

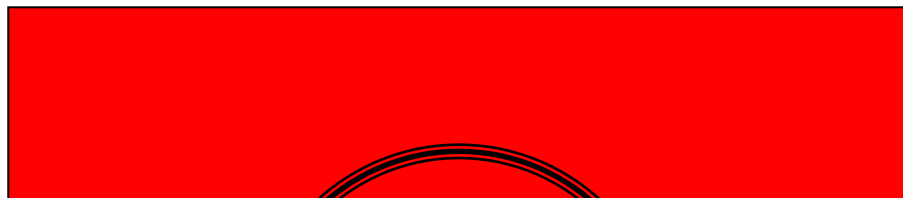
From Personal to Cultural Computing

- how to design the user's experience -

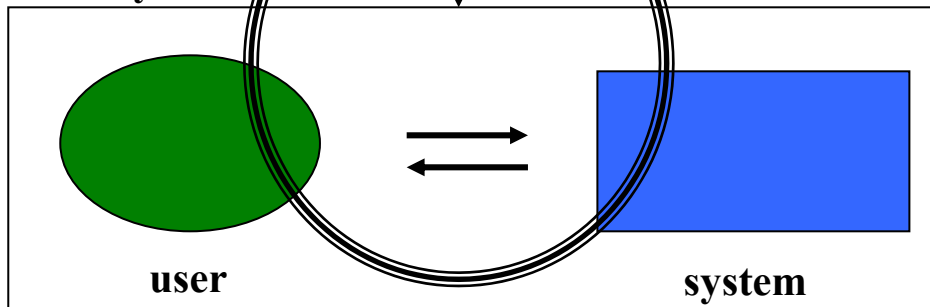
Matthias Rauterberg
Eindhoven University of Technology
The Netherlands

What do we aim for?

Application domain



Interactive system



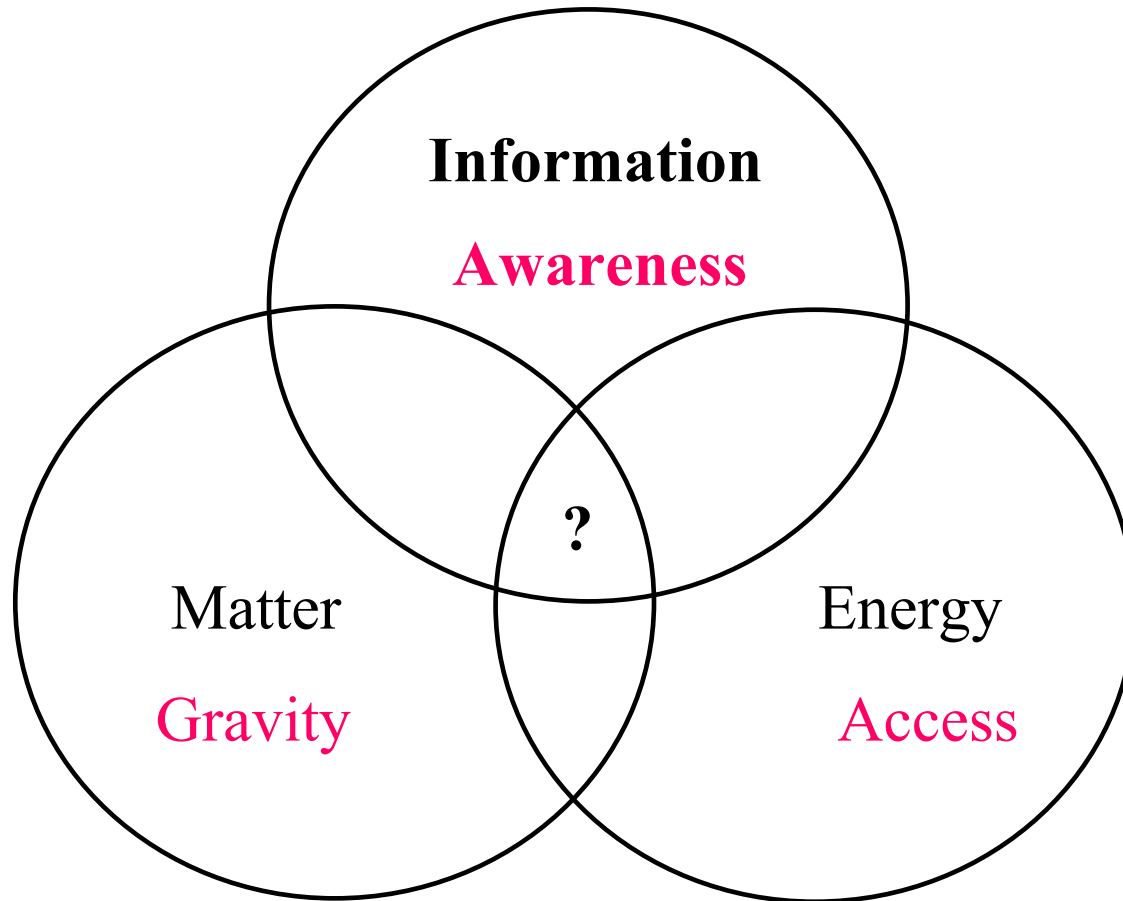
Goal:

