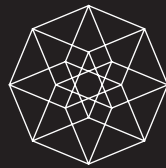


States of Emergency Embassy



fundamental research lab

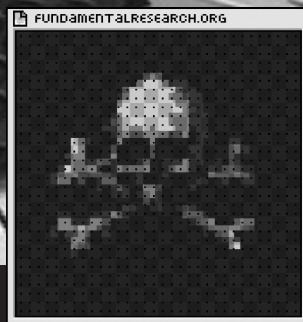
fundamentalresearch.org



States of Emergency Embassy

SEE is a online and physical infrastructure which deals with spying on data and codes in the www space and which provides a frame for reflection about problems of domination and treatment in the complex urban environment. The embassy renders consular services and organizes courses of cryptography. The SEE project is based on the prototypical software and on the flexible database FLOAT, created by Robert B. Lisek in cooperation with Harvestworks Media Art Center and Lower Manhattan Cultural Council in New York.

We treat our software as a weapon, as a conceptual vehicle to explore issues of domination and compulsion in the physical and digital space.





roads to AI

tactical media

hacktivism

12.10.24673

894,6783.098456

posets

This is the continuation of the cycle of actions realized in downtown Manhattan and Wall street, focused on the problems of cutting and controlling physical and digital space, barrage systems, firewalls and Wall street itself as a most powerful symbol of American economic dominance.

access
inc.

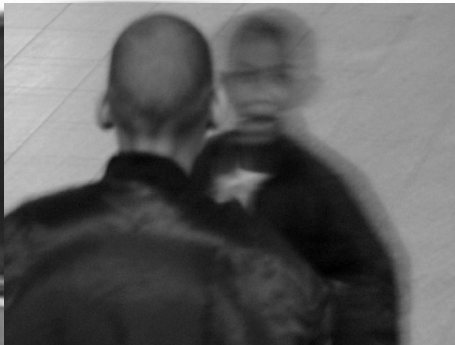


this about fear, windows, codes and power, about false morality, about psychosis,
about stupidity and adaptation, about grotesque logic of violence

to insert subversive messages within the existing structures is a much more efficient strategy



hit them/me/you/us



guards, security stuff, media, politics, pentagon, NASDAQ, birds, elevators, airplanes, pathtrains, offices, screeches, crashes, horn, sirens, streamlines, vacuum-sealed corporate hallways, manhattan, locus solus, fluorescent lights, chrome elevators, glass dors, empty corridors on a Sunday morning, tables, toybombs, terroristic WMD, microsurveillance cameras, cards, antistatic plastic curtains, ID, stairs, subway, cyberspace grid, neural nets, logical rules, multiple breakdowns, tunnels, satellites, rain, helicopters, traffic, towers

If you're suddenly searching for such keywords, the phenotype of your external memory unit must be a little bit off.

```
public void openEditWindow(Node node) { m_display.openEditWindow(node); } public void
zoomIn() { m_display.zoomIn(); } public void zoomOut() {
m_display.zoomOut(); } public void setViewState(int state) { m_display.setViewState(state); } public void
toggleViewTitles() { m_display.toggleViewTitles(); } public boolean isViewTitles() { return
m_display.isViewTitles(); } public int getViewState() { return m_display.getViewState(); }
public void deselectCurrNode() { m_selectedInactiveID = m_selectedNodeID; m_selectedNodeID = -1;
} public void selectCurrNode(Node node) { m_selectedInactiveID = m_selectedNodeID; m_selectedNodeID =
toggleViewNodeID; } public void toggleViewNodeID(int nodeID) {
m_selectedNodeID = nodeID; } public void toggleEditBoxFocus(Node node) {
m_display.saveEditBoxFocus(); } public void play.resetView() {
m_graphManager.resetView(); } public void m_display.setEdgeID(int edgeID) {
m_display.setEdgeID(edgeID); } public void m_display.toggleViewNodes() {
public Node getSelectedNode() { if(m_selectedNodeID == -1) return null;
return m_graphManager.getNode(m_selectedNodeID); }
public Edge getSelectedEdge() { if(m_selectedEdgeID == -1) return null;
return m_graphManager.getEdge(m_selectedEdgeID); }
if(m_selectedNodeID == -1) {
(Node)nodes.elementAt(m_selectedNodeID);
if(m_selectedEdgeID == -1) {
m_display.saveEditBoxFocus();
if(m_selectedEdgeID == -1) {
m_display.disconnectSelectedEdge();
}
m_display.disconnectSelectedEdge(m_selectedEdgeID);
}
node node = (Node) (m_graphManager.getNodes().
elementAt(m_selectedNodeID));
node.setCenter(0, 0);
}
logout();
dataTransform(m_selectedInactiveID);
m_mouse.click();
//////////
DATABASE INT
//////////
user with given password
* @param password * user's password */** public void login(String login, String password) {
// TODO error handling LoginResponseDTO response = m_server.login(login, password);
// System.out.println("last doc ID : " + response.getLastDocumentId()); // System.out.println("ses-
sion : " + response.getm_sessionID()); // System.out.println("user : " + response.getm_userID());
//System.out.println(response.getErrorMessage()); if ((response != null) &&
(response.getReturnCode() == BaseResponseDTO.OK)) { m_sessionID =
```



```
node node = (Node) (m_graphManager.getNodes().
elementAt(m_selectedNodeID));
node.setCenter(0, 0);
}
logout();
dataTransform(m_selectedInactiveID);
m_mouse.click();
//////////
DATABASE INT
//////////
user with given password
* @param password * user's password */** public void login(String login, String password) {
// TODO error handling LoginResponseDTO response = m_server.login(login, password);
// System.out.println("last doc ID : " + response.getLastDocumentId()); // System.out.println("ses-
sion : " + response.getm_sessionID()); // System.out.println("user : " + response.getm_userID());
//System.out.println(response.getErrorMessage()); if ((response != null) &&
(response.getReturnCode() == BaseResponseDTO.OK)) { m_sessionID =
```




stack

We begin with a very simple set of rules for building blocks and their assembly - one type of unit, one type of connection - and then assemble them into a variety of mechanisms.



flextext

```
public class Floe
private int m_selectedNodeID;
m_graphManager
int m_selectedNodeID;
toggled off, so
turned back on
////////////////////////////////////
m_sessionID;
////////////////////////////////////
**/* public static Floe
SingletonBean
"pl.art.fundamental.floe.Floe"
return new Floe();
m_display.setSelectedNodeID(m_selectedNodeID);
{
////////////////////////////////////
user is logged in
////////////////////////////////////
public int getNumNodes()
figured in Spirit
public void run()
GraphManager
JGraphFrame(frame)
m_display.setSelectedNodeID(m_selectedNodeID);
setupStartEdge(m_selectedNodeID);
m_display.reset();
to be

play.redrawGraph();
m_graphManager.setSelectedNodeID(m_selectedNodeID);
int i = 0;
m_graphManager.setSelectedNodeID(m_selectedNodeID);
j);
m_graphManager.setSelectedNodeID(m_selectedNodeID);
for (i = 0; i < m_graphManager.getNumNodes(); i++)
m_graphVertex node2 = (Node) m_graphManager.getNode(m_selectedNodeID);
}
// system. This
if(m_graphManager.getSelectedNodeID() != m_selectedNodeID)
// handle the click
!m_graphManager.getSelectedNodeID()
setEdge(m_selectedNodeID);
(Node) m_selectedNodeID = m_graphManager.getNode(m_selectedNodeID);
node.setMoving(false);
m_selectedNodeID = -1;
}
}
// if the mouse was single clicked
if(wasClicked && (itemID == -1 || m_graphManager.isNodeID(itemID))) {
// if we have clicked a
valid item
if (m_graphManager.isNodeID(itemID)) {
m_selectedEdgeID = -1;
}
```

touch stream



```
base items
GraphManager
private
ie nodes are
/ they are

public Floe() {
ce (singleton)

{
keDataClean()
e</code> if
}
r's id */
interface (con-
ver; }
ew
ew

artNodes();//
een changed,
er().schedule(
m_dis-
private int
des() {
for(j = -
(-3 * i, -3 *
ector nodes =
nt j = 0;

node2);
}
;

Node node =
.elementAt(m_selectedNodeID);
node.setCentered(false);
}
```

