

The Ultimate Web Intelligence

Creating a Truly Humane Society Through Computational Social Science

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A Humane Society Would Ensure Universal Human Rights of United Nations

1 Right to Equality

3 Right to Life Liberty Happiness

5 Freedom from Torture

7 Right to Equality before Law

9 Freedom from Arbitrary Arrest

11 Innocent until Proven Guilty

13 Right to Free Movement

15 Right to a Nationality

17 Right to Own Property

19 Freedom of Opinion

21 Right to Free Elections

23 Right to Join Trade Unions

25 Adequate Living Standard

27 Right to Cultural Life

29 Free and Full Development

2 Freedom from Discrimination

4 Freedom from Slavery

6 Right to Recognition as Person

8 Right to a Competent Tribunal

10 Right to Fair Public Hearing

12 Right to Privacy and Home

14 Right to Asylum

16 Right to Marriage and Family

18 Freedom of Religion

20 Right of Peaceful Assembly

22 Right to Social Security

24 Right to Rest and Leisure

26 Right to Education

28 Right to a Social Order

30 Freedom from Interference

Constitution of The World: Universal Human Rights

- Global Bill of Rights: Life, Liberty and Pursuit of Happiness for Everyone on the Planet
- A Humane Civilization would create Scalable Sustainable Affordable Solutions that
 - Provide Basic Needs of All Humanity, e.g., Food, Energy, Water, Transportation, Education, Communication, and Healthcare
- Ensure Basic Human Rights
 - Life, Liberty and Pursuit of Happiness
 - Freedom from slavery and torture etc.
- Ensure Safety and Security of Society from Natural and Man-made Disasters

Creating a Humane Civilization

Creating a Truly Humane Society Requires Creating Solutions for

- Basic Needs of All Humanity, e.g.,
 - Food, Energy, Water, Transportation, Education, Communication, and Healthcare
- Basic Human Rights
 - Life, Liberty and Pursuit of Happiness
 - Freedom from Slavery and Torture
- Safety and Security of Society
 - from Natural and Man-made Disasters

And Development of Computational Social Science

A Humane Civilization Needs Technologies for Creating Personal Guardian Angels

- *To Get The Right Information*
 - Information about natural and man-made emergencies
 - tsunami, hurricanes, earthquakes, severe weather, etc.
 - and hazmat, nuclear, biological
 - Information about disruption of water, electricity, food, and transportation
 - Information about traffic, strikes, school closings, stock markets, etc.
- *To The Right People*
 - Every person on the planet that may be impacted
- *At The Right Time*
 - Just-in-time, not too soon and not too late
- *In The Right Language*
 - Messages in English (or other languages) to be translated into the preferred language of the recipient
- *In The Right Medium of Text or Multimedia*
 - and spoken out using text to speech
- *With The Right Level Of Detail (Granularity)*
 - Provide summaries of the text as precisely and quickly as an expert

A Case Study in Protecting Humanity From Natural Disasters

- Every Person Should Get Location Specific Personalized Warnings About Potential Calamities Like Typhoons And Tsunamis as soon as known
 - In the future, every person on the planet should have a better chance of survival from natural disasters
- Create Guardian Angel Technologies
 - Every Person on The Planet Has A Personal Guardian Angel Embedded in a Smart Phone
 - Guardian Angels Perform Future-aware Computation
 - and whisper that a tornado is heading your way
- A social network of Guardian Angels can learn and predict what events are likely to impact their owner
 - By sharing anonymized knowledge using publish/subscribe mechanisms of social networking
 - Facebook of Guardian Angels?

2004 Tsunami

- The 2004 Indian Ocean Earthquake Occurred at 00:58:53 UTC on 26 Dec 2004
- With the Epicentre Off The West Coast Of Sumatra, Indonesia.
- The Shock Had a Moment Magnitude of 9.1–9.3 And a Maximum Mercalli Intensity of IX (Violent).
- Caused When The Indian Plate was Subducted by The Burma Plate
- Triggered A Series Of Devastating Tsunamis Along The Coasts Of Most Landmasses Bordering The Indian Ocean,
- Killing 230,000–280,000 People in Indonesia, Sri Lanka, Thailand etc.
- Inundating Coastal Communities With Waves Up To 30 Metres (100 Ft) High.
- It Was One Of The Deadliest Natural Disasters In Recorded History

Tsunami 2004:

Right Information to the Right People

Right Information to the Right People at the Right Time in the Right Language in the Right Medium (Voice, Video and/or Text) in the Right Level of Detail

- Step 0: Determine the Implications of Tsunami 2004
- Step 1: Right People: Find the affected people on the Coast and their Smart Phone info. Wake up if Needed
- Step 2: Right Time: In enough time to get out of Harms Way
- Step 3: Right Language Synthesize a message in the his/her local Dialect
- Step 4: Send Text, Audio or Video Message
- Step 5: Only that “30 meter waves will hit in 15 minutes. Get to High Ground”. Suppress other details

Access to Right Information: Determine the Implications of Tsunami 2004

- Find and Filter the Sources of Information
 - Global Experts notify
 - National Experts who Notify
 - State Experts who Notify
 - Local Experts who Notify all the Local Guardian Angels
- Publish/Subscribe Model
- Identify Impacted Regions, Expected Time of Arrival
- Send Only Notifications that are Actionable by GAs
 - Include all information that is needed by GA
 - e.g. 100 Foot Waves
- Relevant Information
 - Many events do not affect you
 - Your GA needs to analyze all the relevant (local) Published Notifications to see which are of immediate threat

Determining the Right (Impacted) People

- Right People: Find the affected people on the Coast and
- Their Smart Phone info.
- Wake up if Needed

At the Right Time

- Right Time: In enough time to get out of Harms Way

What Language? Text or Audio? How Much Detail?