Actual Performance

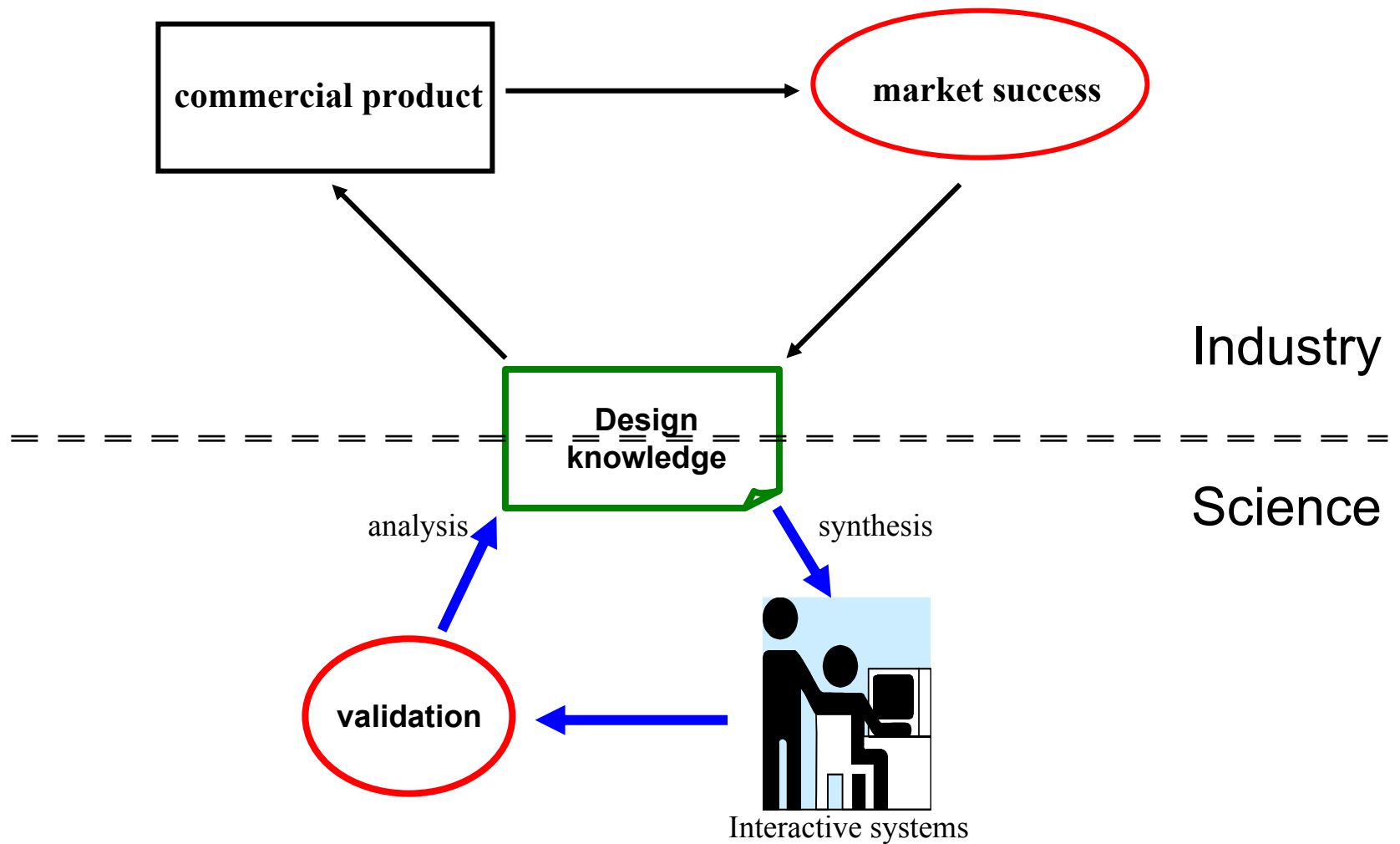
=>

Desired Performance

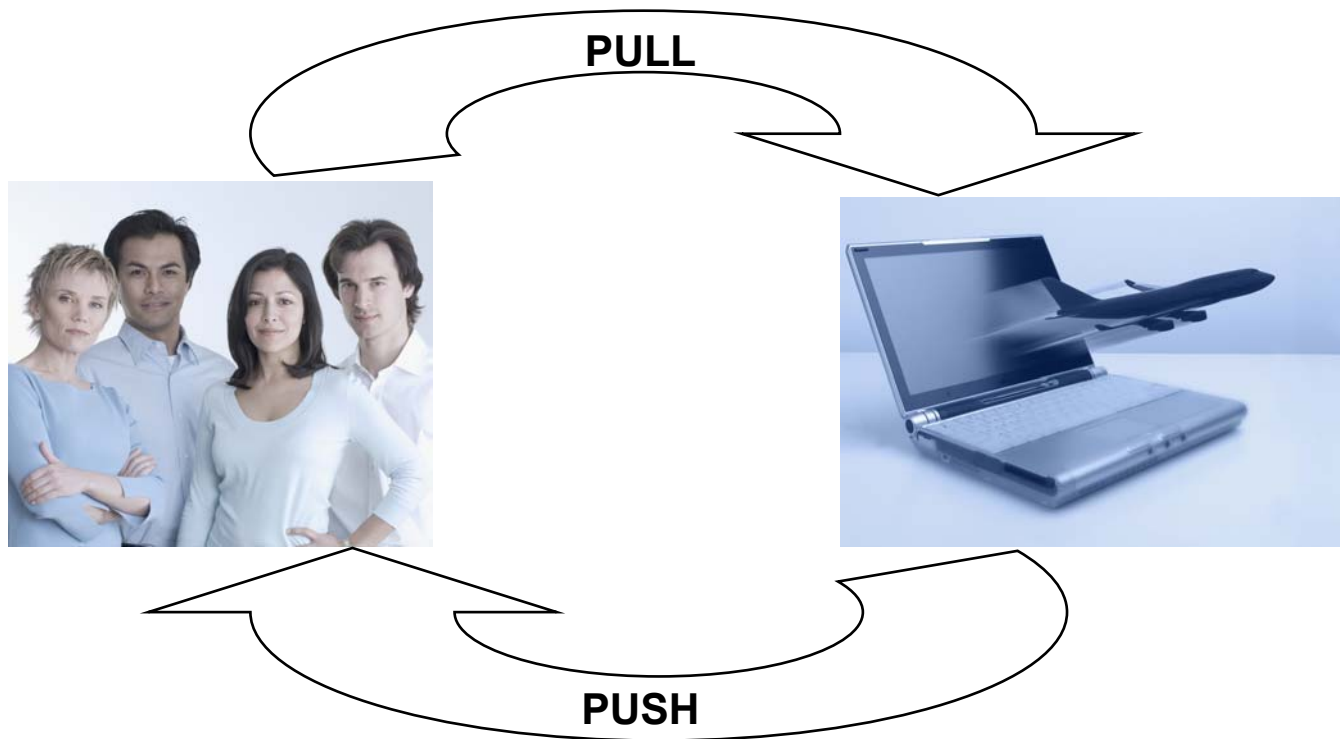
What are our basic building blocks?



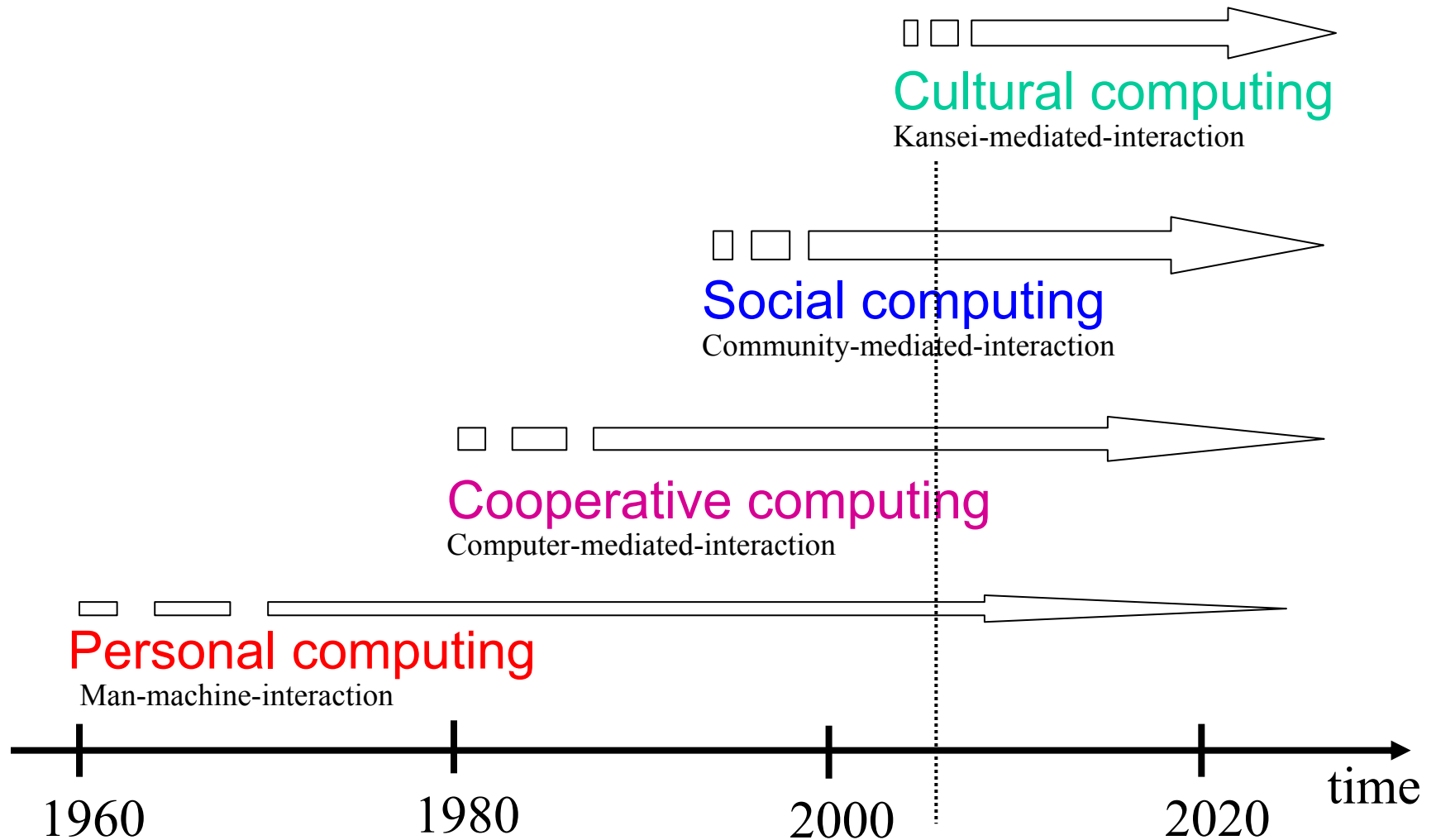
Who are our clients?



How to get there?