Pulling a gun's trigger *before* loading it results in a much different event from the pulling its trigger *after* loading it.

five finger keyboard



We treat our software and hardware as a weapon, as a conceptual vehicle to explore issues of domination and compulsion in the physical and digital space.

```
setEdge(m_selectedNodeID);
(Node) m_selectedNodeID = m_graphManager.getNode(m_selectedNodeID);
node.setMoving(false);
m_selectedNodeID = -1;
}
}
// if the mouse was single clicked
if(wasClicked && (itemID == -1 || m_graphManager.isNodeID(itemID))) {
// if we have clicked a
valid item
if (m_graphManager.isNodeID(itemID)) {
m_selectedEdgeID = -1;
}
```

FLOAT is an on-line community channel providing „experimental space“ and a variety of tools through which users can voice their ideas, both locally and globally, for transmission worldwide.

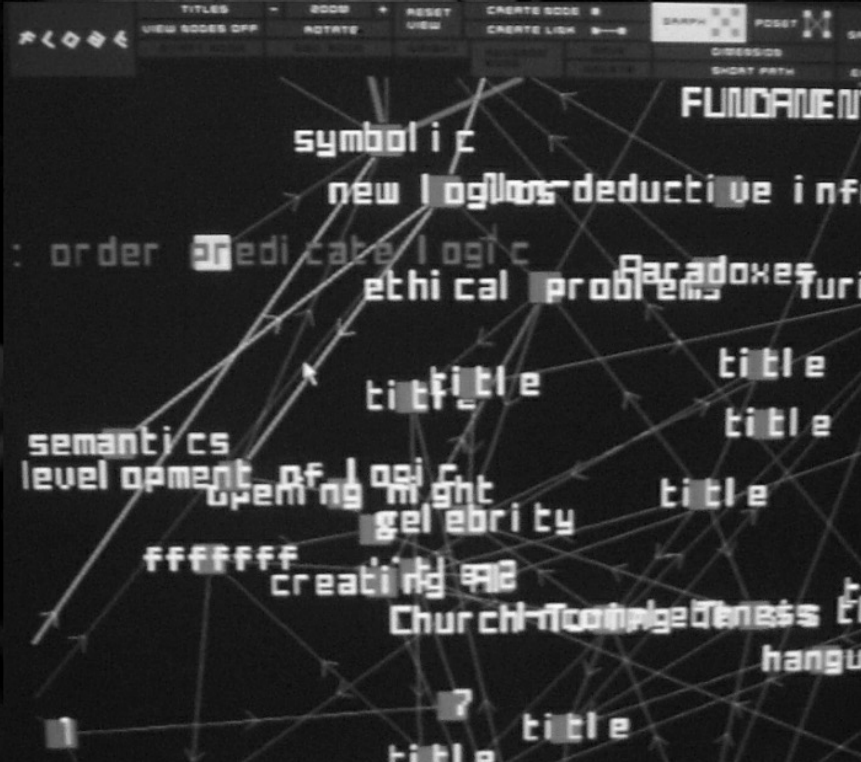
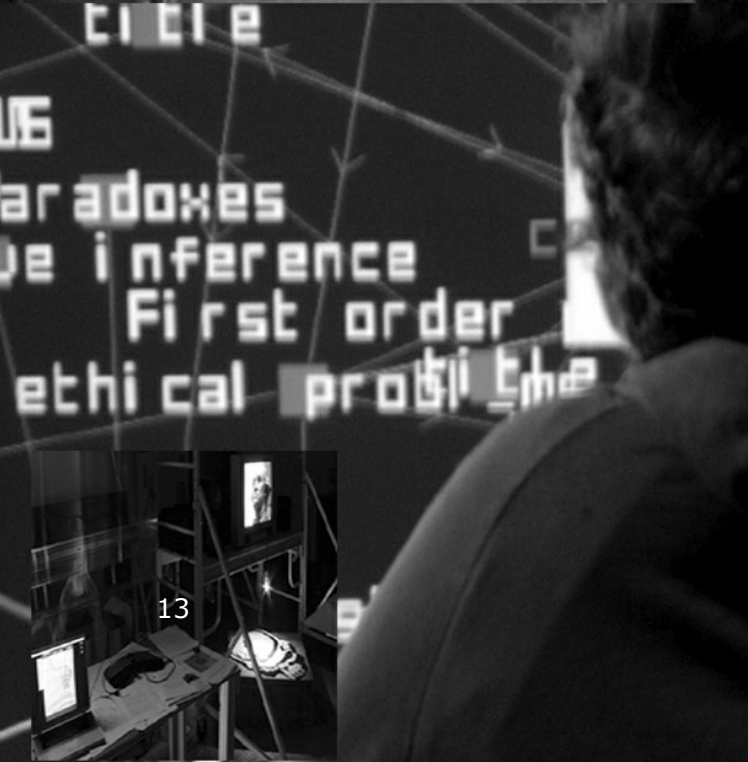
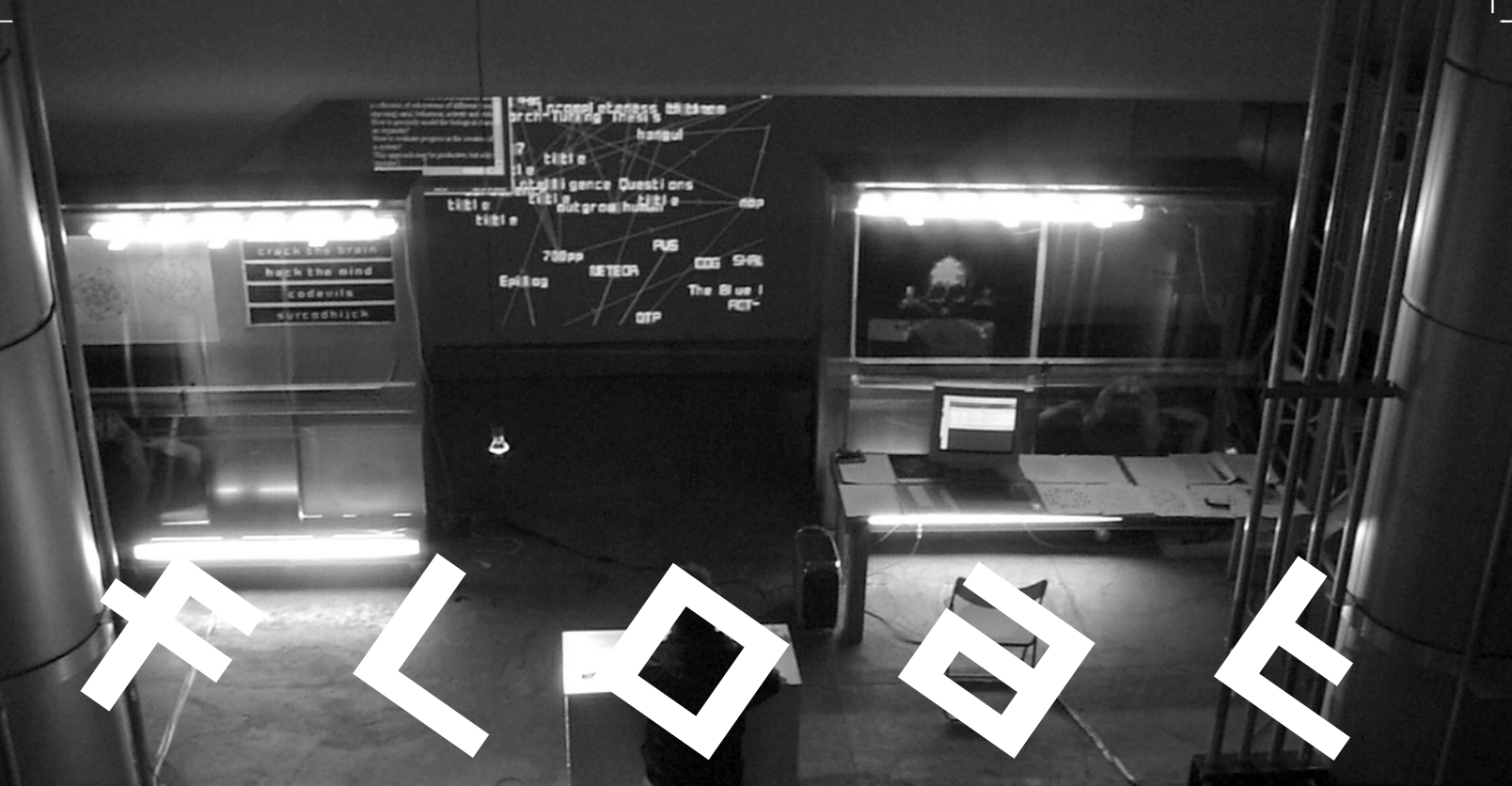
FLOAT is a multi-user hyperstructure kit - a set of tools or primitives for building, modeling, analysis, and visualization of hyperstructures.