- Step 3: Right Language Synthesize a message in the his/her local Dialect
- Step 4: Send Text, Audio or Video Message
- Step 5: Only that “a 35 foot wave will hit in 15 minutes. Get to High Ground”. Suppress other details

Structure of a Personal Guardian Angel

- A Personal Guardian Angel is a Mobile App (like a shadow) for Each Person on the Planet
 - Always-On, Always-Present and Always Working
 - Enduring (life-long)
 - Autonomic and Nonintrusive
 - Always-Learning
 - Ubiquitous: Device Independent (cloud resident or local)
- PGAs Monitor, Analyze and Learn From Experience;
 - Learn From Own Experience And Experience of Others
 - And share knowledge with a community of Guardian Angels
 - Automated Discovery of Data and Information Sources
- Data, Suitably Anonymized, can be Used to Learn Appropriate Responses For Every Possible Situation by
 - learning preferences by observing user choices,
 - learning by task similarity and user similarity,
 - learning by error correction and simply learning thru clarification dialog (Does that mean yes? Would you care to define it?).

Technologies of Gats

Gats Publish and Subscribe

- Service Agents are created by service providers using agent templates included in the platform
 - Download and Pay just as for Apps and Personalization
- Guardian Angels Can request and manage services on behalf of their masters.
- Every organization that wants to enable access to their services by Guardian Angels will create a Service Agent for this purpose.
- Opt-in “Waze” like Models
- Privacy
 - Individual
 - Other participants
- Legal
 - Can be subpoena-ed
- Security
 - Information falling into wrong hands

Publish/Subscribe Eco System of Guardian Angel Global Infrastructure Platform

Activity Monitoring
and Intention
Awareness

User

Guardian Angels

Cloud Based
User Infrastructure
Platform

Knowledge Source Publishers

Global, National and Local

Knowledge Source Distributors

ReTweet Model

Global DataBase of Humankind

Personalization and Customization of Guardian Angels

Cloud Based Guardian Angel Platform Linked to User Smart Phone

Learning

- Learn by Watching
- Learn by being taught
- Learn by doing
- Learn by asking others
- Learn by discovery

Security

- Multimodal authentication
- Continuous authentication
- Encryption

Big Data Management

- Process, index, store and retrieve data
- Mine, Cluster, and Summarize relevant experience

Dialog

- With humans
- With other agents

Self Healing

- Detect errors
- Resolve errors

Power Mgmt

Activity Monitoring

Multi-Sensor Integration

Autonomic Systems

Etc.

Family of Personalized Guardian Angels

Subscribe to National and Global Sources and Act on Relevant Information

Scalable Sustainable Affordable Personal Guardian Angels

- By 2020, Everyone on The Planet Has Access to a Smart Phone with Global Connectivity
 - A Smart Phone is Expected to Cost \$50
- Every Man, Woman And Child will have Access to 16GB+ of Space on The Cloud from Facebook, Google And Microsoft
- Everyone on The Planet Has Access to
 - Unlimited Computation, Memory and Bandwidth
- Language divide and literacy divide limits access to the internet-enabled solutions to many people in the world.
 - Providing the right information in the right language and right medium enables scalability to all the people on the planet.
- Sustainability and Affordability are natural consequences of exponential reduction in size and cost of Information Technology.

Affordability

- Free Sensor Intensive Smart Phone to Every Person on the Planet: Current cost of \$200/Unit
- Estimated 2020 Cost per Unit of \$50
- Assuming 8B population
 - One per Family of 4? One per Person?
- Expected Global Cost \$100 to \$400 Billion
 - 0.1% to 0.4% of the Gross World Product
- Funding from Government and Other Stakeholders
 - Smart Phone Manufacturers
 - Telecom Service Providers
 - IT Product and Service Companies
- Increase in Economic Activity and Productivity
 - Expected Payback Time: Less than 1 year

...and Privacy

- A Facebook of Guardian Angels Are Able To Share Anonymized Knowledge Using Publish/Subscribe Mechanisms Of Social Networking, and
 - Enabling Each Guardian Angel to Learn and Predict What Events Are Likely To Impact their Protégé
- A Guardian Angel Knows the Location Information of The Protégé at All Times so as to Provide an Alert and/or a Detailed Notification. If Needed, It Must Be Able to Turn-on The Smart Phone.
- No Privacy Breach Since Each Guardian Angel only Shares Information Already Known to the Service Provider

Technology Challenge

In Conclusion

- Creation of Guardian Angel Technologies for providing the right information to every man, woman and child on the planet can lead to a Humane Society
- While the cost appears to be prohibitive, on a per capita basis it represents less than 0.1% of GWP.
- A Social Network Of Guardian Angels that can anticipate and share potential disaster scenarios can save 50% to 80% of all accidental deaths in the world
 - and save millions of lives and hundreds of billions of dollars of property damage every year

Action Item for Creating a Humane Civilization

Sponsor Annual Competitions and Prizes to Promote Best Practices in Sustainable Scalable Affordable Solutions in the areas of

- Basic Needs of All Humanity, e.g.,
 - Food, Energy, Water, Transportation, Education, Communication, and Healthcare
- Basic Human Rights
 - Life, Liberty and Pursuit of Happiness
 - Freedom from Slavery and Torture
- Safety and Security of Society
 - from Natural and Man-made Disasters