Interaction Paradigms in Computing



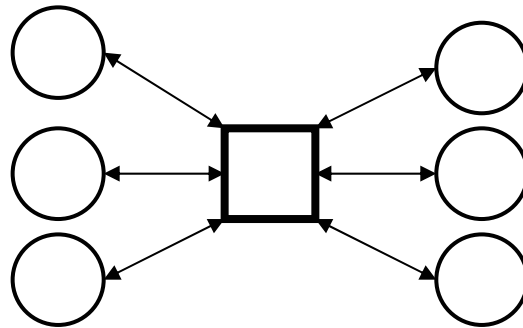
Cooperative Computing

○ = Human

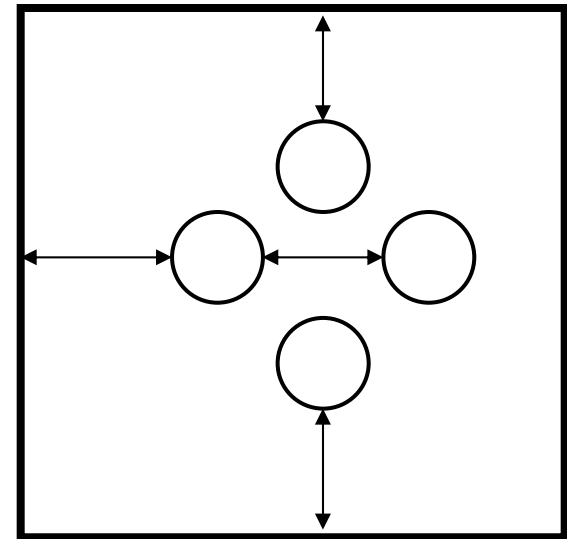
□ = Computer



e.g. phone, email, chat, etc



e.g. massive multi-user games, etc



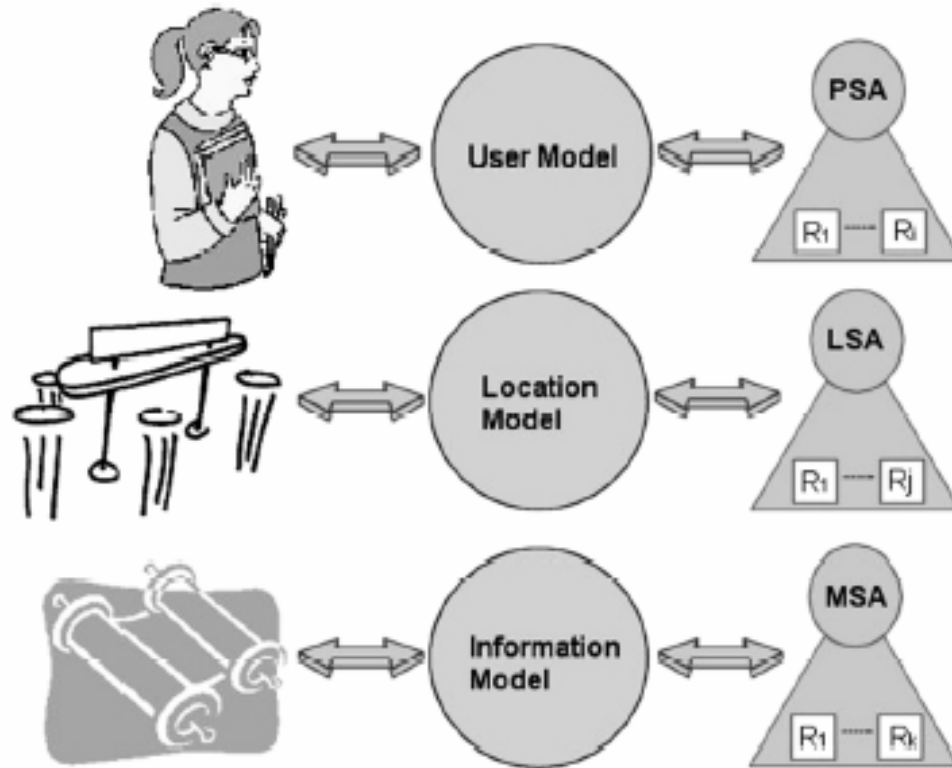
e.g. interactive experiences, etc

Social Computing

Living Memory Project (LiMe: 1997-2000)