The main problem that we're considering is a problem of ordering (sorting) and visualizing information. The tool should be sufficiently flexible and immobile at the same time. Flexible in the sense that the user must always have the possibility of adding new content and the possibility of re-organizing the information to which he has access. Immobile in the sense that the structure in which information is arranged is partially ordered.

In order to organize information we use directed graphs without directed acyclic graph DAG in which their edges possess weight. Node (or cell) is any information unit: text, image, sound or other kind of data.

FLOAT is a platform that

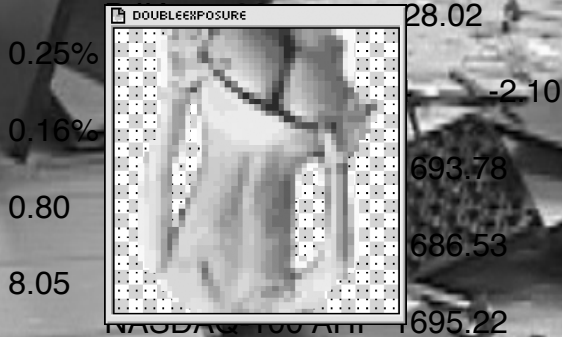
- provides alternative methods for the collection and distribution data
- uses corporate strategies to frame and construct "intellectual product"
- tests the models of ownership, copyright, and branding,
- supports the exploration of the experimental topics as: Hacktivism , Artificial Intelligence, Android Robotics,
- tests the myth of mighty computer technology
- provokes the discussion about the impact of the new technologies on our culture
- supports knowledge transfer and the exchange of know-how abilities
- provides right access to the flexible, intelligent, electronic network
- transforms closed circle of power systems into the open network: checks and compare the artist's position in relation with the stock market. Piece deals with definition of artist as sensu stricte independent person who is in permanent resistance towards existing status quo : the game in which rules are produced



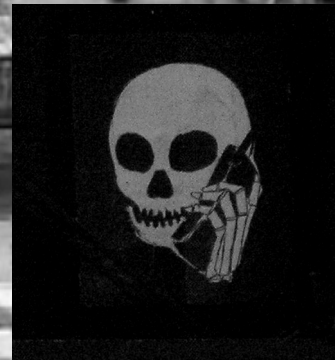
We show the digital data are not connected with specific form of manifestation, data can be filtered, structured, and transformed in many different way. We use for instant NY stock market data as a kind of blocks of which new intelligent personalities are build.

#f•aF i Σ∂1R A-ò- &Às(

NASDAQ 2311.11 -3.53
0.15%



1.44 0.09%
Russell 1000 702.57 -1.13
0.16%
Russell 2000 740.16 -2.19
0.30%

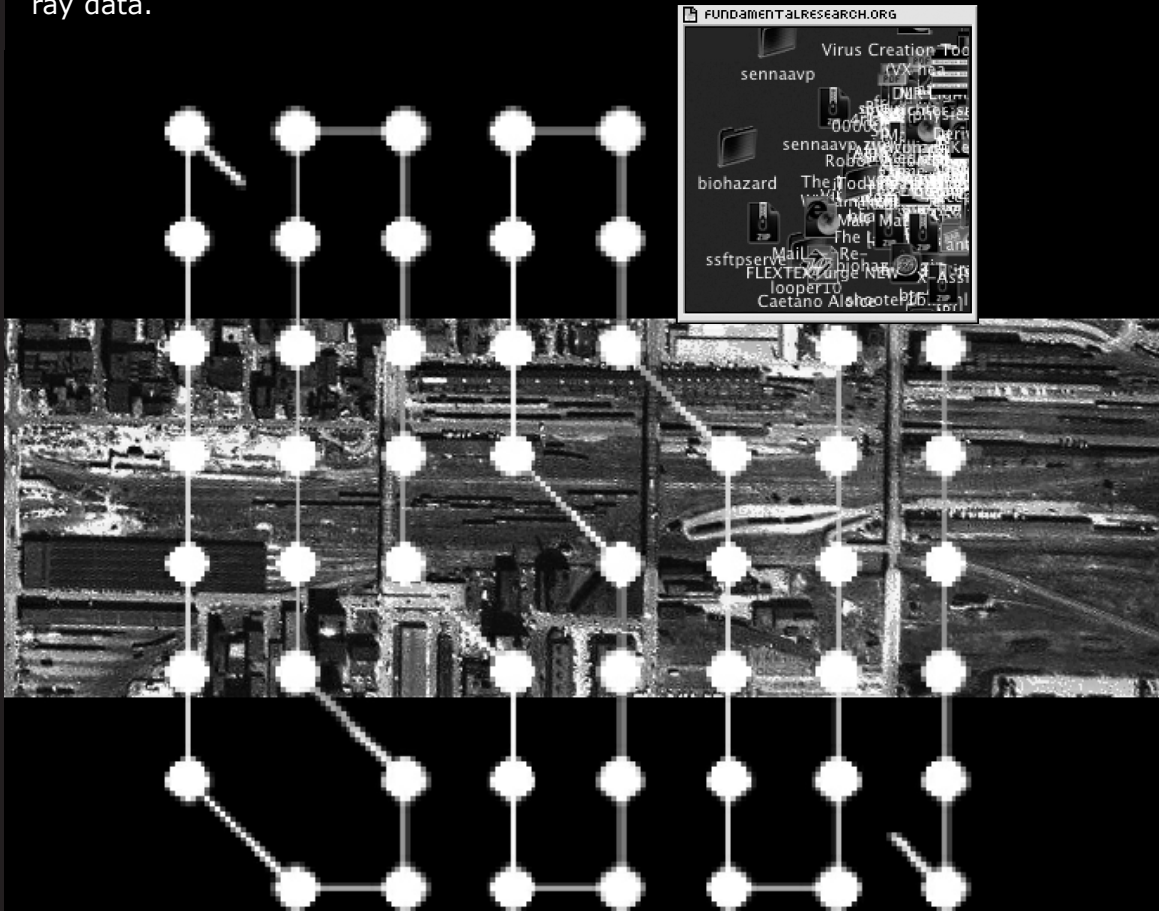


**IN LUXURY, EXOTIC
UTILITY VEHICLES**

Skin Interiors
Enhancements
e Sound Systems
heater Systems

SUPRAMIND

SUPRAMIND is an experimental collective software space, deals with the brain activities information by using PET scanning and numerical DNA microarray data. The Project concentrate on manifesting the biological output of human brain as virtual worlds that have a one to one correspondence to their inhabitants to explore the potential of spatialized data for the consideration about consciousness (located in the anterior cingulate cortex (ACC)). A computer system will scan audience's brain waves to try capturing the state of their minds. The brain waves will be used for the Project to control and navigate virtual worlds. We will create also Supramind-bot - brain market player, which deals with PET data and DNA microarray data.





