωσις	Πραότης	Θεολογία	Χάρις
Ειρήνη	Προαΐρεσις αγαθή	Θεού ενοίκησις	Χρημάτων υπεροψία
Έκτασις προς Θεόν	Πρόθεσις	Θέρμη	Χρήσις ορθή των πραγμάτων
Ελεημοσύνη	Προκοπή	Θεωρία	Χρηστότης
Ελπίς	Προόρασις	Θλίψις	Ψαλμωδία
Εμπειρία	Προσευχή	Θρήνος	Ψυχής ανάκτησις
Έντευξις	Προσοχή	Ικεσία	
Εντροπή	Προτίμησις του πλησίον		
Εξαγόρευσις	Πτωχεία		
Έξις ενάρετος	Πυρπόλυσις		
Εξομολόγησις	Σεμνότης		
Επαινετή αλλοίωσις	Σιωπή		
Έπαινος του Θεού	Σκληραγωγία		
Επίγνωσις	Σοφία		
Επιδεξιωσύνη	Σπουδή		
Επιείκεια	Στεναγμός		
Επιμέλεια	Στερρότης		
Επίπονα δάκρυα	Στοργή κατά Θεόν		
Επιστήμη	Συμβουλή		

A lot of people they would be happy if they could reach only one of the above virtues while monks try for more. The question here arises about the necessity of all these in a semi-automated trading system?

There are thousands of answers in all sciences:

- The inherent ethical law (existential questioning)
- The emptiness after a huge success (psychology)
- The ethical aspects in Trade and Commerce gain significant importance lately. Examples are AML, Offshore banking and risk isolation in BIS (trade)
- It is written: 'Man shall not live on bread alone.' (Luke 4:4 dogmatic theology)
- And most important of all a happy trader is a successful trader. (JPMorgan rule)

We believe our customers have more than one reasons to load and use the personal development feature. This option is for profitable transaction it is not an academic exercise or some kind of secret church.

VI. MAGDALA PERSONAL URL+ DATA TRACKING

The professional Trader reads thousand of Web pages, email and attached documents. [Fu 2008, Ruiz 2012, Lyons 2014] Once upon a time the trader traveled around the globe, he interviewed investors and bond holders, he studied all internal memos. The supporting environment History has the following periodicity for the trader and his office:

- Initially a handful of Trading oligopolies had expensive offices in New York and London,
- At a later stage they invented the supersonic jet in order to capture the magic moment against the Physics laws.
- The Internet and Cellular phone inventions changed again their workplace. Today the trader can perform all the operations through a simplified distributed environment.
- We propose today the fully wired Trader to return in his new MAGDALÁ office (residence and car).

During our everyday current development work, we needed the existence of a new calculation schema and number. Our Faculty Dean provoked us to abandon the money-making nature of the project and method .

VII. DATA SCIENCE ARTIFICIAL INTELLIGENCE AGAINST COMPLEX HUMAN INTELLIGENCE

Artificial Intelligence is an old dream of scientists and fiction writers. The magnitude of computing power increase brought us today to an overestimation of Hardware and Software techniques to implement Artificial Intelligence and associate applications.

Computer application evolved to small AI chunks primarily with user assisted non-automatic operation. There are a lot of dominated options for today's Artificial Intelligence projects lot of options:

- Data Science , where the past denotes the future.
- Human Logic , where a triggering event brings a whole new world.
- Semi-automatic operation on a computer using Computer Human Logic under Data Science restraints.

According to the above, the homogenized knowledge that Data Science and Google provide it is very useful to the current world technology and business level. However, we think that they are incapable to fulfill the society and economic progression. Human Logic defeats Data Science at least two of major development strategies.

- Invention Patent creation; There ongoing work, preferences, user opinions and desperate government efforts cannot bring a PCT WILL invention patent.
- A new profitable business idea; By definition a new idea is a spark in the common hostile business complicated environment. This epiphany is usually

a statistical irregularity known as brainstorming or Divine intervention.

The Trader Workstation as a Data Science application confronts with anything in order to suggest a profitable transaction.

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