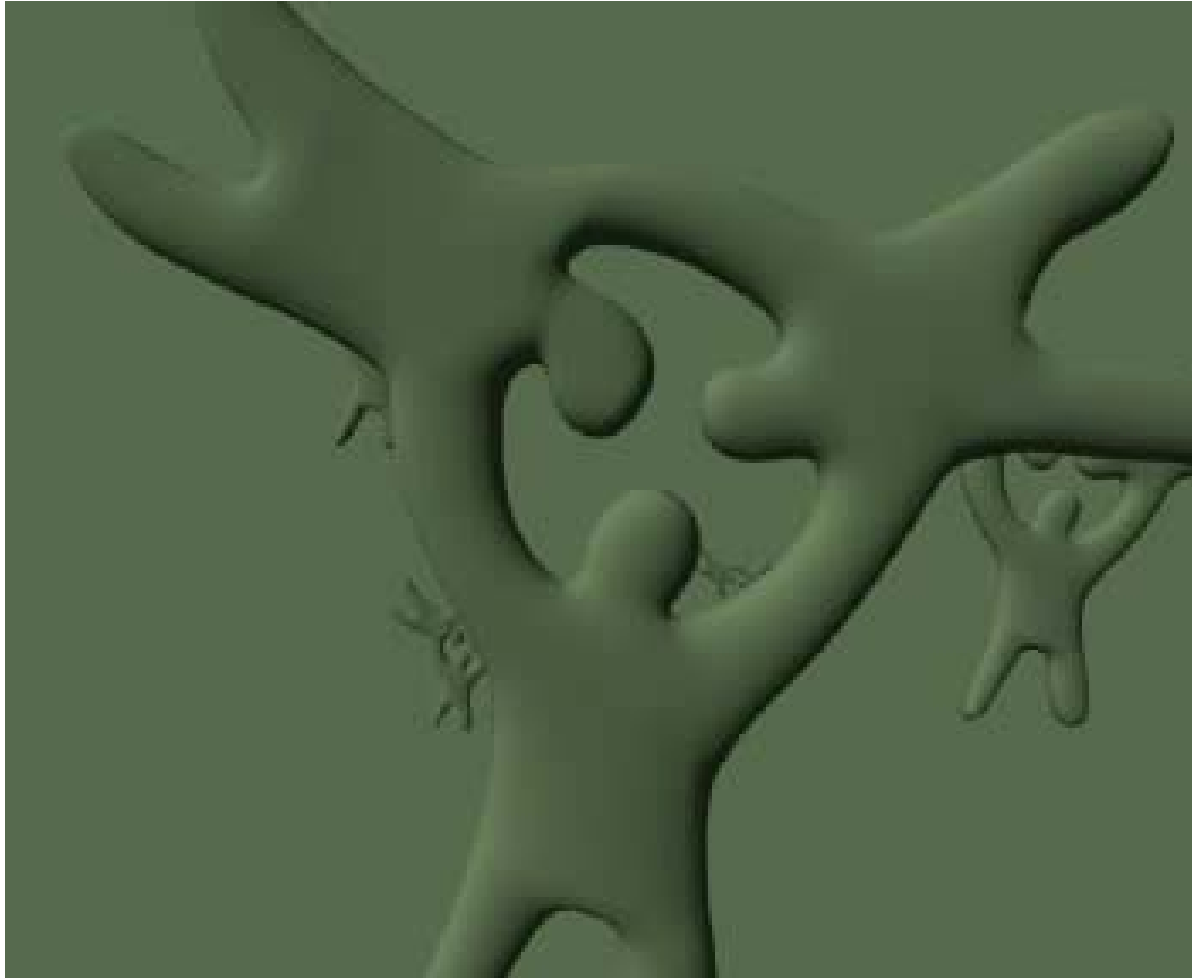


Steven Kyffin



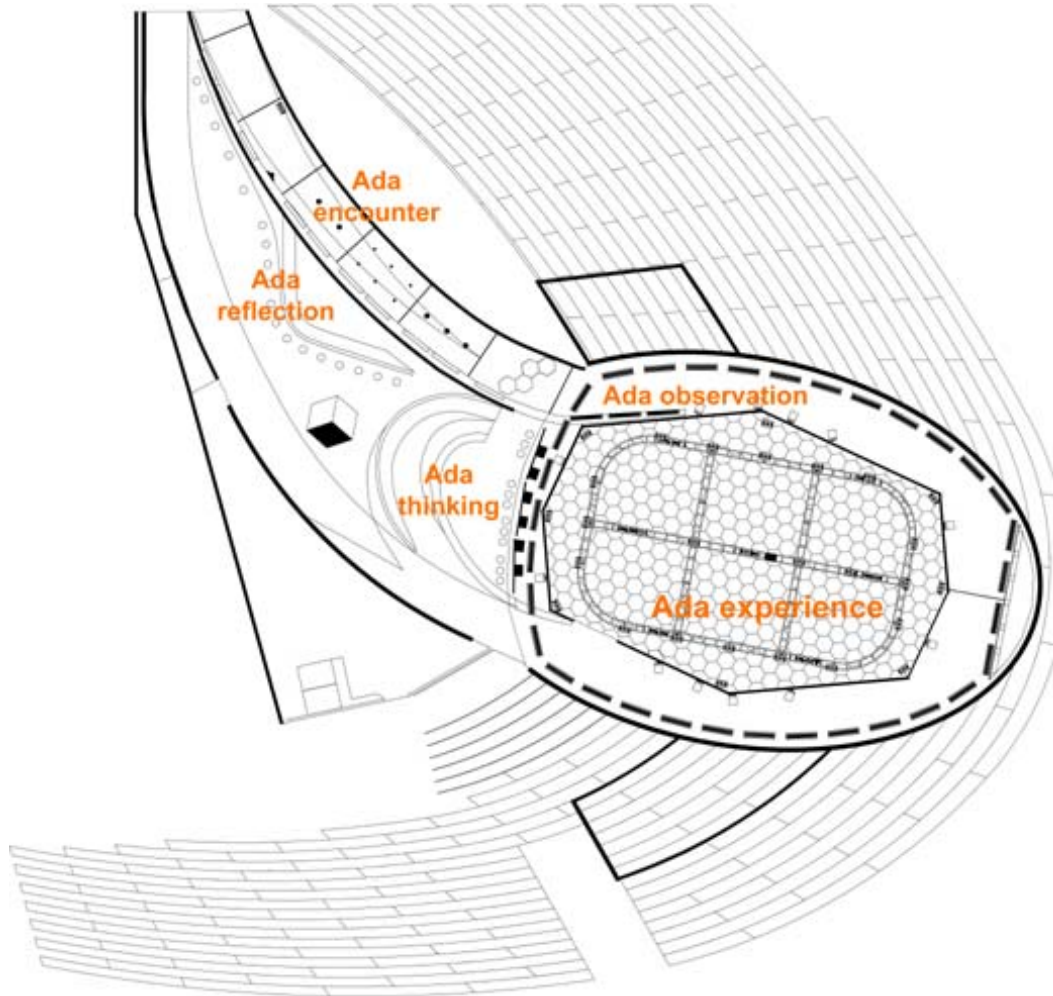
Social Computing

Living Memory Project (video, 3:47)



Social Computing

ADA Experience at Expo-2002 in Switzerland



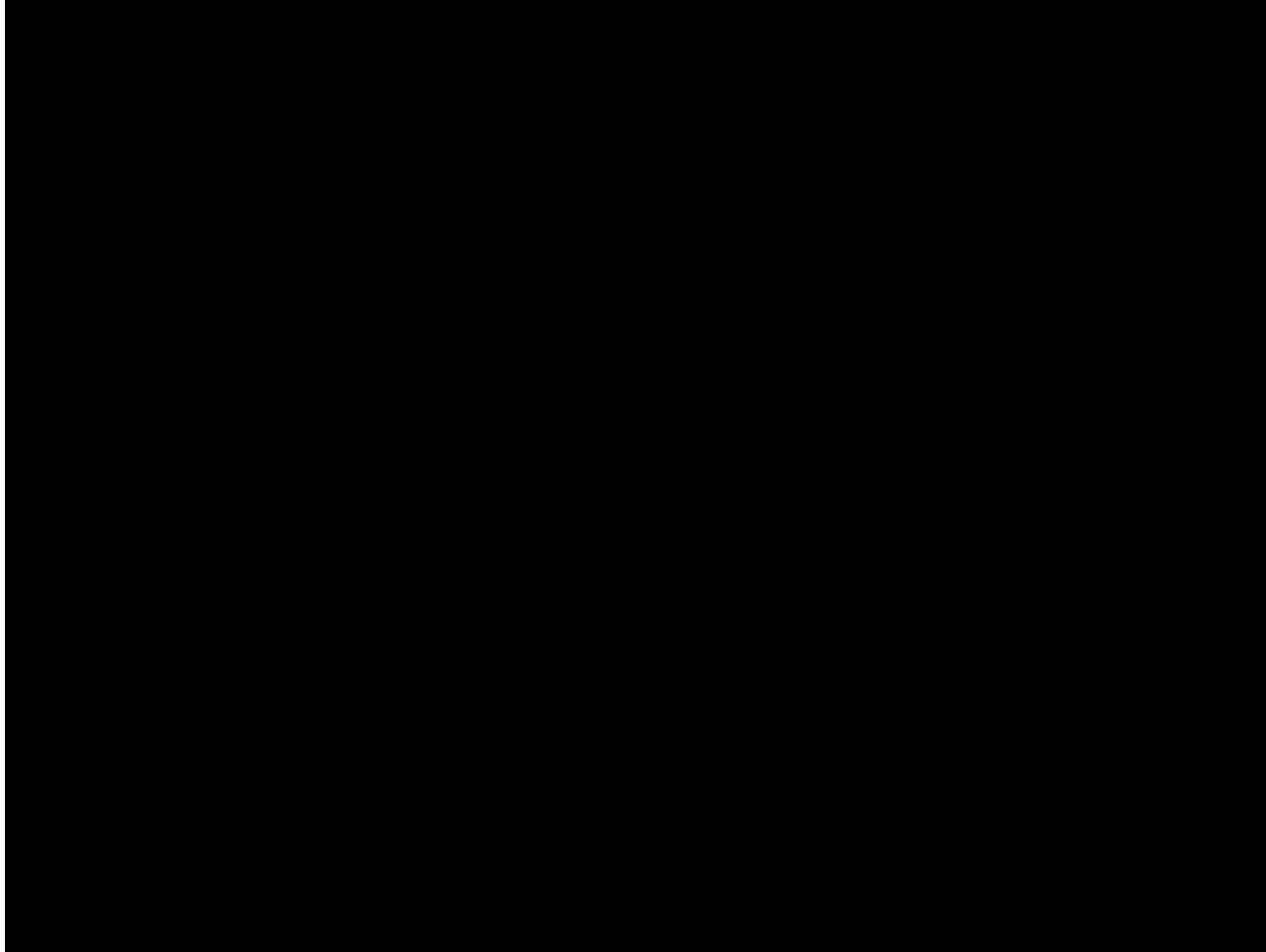
uni | eth | zürich

<http://www.ada-exhibition.ch/>



Social Computing

ADA Experience (video, 3:41)



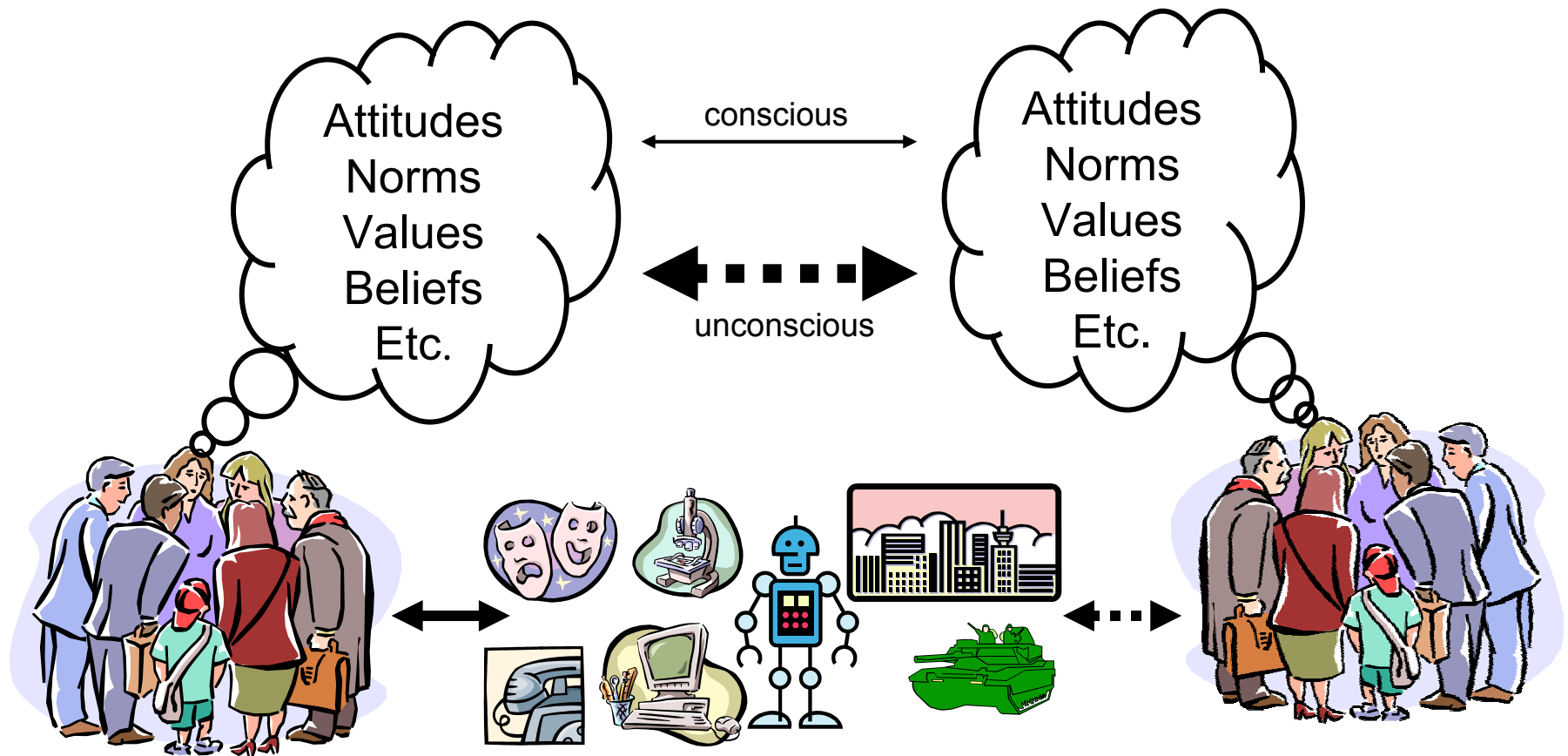
What is Culture?