EL-CIPHER

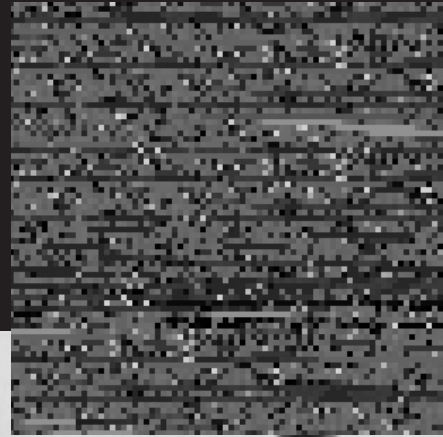
The EL-CIPHER is a collection of cryptographic algorithms and protocols, implemented for use from Java. Among the contents of the package:

- Public-key algorithms: RSA, DSA, ElGamal.
- Hash functions: MD2, MD4, RIPEMD, SHA256.
- Block encryption algorithms: AES, ARC2, Blowfish, CAST, DES, Triple-DES, IDEA, RC5.
- Stream encryption algorithms: ARC4, simple XOR.
- Protocols: All-or-nothing transforms, chaffing/winnowing.

PROBLEM

How can privacy protection and individual rights be secured in the information society?

0. Sinister elements are stalking you while online
1. Authoritarian governments are restricting your ability to access information
2. Micromanaging employers are watching and recording every website you visit
3. Unscrupulous marketers are stealing your email address and other personal information
4. Licentious advertisers are spoiling your online experience with pop-up adverts & unsolicited bulk email (SPAM)
5. Hackers are hiding malicious data files on your computer that may compromise your privacy



FVSMP - first virtual stock market player, based on an integration of numerical data and information derived from online news (ERONEXT and NASDAQ realtime stock market data), the program equipped with ability of gathering information and learning during the dialog and by using live stock market data as source.

wwai

Towards a massively-parallel-netware-oriented
artificial intelligence distributed worldwide

$$F(x) = \sum_{y:y \leq x} G(y) \mu(y, x)$$

While the World Wide Web could become the nerve center for a social super-organism, it remains frustratingly rudimentary. Documents lack uniformity and integration; linking is unintelligent and unstable; interaction is limited, controlled by authors and browsers. However, things are changing. Advances in artificial intelligence could be applied to the WWW, transforming it to a globally distributed, massively parallel, wetware-oriented universe.

We would like to present the following:

1. To set visibly main problems encountered by users of WWW and immanent limits of WWW structure
2. To discuss existing and potential solutions of relevant problems by using AI methods:
3. To specify these AI-tools that may be most useful and applied universally in the future
4. To debate social consequences of WWAI existence. Will WWAI actually function as a nerve centre for the social superorganism, an emergent system formed by both humans and AI systems, joined together by the Internet and other cutting-edge communication technologies

1. Criticism of World Wide Web

2. Roads to Artificial Intelligence

- approaches,
- limitations,
- fundamental problems,
- applications,
- most ambitious AI projects

3. What is the future of the Web?

- Towards World Wide Artificial Intelligence
- SM model
- Speculations

VBS.Fool

1. General criticism of World wide Web

The WWW is one of the most popular forms of hypertext, but at the same time one of the worst.

What do I hate about WWW?

1.1 Lack of uniformity and integration:

Incorrect and non-uniform base structure, badly designed from the beginning. Documents are treated separately, isolated from each other. Programs also arise from various sources, created as separate applications independent of each other. Effect: users are forced to operate a whole multitude of increasingly complex programs (trash, crash-prone Tower of Babel). Every so-called update, intended to add new functions, unnecessarily adds to the confusion.

1.2 One-way, unstable and unintelligent linking:

Fixed, one-way connections. Links fail when pages are moved. Linking is a system of external tags, excluding the possibility of creating internal inference mechanisms.

1.3 Lack of creative possibilities

There is no possibility of adding your own comments and notes to the material you are accessing.

As things stand, alternative versions of documents are inaccessible. There is no possibility of adding one's own commentary to an existing document. You can jump between documents, but their structural order remains the same, without any possibility of organizing the documents to suit your own needs. Thus you have no influence over a static presentation.

1.4 Intrusiveness:

Web presentations are totally controlled by their authors and by browsers. Access to a site is generally controlled on an all or nothing basis.

1.5 Lack of ownership laws and micropayment:

There is no copyright, and responsibilities are unclear. Because there is no mechanism of micropayment, a best part of our knowledge is not to be found on the web.

Let's notice that the development of WWW operates as a process of the accumulation of information, from small bits of text in a pre-www stage, to the phase where a whole multitude of texts, images and animations is published on the web. The effect of this is a "stupid", dead, global book-encyclopedia-trash, serving only for collecting information.

The situation is indeed changing, thanks to the attempts of implementing some results from the domain called AI that creates a real heady mix.

01

AGFA


```
#### execute-me
```

2. Roads to AI

In consideration of the theoretic constructions, we can distinguish the following approaches:

2.0. symbolic, logic rules based systems, logical programming, symbolic level – intelligence conceptually understood.

2.1. connectionist, Neural Nets – models inspired by the working of the brain, simulations – measurable intelligence.

2.2. mixed

2.0. Symbolic methods consist of a manipulation of knowledge, presented in a symbolic way, by using logic rules imposed a priori. In this case their strength depends on the state of modern logic.

At the present time, the most influential theory for the logic part of reasoning systems is mathematical logic, especially, first-order predicate logic.

First order predicate logic: Mathematical model of the part of language built up from the propositional connectives and the quantifiers. Propositional connectives: The linguistic constructs "and", "not", "or" and "implies". Quantifiers: The linguistic constructs "there exists" and "for all".

Though these theories have been very successful in many domains, their application in cognitive science and artificial intelligence shows fundamental differences from human reasoning in similar situations.

(1) Uncertainty

Traditional theories of reasoning are certain in

several aspects, whereas actual human reasoning is often uncertain in these aspects.

- The meaning of a term in mathematical logic is determined according to an interpretation, therefore it does not change as the system runs. On the contrary, the meaning of a term in human mind often changes according to experience and context.

- In mathematical logic, the meaning of a compound term is completely determined by its "definition", which reduces its meaning into the meaning of its components and the operator (connector) that joins the components.

On the contrary, the meaning of a compound term in human mind often cannot be fully reduced to that of its components, though is still related to them.

- In mathematical logic, a statement is either true or false, but people often take truth values of certain statements as between true and false.

- In mathematical logic, the truth value of a statement does not change over time. However, people often revise their beliefs after getting new information.