Culture is the **integration pattern** of human behavior that includes

- attitudes,
- norms,
- values,
- beliefs,
- actions,
- communications and
- institutions of a race, ethnic, religious and/or social group.

The word culture comes from the Latin root *colere* (to inhabit, to cultivate, or to honor). In general, it refers to human *activity*; different definitions of culture reflect different theories for understanding, or criteria for valuing, human activity. Anthropologists use the term to refer to the universal human capacity to classify experiences, and to encode and communicate them symbolically. They regard this capacity as a defining feature of the genus Homo.

Cultural Computing: Kansei mediation



Nakatsu R., Rauterberg M., Salem B. (2006). Forms and theories of communication: from multimedia to Kansei mediation. *Multimedia Systems*, 11(3), 304-312

Anti-Dogmatic Design:

What does that mean, or
what can we do with this for
cultural computing?



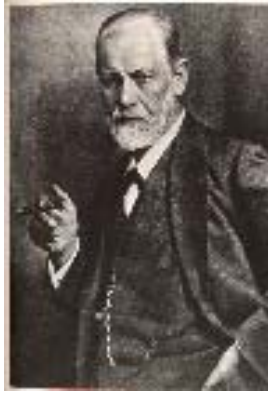
Warning:

Attacking a dogma can be dangerous!

Advice:

Be careful!

First Dogma Attack: discovery of the hidden part of mind



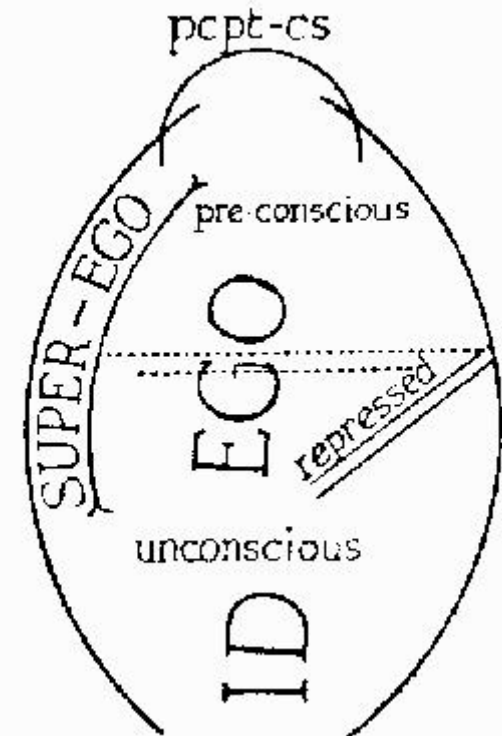
(1856-1939)

In 1932 the discoveries of **Sigmund Freud**

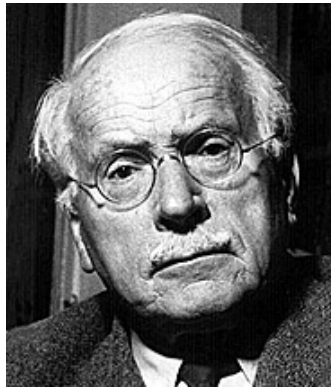
about the unconscious in particular were revolutionary.

His treatment of neuroses allowed inspection of a “hidden” part of the mind. Freud divided the mind into two parts: the preconscious (ideas and memories capable of becoming conscious), and the unconscious (desires, impulses, and wishes of a mostly sexual and sometimes destructive nature).

All human thought is partly a conflict between the preconscious and unconscious, and partly a compromise to pursue pleasure whilst avoiding danger and dealing with the realities of life.



Second Dogma Attack: discovery of the collective unconscious

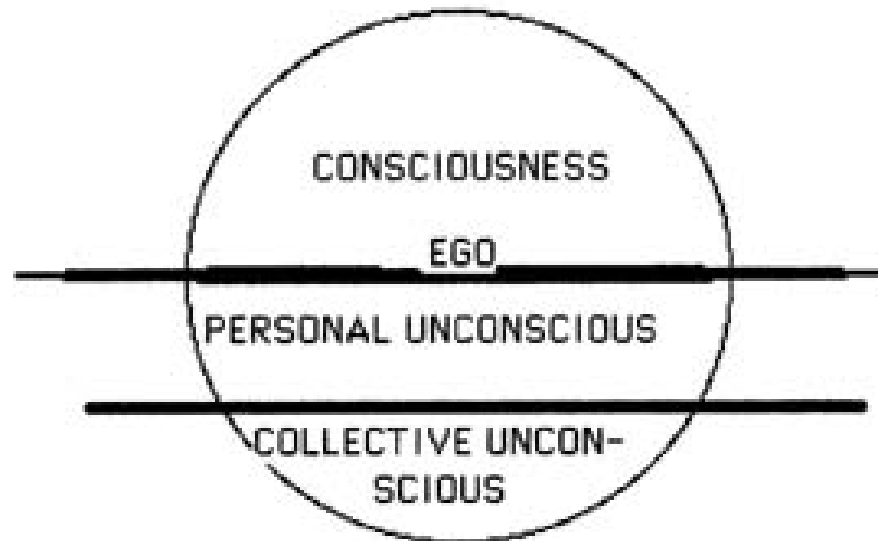


(1875-1961)

After 1910 the discoveries of

Carl Gustav Jung

about the *collective unconscious* and the related *archetypes* were challenging. Jung dreamt a great deal about the dead, the land of the dead, and the rising of the dead. These represented the unconscious itself -- not the "little" personal unconscious that Freud made such a big deal out of, but a new *collective unconscious* of humanity itself, an unconscious that could contain all the dead, not just our personal ghosts. Jung began to see the mentally ill as people who are haunted by these ghosts, in an age where no-one is supposed to even believe in them. If we could only recapture our mythologies, we would understand these ghosts, become comfortable with the dead, and heal our mental illnesses.



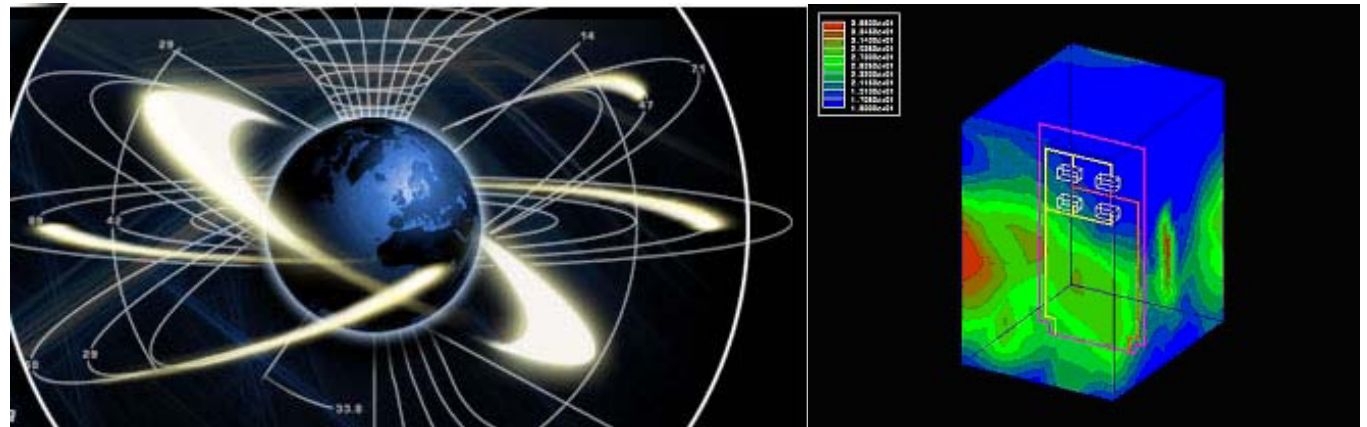
Third Dogma Attack: fields beyond energy and matter



(1942--)

Most notably, the theory about morphogenetic fields of **Rupert Sheldrake**

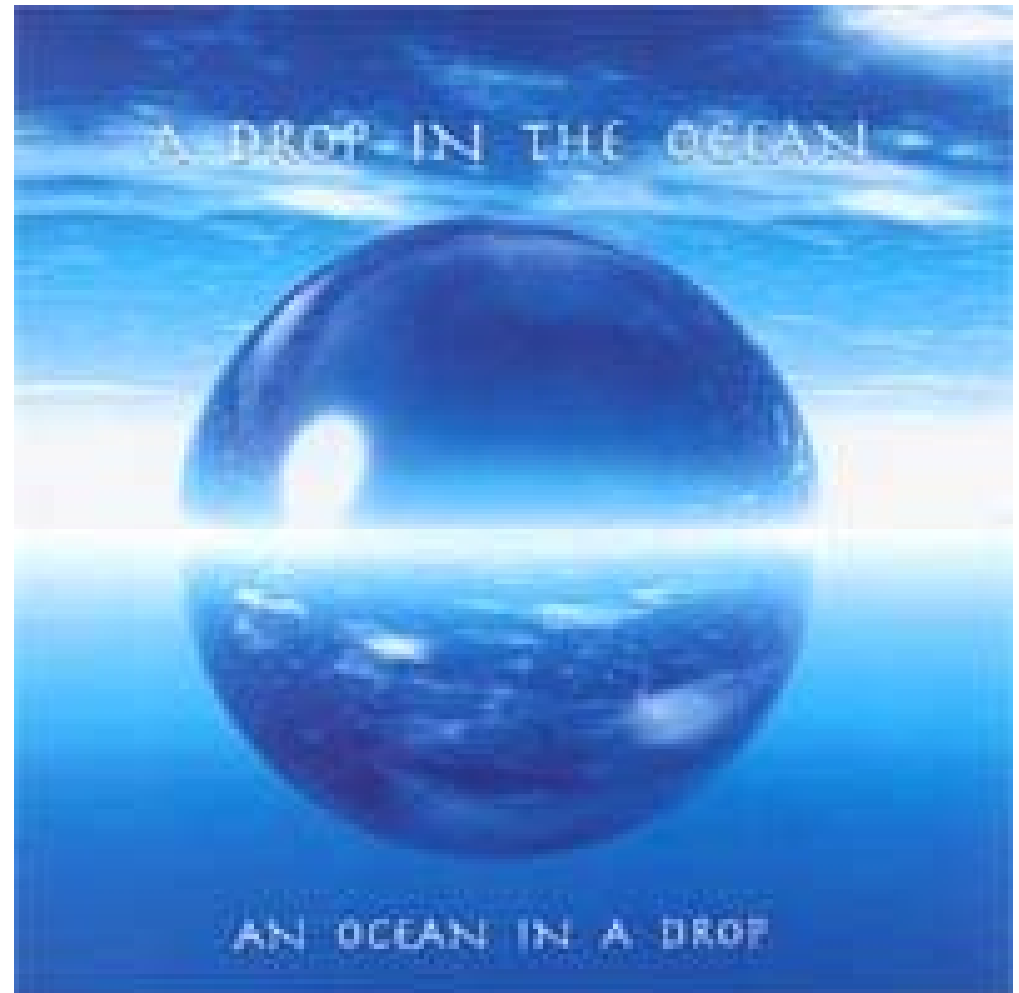
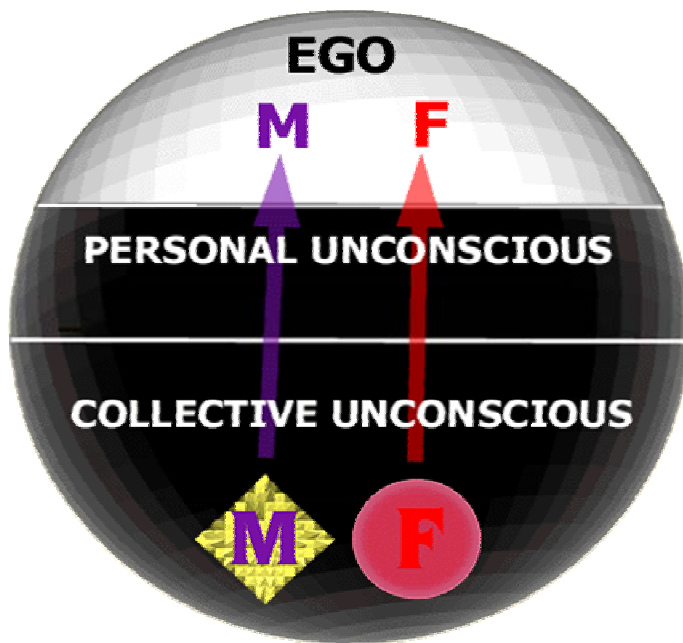
in 1981 reveal a substantial change in the way how we should look at reality. He developed the idea of *morphogenetic fields*, and has researched and written on topics such as animal and plant development and behavior, telepathy, perception and metaphysics. For example, Sheldrake began working in the 1990s on the alleged telepathic powers of animals, which he thinks could be explained by *morphic resonance* between two brains.



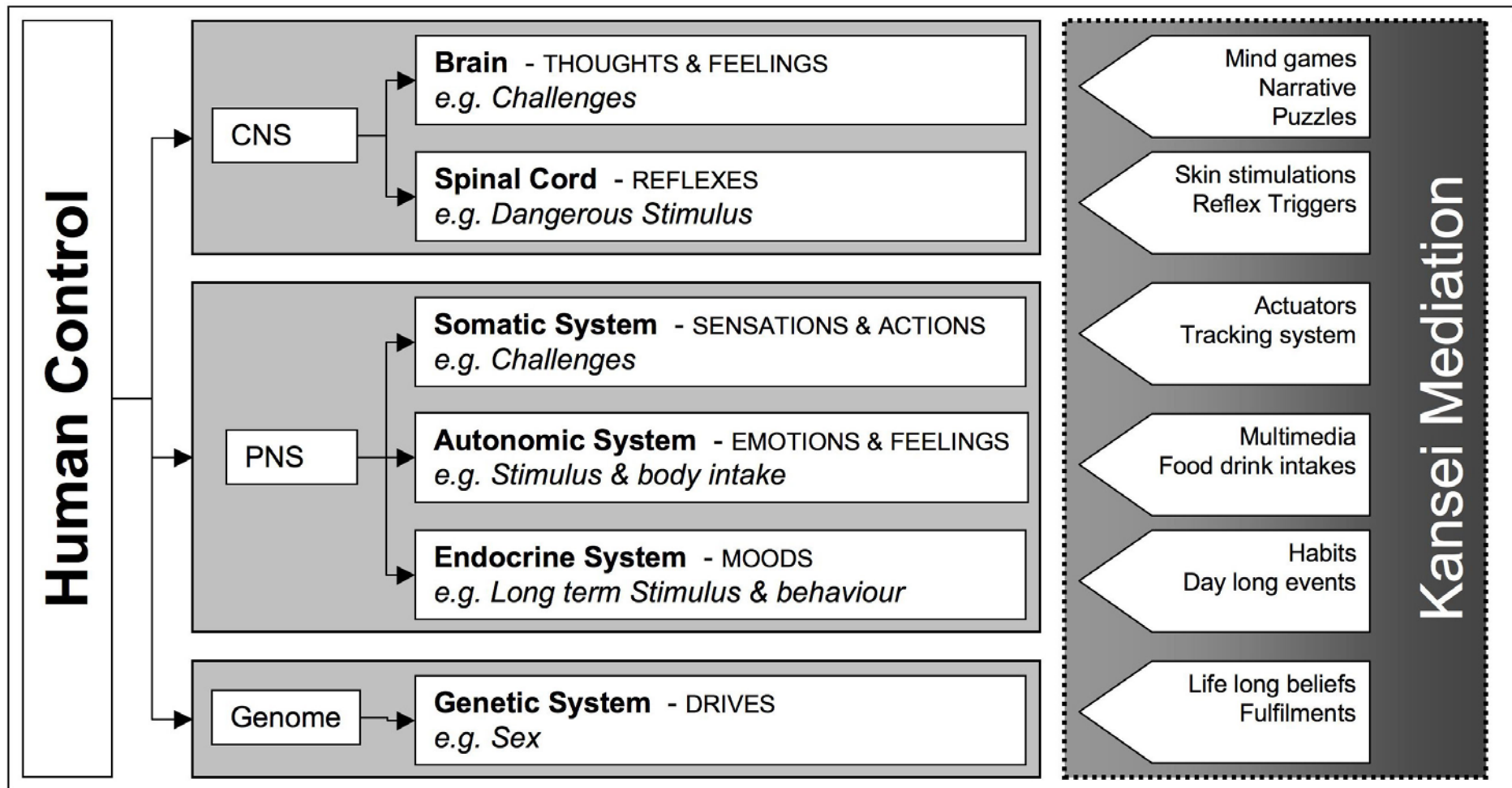
Reference:

Sheldrake, R. (1981). *A New Science of Life: The Hypothesis of Formative Causation*.