V37.Elysium
The I
Research
Intelligence
Trojan.Java.MinThreat
Virus.Tool.Tutorial.DOS
Trojan.BAT.KillFiles
Trojan.Downloader.MS
Virus.Ninjo.Random.oc
Exploit.SS.ScriptProc
Backdoor.Linux.Bof1
BAT.TEEN.Pttrn.js.vad
Virus.Fool.vad
Virus.Zulu.vad
Trojan.Tropper.MS.bo

File Name	Status	File Name
V:\TROJANS\user\lptc\DE00E955-89892677.vlz	Infected	IRC-Nova.Generic.Mins
V:\TROJANS\user\lptc\DE00E955-89892677.vlz	Infected	Backdoor.Aqobot.rid
V:\TROJANS\user\lptc\DE00E955-89892677.vlz	Infected	BAT.Trwdr.vad
V:\TROJANS\user\lptc\DE00E955-89892677.vlz	Infected	Trojan.BAT.NoShare.vad
V:\TROJANS\user\lptc\DE00E955-89892677.vlz	Infected	Backdoor.IRC.Quick
V:\TROJANS\user\lptc\DE00E955-89892677.vlz	Infected	IRC-Nova.Flno.js.vad
V:\TROJANS\user\lptc\DE00E955-89892677.vlz	Infected	Trojan.Ninjo.Loigq

- In mathematical logic, a contradiction leads to the "proof" of any arbitrary conclusion. However, the existence of a contradiction in a human mind will not make the person to do so.

- In traditional reasoning systems, inference processes follow algorithms, therefore are predictable. On the other hand, human reasoning processes are often unpredictable, and very often an inference process "jumps" in an unanticipated direction.

- In traditional reasoning systems, every inference process has a prespecified goal, and the process stops whenever its goal is achieved. However, though human reasoning processes are also guided by various goals, they often cannot be completely achieved

(2) Non-deductive inference

All the inference rules of traditional logic are deduction rules, where the truth of the premises guarantees the truth of the conclusion. In a sense, in deduction the information in a conclusion is already in the premises, and the inference rule just reveals what is previously implicit.

In everyday reasoning, however, there are other inference rules, where the conclusions seem to contain information not available in the premises:

Induction produces generalizations from special cases.

Abduction produces explanations for given cases.

Analogy produces similarity-based results.

None of the above inference rules guarantees the truth of the conclusion even when the premises are true. Therefore, they are not valid rules in traditional logic. On the other hand, these kinds of inference seem to play important roles in learning and creative thinking. If they are not

valid according to traditional theories, then in what sense they are better than arbitrary guesses?

(3) Paradoxes

Traditional logic often generates conclusions that are different from what people usually do. Sorites paradox: No one grain of wheat can be identified as making the difference between being a heap and not being a heap. Given then that one grain of wheat does not make a heap, it would seem to follow that two do not, thus three do not, and so on. In the end it would appear that no amount of wheat can make a heap.

Implication paradox: Traditional logic uses " $P \supset Q$ " to represent "If P, then Q". By definition the implication proposition is true if P is false or if Q is true, but "If $1+1 = 3$, then the Moon is made of cheese" and "If life exists on Mars, then robins have feather" don't sound right.

Confirmation paradox: Black ravens are usually taken as positive evidence for "Ravens are black." For the same reason, non-black non-ravens should be taken as positive evidence for "Non-black things are not ravens." Since the two statements are equivalent in traditional logic, white sacks are also positive evidence for "Ravens are black," which is counter-intuitive.

Wason's selection task: Suppose that I show you four cards displaying A, B, 4, and 7, respectively, and give you the following rule to test: "If a card has a vowel on one side, then it has an even number on the other side." Which cards should you turn over in order to decide the truth value of the rule? According to traditional logic, the answer is A and 7, but people often pick A and 4.

By the elimination or addition of some laws from classical logic, new logics arise.

We should mention here for example

- intuitionist logic (without the law of excluded middle, p or $\neg p$),
- multi-valued logics (L3-Lukasiewicz's 3-valued logic, L_n - Post's n -valued logic or Kleene's 3-valued logic),
- fuzzy logic, which is a superset of conventional (Boolean) logic that has been extended to handle the concept of partial truth - truth values between "completely true" and "completely false",
- paraconsistent logic (without the explosive law, $p \rightarrow \neg p \rightarrow q$), where the presence of some contradictions doesn't break the deduction.

The semantic interpretation is based on studying the Kripke structures or appropriate algebras (i.e. PB-algebras). The Kripke structure for (e.g.) the intuitionist logic are very natural objects called partially ordered sets.

Nevertheless, with regard to effectiveness, an important role is played by logic of combinators, which is a logic using special operators, in which the type of function is not differentiated from the type of argument. Theoretically, a statement about a fixed point is the same as a statement about recurrence in a computability theory, i.e. study of computable functions on the natural numbers, a theory concerned with recurring functions. Recurring functions have been separated from general functions (being natural numbers used in discussions) as those functions which are effectively calculable.

Generally the development of logic performs

- from binary logic to multi-valued,
- from extensional to both extensional and intensional,
- from monotonic to reversible,
- from deduction only to multiple types of inference.

Applications: The construction of intelligent systems based on logical rules are mainly used for:

- Solving problems: logical games and problems, board games, symbol counting (chess has a combination level of 10 120, whereas Go has 10 761) In this field computers are better than humans: in 1997 Deeper Blue beat Gary Kasparow.
- The main methods are the seeking and reduction of problems. Splendid results for draughts, chess, etc., but Go, for example, requires more refined techniques. Symbol counting with the help of algebraic computer programs.
- logic reasoning, theorem proving : for example: program Logic theorist – Newell, Shaw's program for proving theorems from Principia Mathematica
- program EQP – proof of Robinson's hypothesis (RH: every Boolean algebra is Robinson's algebra), convers doesn't work, the problem didn't have the solution since 1940
- Natural language: language understanding, machine translation, speech understanding.
- Construction of text databases, contextual knowledge
- Automatic programs / autoprograming
Description of algorithms with the help of natural language, automatic writing of programs, modification of the program itself, programing access to databases for managers.
- Expertise, consultant systems, knowledge engineering.
Knowledge representation, dialog system, explanation of understanding, acquisition of frequently unconscious knowledge
- Robotics and vision, recognition of images, shapes, motion control.

Most Important Proof systems:

ACL2 (University of Texas) www.cli.com/software/acl2
Coq, Proof Assistant
www.pauillac.inria.fr/coq
EVES , ORA (Canada)
www.ora.on.ca/eves.html
NuPrI , Cornell
www.cs.cornell.edu/Info/Projects/NuPrI/nuprI.html
ProofPower
www.trireme.demon.co.uk/index.html
PVS (Prototype Verification System), SRI International
www.cls.sri.com/sri-cls-pvs.html
TPS, Carnegie Mellon University
www.gtps.math.cmu.edu/tps.html
Bliksem www.mpi-sb.mpg.de/~nivelle/bliksem/index.html
LeanTaP, a tableau-based theorem prover
www.emmy.ira.uka.de/~possega/leantap/
Gandalf (winner of the mixed division at CASC-14) www.chalmers.se/~tammet/gandalf/
METEOR model elimination pr, Duke University
www.cs.duke.edu/~ola/meteor.html
OSHL, university of North Carolina
www.cs.duke.edu/~zhu/prover.html
Otter (winner of the equational division at CASC-13)
www.mcs.anl.gov/AR/otter/index.html
SETHEO www.jessen.informatic.tu-muenchen.de/~setheo
ATP, University of Texas at Austin
www.ma.utexas.edu/users/bshult/ATP/
MIZAR, Warsaw University
www.web.cs.ualberta.ca/~piotr/Mizar/

2. 1. Connectionism is simply a method of modeling calculating processes with the help of artificial networks, using neuron structures whose fundamental asset is the similarity to the natural ability of the brain to process parallel information (PDP - parallel distribution processing). In this case, the learning process consists in a proper selection of links' weight between neurons, in conformity with one of the versions of the Hebbian rule. The original Hebbian learning rule works on symmetric links (similarity, not inheritance), the weight of a link is decreased when one end is activated and the other isn't.