Cultural Computing: the collective unconscious



Kansei Mediation for Interactive Systems



Culture: the East



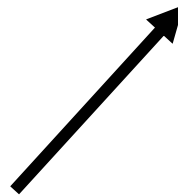
Lao-Tse
c.604 - c.521 BC



Siddharta Gautama
563 – c.480 BC



Enlightenment



Zen



Bodhidharma
470-543 AC

Cultural Computing

ZENetic computer (2003)




ACM SIGGRAPH 2004 Emerging technology 選出作品

ZENetic Computer

コンピュータによる山水禅
インタラクティブ・インストール・アート

石山 旅 木 老 雲



展示日程
平成16年 5月10日(土)～6月6日(土)
高台寺 北書院 入場料 500円(税別)

関連講座
平成16年 5月13日(木) 18:30～20:00 松岡正剛 ソロトーク
「電子と山水」
平成16年 5月28日(金) 18:30～20:00 対談 太田省吾×土佐尚子
「劇的なものとデジタルストーリー」
両日共に開場は18:00から。
高台寺 方丈 受講料2,000円、予約制、定員200名

主催：デジタル・アート・高台寺委員会
共催：高台寺
企画・演出：土佐尚子、松岡正剛
音楽：日職等
制作：ミホプロジェクト
協力：フランス・デジタル・アート・MIT-Japanプログラム、
科学技術振興機構(文部科学省、文化庁、新学術振興会、NICT、NII、NIPA、NICTA、NICTD、NICTE、NICTF、NICTG、NICTH、NICTI、NICTJ、NICTK、NICTL、NICTM、NICTN、NICTO、NICTP、NICTQ、NICTR、NICTS、NICTT、NICTU、NICTV、NICTW、NICTX、NICTY、NICTZ、NICTAA、NICTAB、NICTAC、NICTAD、NICTAE、NICTAF、NICTAG、NICTAH、NICTAI、NICTAJ、NICTAK、NICTAL、NICTAM、NICTAN、NICTAO、NICTAP、NICTAQ、NICTAR、NICTAS、NICTAT、NICTAU、NICTAV、NICTAW、NICTAX、NICTAY、NICTAZ、NICTBA、NICTBB、NICTBC、NICTBD、NICTBE、NICTBF、NICTBG、NICTBH、NICTBI、NICTBJ、NICTBK、NICTBL、NICTBM、NICTBN、NICTBO、NICTBP、NICTBQ、NICTBR、NICTBS、NICTBT、NICTBU、NICTBV、NICTBW、NICTBX、NICTBY、NICTBZ、NICTCA、NICTCB、NICTCC、NICTCD、NICTCE、NICTCF、NICTCG、NICTCH、NICTCI、NICTCJ、NICTCK、NICTCL、NICTCM、NICTCN、NICTCO、NICTCP、NICTCQ、NICTCR、NICTCS、NICTCT、NICTCU、NICTCV、NICTCW、NICTCX、NICTCY、NICTCZ、NICTDA、NICTDB、NICTDC、NICTDD、NICTDE、NICTDF、NICTDG、NICTDH、NICTDI、NICTDJ、NICTDK、NICTDL、NICTDM、NICTDN、NICTDO、NICTDP、NICTDQ、NICTDR、NICTDS、NICTDT、NICTDU、NICTDV、NICTDW、NICTDX、NICTDY、NICTDZ、NICTEA、NICTEB、NICTEC、NICTED、NICTEF、NICTEG、NICTEH、NICTEI、NICTEJ、NICTEK、NICTEL、NICTEM、NICTEN、NICTEO、NICTEP、NICTEQ、NICTER、NICTES、NICTET、NICTEU、NICTEV、NICTEW、NICTEX、NICTEY、NICTEZ、NICTFA、NICTFB、NICTFC、NICTFD、NICTFE、NICTFF、NICTFG、NICTFH、NICTFI、NICTFJ、NICTFK、NICTFL、NICTFM、NICTFN、NICTFO、NICTFP、NICTFQ、NICTFR、NICTFS、NICTFT、NICTFU、NICTFV、NICTFW、NICTFX、NICTFY、NICTFZ、NICTGA、NICTGB、NICTGC、NICTGD、NICTGE、NICTGF、NICTGG、NICTGH、NICTGI、NICTGJ、NICTGK、NICTGL、NICTGM、NICTGN、NICTGO、NICTGP、NICTGQ、NICTGR、NICTGS、NICTGT、NICTGU、NICTGV、NICTGW、NICTGX、NICTGY、NICTGZ、NICTHA、NICTHB、NICTHC、NICTHD、NICTHE、NICTHF、NICTHG、NICTHH、NICTHI、NICTHJ、NICTHK、NICTHL、NICTHM、NICTHN、NICTHO、NICTHP、NICTHQ、NICTHR、NICTHS、NICTHT、NICTHU、NICTHV、NICTHW、NICTHX、NICTHY、NICTHZ、NICTIA、NICTIB、NICTIC、NICTID、NICTIE、NICTIF、NICTIG、NICTIH、NICTIJ、NICTIK、NICTIL、NICTIM、NICTIN、NICTIO、NICTIP、NICTIQ、NICTIR、NICTIS、NICTIT、NICTIU、NICTIV、NICTIW、NICTIX、NICTIY、NICTIZ、NICTJA、NICTJB、NICTJC、NICTJD、NICTJE、NICTJF、NICTJG、NICTJH、NICTJI、NICTJJ、NICTJK、NICTJL、NICTJM、NICTJN、NICTJO、NICTJP、NICTJQ、NICTJR、NICTJS、NICTJT、NICTJU、NICTJV、NICTJW、NICTJX、NICTJY、NICTJZ、NICTKA、NICTKB、NICTKC、NICTKD、NICTKE、NICTKF、NICTKG、NICTKH、NICTKI、NICTKJ、NICTKK、NICTKL、NICTKM、NICTKN、NICTKO、NICTKP、NICTKQ、NICTKR、NICTKS、NICTKT、NICTKU、NICTKV、NICTKW、NICTKX、NICTKY、NICTKZ、NICTLA、NICTLB、NICTLC、NICTLD、NICTLE、NICTLF、NICTLG、NICTLH、NICTLI、NICTLJ、NICTLK、NICTLL、NICTLM、NICTLN、NICTLO、NICTLP、NICTLQ、NICTLR、NICTLS、NICTLT、NICTLU、NICTLV、NICTLW、NICTLX、NICTLY、NICTLZ、NICTMA、NICTMB、NICTMC、NICTMD、NICTME、NICTMF、NICTMG、NICTMH、NICTMI、NICTMJ、NICTMK、NICTML、NICTMN、NICTMO、NICTMP、NICTMQ、NICTMR、NICTMS、NICTMT、NICTMU、NICTMV、NICTMW、NICTMX、NICTMY、NICTMZ、NICTNA、NICTNB、NICTNC、NICTND、NICTNE、NICTNF、NICTNG、NICTNH、NICTNI、NICTNJ、NICTNK、NICTNL、NICTNM、NICTNN、NICTNO、NICTNP、NICTNQ、NICTNR、NICTNS、NICTNT、NICTNU、NICTNV、NICTNW、NICTNX、NICTNY、NICTNZ、NICTOA、NICTOB、NICTOC、NICTOD、NICTOE、NICTOF、NICTOG、NICTOH、NICTOI、NICTOJ、NICTOK、NICTOL、NICTOM、NICTON、NICTOO、NICTOP、NICTOQ、NICTOR、NICTOS、NICTOT、NICTOU、NICTOV、NICTOW、NICTOX、NICTOY、NICTOZ、NICTPA、NICTPB、NICTPC、NICTPD、NICTPE、NICTPF、NICTPG、NICTPH、NICTPI、NICTPJ、NICTPK、NICTPL、NICTPM、NICTPN、NICTPO、NICTPP、NICTPQ、NICTPR、NICTPS、NICTPT、NICTPU、NICTPV、NICTPW、NICTPX、NICTPY、NICTPZ、NICTQA、NICTQB、NICTQC、NICTQD、NICTQE、NICTQF、NICTQG、NICTQH、NICTQI、NICTQJ、NICTQK、NICTQL、NICTQM、NICTQN、NICTQO、NICTQP、NICTQQ、NICTQR、NICTQS、NICTQT、NICTQU、NICTQV、NICTQW、NICTQX、NICTQY、NICTQZ、NICTRA、NICTRB、NICTRC、NICTRD、NICTRE、NICTRF、NICTRG、NICTRH、NICTRI、NICTRJ、NICTRK、NICTRL、NICTRM、NICTRN、NICTRO、NICTRP、NICTRQ、NICTRR、NICTRS、NICTRT、NICTRU、NICTRV、NICTRW、NICTRX、NICTRY、NICTRZ、NICTSA、NICTSB、NICTSC、NICTSD、NICTSE、NICTSF、NICTSG、NICTSH、NICTSI、NICTSJ、NICTSK、NICTSL、NICTSM、NICTSN、NICTSO、NICTSP、NICTSQ、NICTSR、NICTSS、NICTST、NICTSU、NICTSV、NICTSW、NICTSX、NICTSY、NICTSZ、NICTTA、NICTTB、NICTTC、NICTTD、NICTTE、NICTTF、NICTTG、NICTTH、NICTTI、NICTTJ、NICTTK、NICTTL、NICTTM、NICTTN、NICTTO、NICTTP、NICTTQ、NICTTR、NICTTS、NICTTT、NICTTU、NICTTV、NICTTW、NICTTX、NICTTY、NICTTZ、NICTUA、NICTUB、NICTUC、NICTUD、NICTUE、NICTUF、NICTUG、NICTUH、NICTUI、NICTUJ、NICTUK、NICTUL、NICTUM、NICTUN、NICTUO、NICTUP、NICTUQ、NICTUR、NICTUS、NICTUT、NICTUU、NICTUV、NICTUW、NICTUX、NICTUY、NICTUZ、NICTVA、NICTVB、NICTVC、NICTVD、NICTVE、NICTVF、NICTVG、NICTVH、NICTVI、NICTVJ、NICTVK、NICTVL、NICTVM、NICTVN、NICTVO、NICTVP、NICTVQ、NICTVR、NICTVS、NICTVT、NICTVU、NICTVV、NICTVW、NICTVX、NICTVY、NICTVZ、NICTWA、NICTWB、NICTWC、NICTWD、NICTWE、NICTWF、NICTWG、NICTWH、NICTWI、NICTWJ、NICTWK、NICTWL、NICTWM、NICTWN、NICTWO、NICTWP、NICTWQ、NICTWR、NICTWS、NICTWT、NICTWU、NICTWV、NICTWW、NICTWX、NICTWY、NICTWZ、NICTXA、NICTXB、NICTXC、NICTXD、NICTXE、NICTXF、NICTXG、NICTXH、NICTXI、NICTXJ、NICTXK、NICTXL、NICTXM、NICTXN、NICTXO、NICTXP、NICTXQ、NICTXR、NICTXS、NICTXT、NICTXU、NICTXV、NICTXW、NICTXX、NICTXY、NICTXZ、NICTYA、NICTYB、NICTYC、NICTYD、NICTYE、NICTYF、NICTYG、NICTYH、NICTYI、NICTYJ、NICTYK、NICTYL、NICTYM、NICTYN、NICTYO、NICTYP、NICTYQ、NICTYR、NICTYS、NICTYT、NICTYU、NICTYV、NICTYW、NICTYX、NICTYY、NICTYZ、NICTZA、NICTZB、NICTZC、NICTZD、NICTZE、NICTZF、NICTZG、NICTZH、NICTZI、NICTZJ、NICTZK、NICTZL、NICTZM、NICTZN、NICTZO、NICTZP、NICTZQ、NICTZR、NICTZS、NICTZT、NICTZU、NICTZV、NICTZW、NICTZX、NICTZY、NICTZZ



Naoko Tosa



松岡正剛
Seigo Matsuoka

Cultural Computing

ZENetic computer (video, 3:43)



Culture: the West



René Descartes
1596-1650

res cogitans - mind

res extensa - body, matter, etc



Immanuel Kant
1724-1804

synthetic
a priori knowledge:

- time
- space

both *pure forms of intuition*
and *pure intuitions*.

Culture in East and West

Cross-cultural psychologist's juxtapose
Eastern *holistic* and Western *analytic* reasoning.

Eastern reasoning embraces contradictions among objects in a yin–yang field of constant change.

Western reasoning tends to focus on objects and categories, and is driven by *formal logic*.

Nisbett RE., Peng K., Choi I. & Norenzayan A. (2001). Culture and Systems of Thought: Holistic versus Analytic Cognition. *Psychological Review*, 108(2), 291-310 .

What would be a Western equivalence to ZENetic Computer?

Possible Answer:

- an interactive experience based on the story of **Alice in Wonderland**



Charles Lutwidge Dodgson
1832-1898



Stage-1: Down the Rabbit Hole

Microsoft
Research



(video, 1:03)



**Flow
stair
lift**



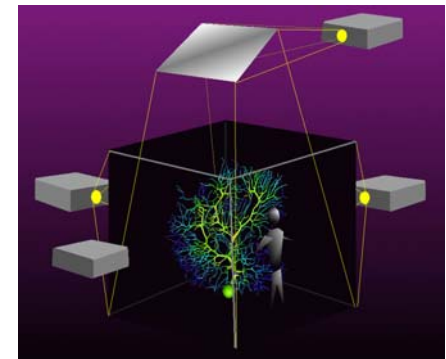
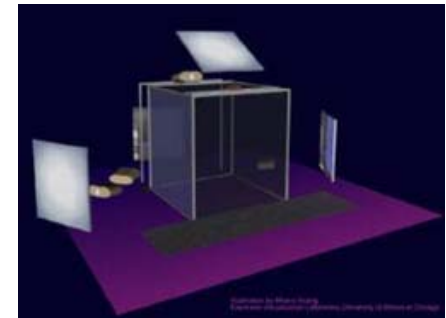
Stage-2: Drink me – Eat me



(video, 1:25)

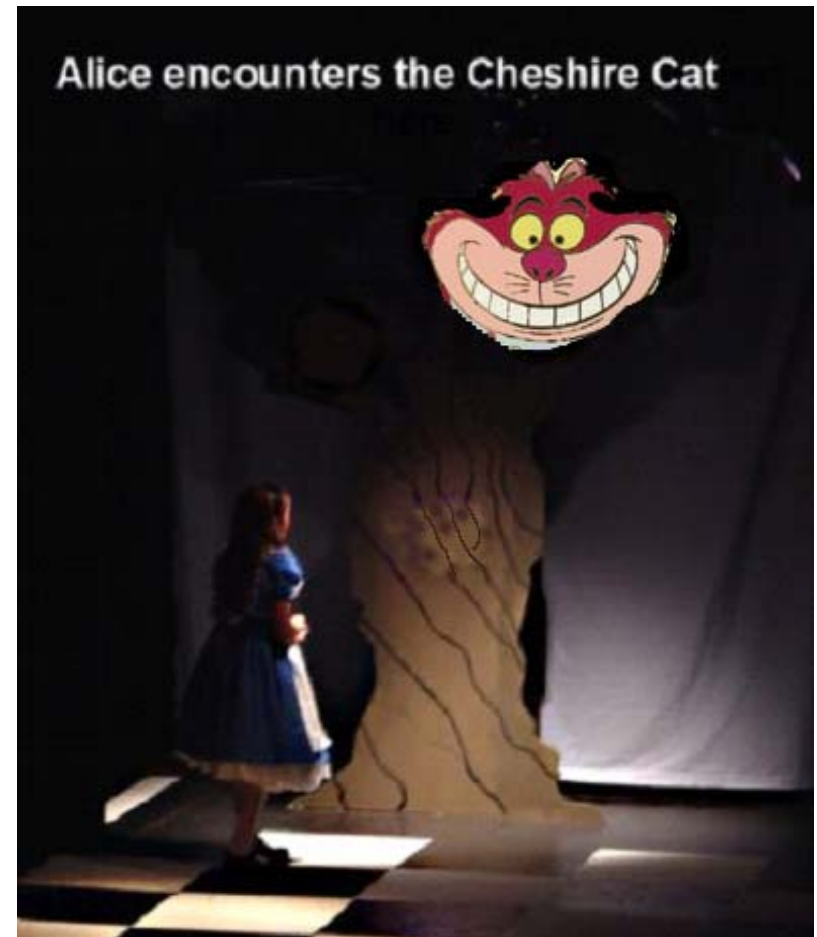


Five sides Cave



Stage-3: The Cheshire Cat

Microsoft
Research



Expected Results:

- A research platform for cultural computing
- A prototype for interactive experiences
- New methods to assess the user's experience
 - Implicit Association Test (IAT)
 - Intercultural Development Inventory (IDI)
 - Mandala based Ratings (MBR)

Let's get aware about our
connections to the collective unconscious...

Thank you for your attention.