Another approach that traces out a learning model is the probabilistic approach, in which the probabilistic inference mechanism is based on the Bayesian rule.

NN are employed everywhere where classic (algorithmic and heuristic) methods are used,

but also in:

- specialist programs, e.g. ACORN in medicine
- modeling and simulation programs, e.g. neuropsychological disorders in mental illnesses
- expert programs
- inference programs
- consulting/decision-making programs, e.g. predicting currency fluctuations.
- programs for image analysis and handwriting recognition
- Data Mining programs for recovering knowledge from data and the intelligent processing of data, a transformation data into knowledge, Knowledge Discovery or Data Mining is the partially automated process of extracting patterns, usually from large data sets.

2.2. MIXED. At present, systems have been created which join both symbolic and connectionist approaches.

The dichotomy of the connectionist versus symbolic seems to be false.

Beginning from W. Pitts and W. McCulloch to B. Goertzel, the main problem is how logic-like processes might emerge from neuron-like processes, or more exactly - the topic is: how to construct a neural network, so that symbolic logical inference will emerge from its dynamics?

Fundamental Problems:

Incompleteness theorem: Gödel's discovery, that sufficiently strong axiomatic theories cannot decide all propositions which they can express.

Church-Turing Thesis: Claim that every computable function can be computed by a Turing machine (TM: mathematical model of computing device with unbounded memory). We still don't have a better test than Turing's. In the course of competition for the Loebner Prize (a limited Turing test) some of the judges, on the basis of conversations through the terminal, regarded certain programs to be more "human" than the people conversing with them.

Can man create AI?

Yes – in some spheres intelligence (understanding as an ability to use gathered knowledge) is already better than human intelligence!

Can an artificial brain create conscience?

There is no evidence to show that conscience is requisite in the solution of problems by intelligence. For AI, conscience is a secondary problem. Conscience is only the ability to interpret the state of the brain, results appears in working memory.

There are no fundamental reasons why artificial systems with a brain-like organization shouldn't be convinced that they have feelings, there is no reason to reject this thesis, philosophical experiments don't provide answers.

Could AI evolve and outgrow human intelligence?

This is already happening in many spheres, and the field is ever widening.

Nevertheless AI will not be precisely equal to human intelligence – artificial systems have other limitations, and exact simulation of the operation of the human brain is very difficult.

Could the uncontrolled development of AI lead to ethical problems?

Absolutely. The dangers: military uses, the increasing rate of social change, the prospect of the complete automation of many trades.

A robot rebellion is unlikely – the virtual space of artificial systems would be more interesting for them than any physical space.

Most ambitious Artificial Intelligence projects:

I can honestly say that I don't think there are here present many serious contenders in the race to build the first viable artificial intelligence.

- Artificial Intelligence Enterprises (www.a-i.com), a small Israeli group led by Jason Hutchens, working towards the creation of an AI conversation system of the Webmind Conversational Engine type, based on language comprehension, semantic and so forth

- CAM Brain project - started at ATR in Japan and continued at StarLab in Brussels - led by Hugo de Garis, a kind of cellular automata implementation. It's co-author is a Pole - Andrzej Buller (Gdansk Artificial Brain Initiative). According to Buller, the Japanese decided to alter the premise of the project and to keep a significant part of it secret.

Hardware is based on CAM8 (MIT), with the following software:

CA automatic cellular module, Genotype Phenotype Memory module for the storing of chromosomes,

Fitness Evaluator Unit, used in evaluating nerve structures, Genetic Algorithm Unit, Interconnection Memory Module.

- CYC – a project which is actually a large database containing the descriptions of thousands of concepts, on which are based Commonsense knowledge trials in first-order predicate logic. Logically, this demands millions of rules! Is this realistic?

The first million rules concern general classifications, limitations, such concepts as time, space and substance – a basic ontology enabling several CYC systems to communicate.

- Think Machines – Dany Hillis, a project concentrating mainly in seeking a suitable hardware platform on which to build real AI.

- SOAR – a project being developed by Allan Newell based on his own theory of the working of the mind, an important aspect of which is higher rules in the course of solving problems. The process of creating a piece of knowledge is continuous, using the results of lower-level realizations to enable the creation of new knowledge on higher levels.

e.g. R1-Soar, a professional system for the configuration of computer systems
Before learning, 1731 decision cycles, 232 rules
After learning: 7 decision cycles, 291 rules

Used, among other things, in the creation of agents teaching the operation of complicated technical equipment in a virtual environment, war games, and robot operation.

- ACT-R, is a cognition architecture, looks like a programming language; however, its constructs reflect assumptions about human cognition, Like a programming language, ACT-R is a framework: for different tasks (e.g., Tower of Hanoi, memory for text or for list

of words, language comprehension, communication, aircraft controlling), researchers create models (aka programs) that are written in ACT-R and that, beside incorporating the ACT-R's view of cognition, add their own assumptions about the particular task.

ACT* used for: explaining the ownership of memory, the order of answers and the learning of new words, the learning of program elements, and geometric understanding in theorem proving.

ACT* as a base for intelligent teaching programs, so-called tutorials: LISP, Prolog, Pascal,

- PSYCHE- European Brain Project, The building of a brain simulator for neuro-psychic purposes – seven European centres.

- SHRUTI based on the relational structures (frames, schemas) which are represented by focal clusters of cells, and inference in SHRUTI corresponds to a transient propagation of rhythmic activity over such cell-clusters. Dynamic bindings between roles and entities are represented within such a rhythmic activity by the synchronous firing of appropriate role and entity cells. Rules correspond to high-efficacy links between cell-clusters, and long-term facts correspond to coincidence and coincidence-failure detector circuits. In particular, SHRUTI demonstrates that temporal synchrony in conjunction with structured neural representations suffices to support rather complex forms of relational information processing in the brain.

- NOVAMENTE (AGIRI) project of Artificial General Intelligence Research Institute conception Artificial General Intelligence. (SMEPH). The goal of AGI research is the creation of broad human-like and transhuman intelligence, rather than simply "smart" systems that can operate only as tools for human operators in narrowly-defined domains. AGI conception is based on the Self-Modifying,

Evolving Probabilistic Hypergraph (SMEPH) intended to identify general structures and dynamics hypothetically applicable to the mind of any sort of intelligent system. In the SMEPH approach, the knowledge in an intelligent system is modeled as a probabilistically-weighted hypergraph (a special mathematical data structure composed of very general nodes and links, including links that point to links or multiple nodes/links), with specific semantics for the nodes and links in the hypergraph. The hypergraph may completely self-modify over time, using the knowledge contained in itself to guide its transformation into something completely different. Nodes are manipulated by two core cognitive algorithms: PTL (Probability Term Logic), used for first-order and higher-order inference, and Combo-BOA (Bayesian Optimization Algorithm operating on combinator-tree objects), used for probabilistically-guided (non-random) GA-type evolution for solution finding and optimization.

- The OSCAR Project . John Pollock directs the OSCAR Project, funded in part by the National Science Foundation. The goal of the OSCAR Project is the formulation of a general theory of rationality and its implementation in an artificial rational agent. The function of artificial agents is to draw conclusions and make decisions on the basis of information supplied to them.

- RKF is the follow-on program. HPKB (DARPA) High Performance Knowledge Bases (HPKB) is a research program to advance the technology of how computers acquire, represent and manipulate knowledge. HPKB is run by the Defense Advanced Research Projects Agency.

- CRSG – project of this group revolves around the design and implementation of "conscious" software agents.. An autonomous agent senses and acts upon its environment in the service of its own agenda. An autonomous agent with human-like cognitive capabilities

is called a cognitive agent. By a "conscious" software agent, their mean one designed within the constraints of Bernard Baars' Global Workspace Theory of Consciousness.

- KSL Ontology Server Projects

The Ontology Server is a tool that supports distributed, collaborative editing, browsing and creation of Ontolingua ontologies. The Ontology Server can be used with any recent web-browser. Projects Using the Ontology Server: CommerceNet, The Enterprise Project, The InterMed Project, The Trial Bank, Accounting Information Systems, The SHADE Project, The Genbase Project, Network-based Information Brokers, Bayesian Network to Ontolingua /KIF/frame Transformer

- The Blue Brain Project - was launched by the Brain Mind Institute, EPFL, Switzerland and IBM, USA in May, 2005.

- COG developed in MIT Humanoid Robotics Group. Projects of Behavioural Intelligence [Coco], [Cog], [Kismet], [Macaco], robots

Based on the assumption that intelligence should be developed gradually, beginning with animal perception of surroundings, and motor senses (co-ordination of movement, sound, object recognition) and moving to symbolic intelligence (speech recognition, thought).

Based on the assumption: human intelligence is the result of development processes, social activity, and the integration of multi-modular sensoral information.

New skills arise on the basis of past experiences. People do not form complete and faithful representations.

Many dissimilar representations are used in different contexts.

The brain does not have a CPU – there is no central control unit.

The brain has specific limitations, even in logic. Irrationality of human behaviour, the role of emotion. Human intelligence requires a human body; easier to make a robot than to simulate gravity, flexibility, limb co-ordination, etc.

As can be seen, researchers are concentrating on either one another aspects of the brain. It seems that nobody is actually attempting to build a complete artificial brain, a computer system - observ-

ing and operating in the environment of a kind of WWW which could serve as a 'body' – which remembers information, recognizes patterns both in it's surroundings and within itself, a system which would be capable of creating new structures and finding solutions to hitherto insoluble problems.

3. Towards World Wide Artificial Intelligence

WWW is a natural space to experiment with these constructions and tools.

Today's attempts to create AI have limited scope, but let's imagine that WWW could be transformed in one **WWAI**:

a massively-parallel-wetware-oriented intelligence, consisting of structures and dynamics emergent from a community of intelligent software objects, distributed worldwide.

This would indeed be a progressive process, in which we supercompile and improve our own cognitive functions.

Today we are at the stage where we've hooked up this AI constructions to a "simulated body" in WWW and started teaching it experimentally.

In the future, WWAI will function as a nerve centre for the social superorganism, an emergent system formed by both humans and AI systems, joined together by the Internet and other cutting-edge communication technologies.

What is the future of the Web? (speculative)

- Present work is concentrated on replacing analog technology with its digital and network equivalents – e.g. publication becomes ever-faster, and in such fields as science the Web radically altered the way in which information is exchanged, and a similar phenomenon can be seen in the field of business. All of this is interesting, but it is nevertheless only the extension of existing aspects of human society into the digital world (for example, in the opinion of some critics we don't see any expansion in business, but merely the replacing of processing tools by others). There is very little discussion aimed at proposing something fundamentally new.

- The Web in its present form can be compared to the mind of a small child which has not yet learned to think for itself.

- During the next decades we will see a growth in this infantile mind and a progression from this larval phase to the coming of an autonomous, global and intelligent WWAI system

- it will be a fusion of two fields which have been separated:
Artificial Intelligence and Networking

- the consequences of this progression will have far-reaching effects – the arrival of AI and then WWAI will be a turning-point in the history of our civilization. For the first time in his history, man will stand face-to-face with an intelligent non-human being.

the third phase is interesting, but I would like to go a step further and out forward the vision of an intelligent network

How can we transform the Web from a global trash-can of books into a massively parallel self-organizing software?

What will happen when the inert collection from the third phase begins to form self-organizing patterns, memory, and thinking structures and dynamics which hadn't previously been programmed?

Problems:

P1. The problem of scale: the problem of computer power (the human brain has 10 000 000 000 neurons, compared to which our computers have the brain of a chicken, but on the other hand a standard neuron network is more than is necessary – a typical workstation can simulate barely hundreds of neurons evolving in a sensible manner)

P2. The problem of architecture: Another need is the creation of a suitable, elastic computer architecture, which could be continually upgraded.

WWW, or part of it, could potentially transformed into a collective computer of great power

Each web page with a suitable Java (or other) code is a potential "neuron" in the WWAI, And every link between pages can be treated as a "synaptic link" between two neurons. Of course, the neuron-synaps metaphor should not be treated literally. It's more appropriate to think of web pages as clusters of neurons. What's important is that the possibility exists, and that it's possible to transform the Web into a dynamic cognitive system.

Independent creation of new pages and the modification of old ones by web agents.

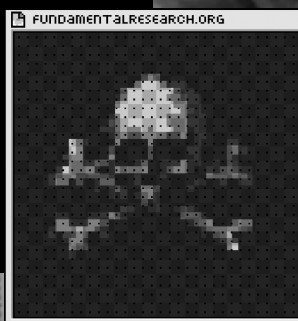
Web pages do not have a fixed content, but are arranged by totally dynamic of self-modification. When a new page is added to WWAI the new pat-

tern is immediately recognized, the page “moves” until it finds its place in the network order, and old pages must also update their position. This order cannot be static like, for example, the categories in the Yahoo search engine.

To my mind what we need in order to form WWAI is a general theory of the thinking process, which abstracts specific human and computer characteristics, in other words which will explain the structure and dynamics of thought independent of the specific components from which it is composed.

It also seems to be important to think about the long-term future of Web intelligence.

But that really belongs to ethical or spiritual speculation. That which begins with smart search engines and servers (through the stage where WWAI will be independent of human intelligence, to the stage when the border between WWAI and human intelligence will no longer exist: Hive Mind, Supraman.) could finish with something really cosmic and surprising – a new form of intelligence evolution on our planet. Pessimistic version: it could all end up completely differently – the existence of some kind of total global neurosis (from human neurosis to global; WWAI neurosis or global brain cancer).





Robert B. LISEK is an artist, mathematician and a founder of FUNDAMENTAL RESEARCH LAB; he is involved in the number of projects focused on alternative art strategies, hacktivism, tactical media and artificial intelligence. His projects include among others: FLOAT- Lower Manhattan Cultural Council, New York, WWAI- Siggraph05, Los Angeles; Falsecodes - Red Gate Gallery & Planetary Collegium, Beijing; FLEXTXT- CiberArt, Bilbao, Medi@terra - Byzantine Museum, Athens, RunMe, Moscow, Ars Electronica, Linz; FLEXTXT - ACA Media Festival, Tokyo; STACK - ISEA 02, Nagoya; SSSPEAR -17th Meridian, WRO Center for Media Arts, Wroclaw; HAPPY NEW FEAR - FluxusOnline, NHorizonte.

selected exhibitions and presentations

SEE - Lower Manhattan Cultural Council, New York
FLOAT - Harvestworks Media Art Center, New York
WWAI - Pratt Institut, NY
WWAI- Siggraph 05, Los Angeles,
FALSE CODES - RedGate Gallery, Beijing,
FLEXTXT&NEWEB - CIBER@RT -
Bilbao Festival&Congress,
FLEXTXT &SuckMyDickTapio_ - ISEA2004,
Helsinki-Stokholm-Tallin ,
FLEXTXT - Medi@ Terra - Byzantine Museum,
Athens ,
STACK- RunMe - Moscow, Ars Electronica Linz
FLEXTXT - ACA Media festival, Tokyo,
FLEXTXT - Pixel Raiders -Sheffield University,
HYPERTEXT - Univ.of Nottingham (onl);
KNIVES AS TRAJECTORIES- Globalica WRO Center
for Media Arts, Wroclaw;
S T A C K - ISEA 02, Nagoya, JAPAN;
SSSPEAR -17th Meridian, WRO Center for Media
Arts, Wroclaw;
HAPPY NEW FEAR - FluxusOnline, New Horizonte,
Brasil; Das Schwarze Ubout,
WE GOTTA GUN 2004, Museum Wesel, Lower Rhine,
Germany Art Gallery Verbands-Sparkasse, Wesel,
Fournos Center for the Art and New Technology,
Athens, Greece, Boring Art.com
Contemporary Art Museum ex-manifattura tabac-
chi, Pescara, Italy,
Unimovie festival-video art section, Kresija Gallery,
Ljubljana, Slovenia
Istanbul Contemporary Art Museum, Turkey
Schloss Ringenberg, Hamminkeln, Germany
Insa Art Space, KCAF / Seoul, Korea
2nd Busan Video-festival, Space Bandee / Busan,
Korea, Chungdam Art Festival, Seoul, Korea
Galeria e Arteve te Kosoves, Prishtina, Kosova
Goethe-Institut Toronto, Kanada
The Luigi Pecci Centro for Contemporary Art,
Florence, Italy

Audiovisual Festival zemos98 in cooperation
with Endanza, Sevilla, Spain
ODER- Euroscreen21,
PAN KUNST FORU M NIEDERRHEIN ,
Medienturn - Graz,
Kunstpalse - Dusseldorf,
Fournose Center - Athens,
HOUSE OF SPIRIT - BWA Wroclaw
MUU GALLERY - Helsinki
boringart gallery, Istanbul, Graz, Paris, Athens,
Tokyo, NY,
Studio Anghelos - Palermo
S(now) - VideoBeat, NS
Black gaps - Condition of cube, Klodzki
S(+)OS/Stack - SFF, Split
Stackdata - PIXXELPOINT, Gorizia
Rawar & i kill U- Digital Progression, Entropy
Gallery, Wroclaw
SsspeAr - WRO2000@culture -- 17th Meridian
Exhibition, Mathematical Tower,
Mediation/Medialization Congress
Ubermas & Menge / FestFestungFestival,
Wroclaw
The Snake sheds his skin - Entropy Gallery,
Wroclaw
Der Tod Opera - Art Marketig Syndicate
Ubermas & Menge / FestFestungFestival,
Wroclaw
The Snake sheds his skin - Entropia Gallery,
Wroclaw
Model-Fund - Potoczny Gallery, Wroclaw
House-War waves- Lowicki Gallery, Wroclaw
Uterus - WRO 99 - media art biennale,
Contemporary Teater, Wroclaw
Uterus - The Centre of Studies on Jerzy
Grotowski's Work, Wroclaw
Jesus Hardware & Software - BWA Wroclaw,
Artists Museum, 1993 Grohman's palace, Lodz
Ordered Sets - Stephan Banach International
Mathematical Center, Warsaw

entropy

Main Entry: **en·tro·py**

Pronunciation: 'en-tr&-pE

Function: noun

Inflected Form(s): plural -pies

Etymology: International Scientific Vocabulary 2en- + Greek tropE change, literally, turn, from trepein to turn

1 : a measure of the unavailable energy in a closed thermodynamic system that is also usually considered to be a measure of the system's disorder and that is a property of the system's state and is related to it in such a manner that a reversible change in heat in the system produces a change in the measure which varies directly with the heat change and inversely with the absolute temperature at which the change takes place; broadly : the degree of disorder or uncertainty in a system

2 : the degradation of the matter and energy in the universe to an ultimate state of inert uniformity b : a process of degradation or running down or a trend to disorder

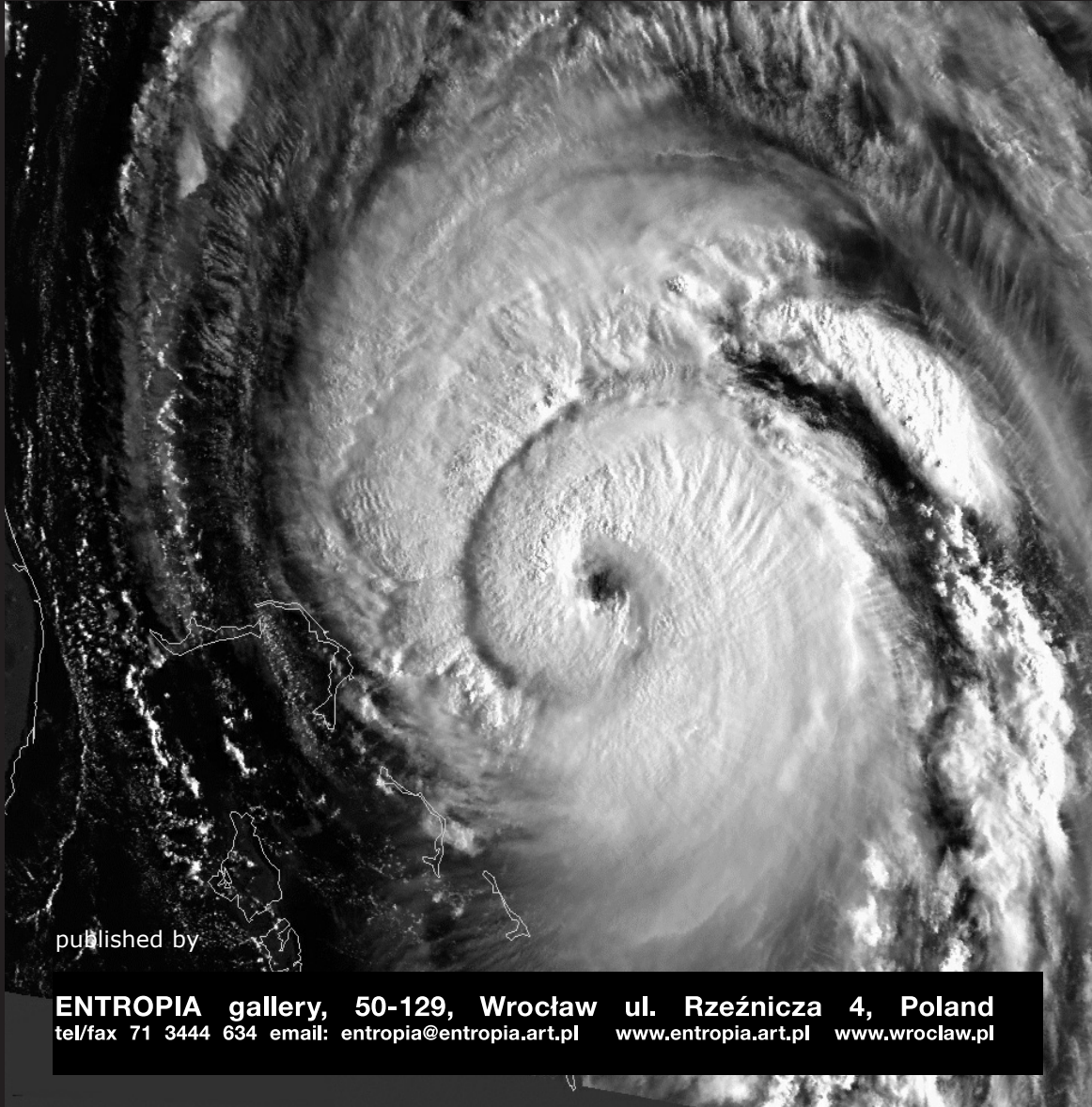
3 : information_measure: a system of measurement of information based on the probabilities of the information-bearing events

4 : CHAOS, DISORGANIZATION, RANDOMNESS

- en·tro·pic /en-'trO-pik, -'trä-pik/ adjective

- en·tro·pi·cal·ly /-pi-k(&-)IE/ adverb

Merriam-Webster Dictionary



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