THE UNIVERSITY OF NORTHAMPTON

Conference or Workshop Item

Title: Real-time collaborative art making

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Official URL: http://www.methodsnetwork.ac.uk/activities/act23report.html

http://nectar.northampton.ac.uk/3268/

ditdahbit - the quodlibet blog posts

this pdf is a collection of blog posts by matthew gough at http://
quodlibet.tumblr.com/ from the 16th to 21st july 2007. this document is for
reference purposes as the blog does not have a search or calendar function. as
such the formatting is a little rough, but it is readable.

for information on the context of ditdahbit goto

http://www.biad.uce.ac.uk/vru/collaborativeart/index.php

thank you for your interest in our work

m gough
10th aug 2007

marc brette

@ work and putting together the framework ... slightly offline so posts will be delayed.

today was the first time since our initial meeting that we have been co-located. mapping and listing were the first orders of the day – equipment, networks, concepts etc etc. collating fragmented discussion(s) for suze was good practice for talking about the work in general.

as we only have 4 days starting with structure was our only option. our equipment list is long ... due in part to the intentional redundancy and avoidance of automated/simplified production lines.

analogg

equipment list

suze:
– wireless mic

jg:
– macbook pro
– mic x3
– LDR x8
– loudspeaker & amp combo x3
– typewriter (with cq generator)
– video camera
– internet connection

matt:
– macbook
– scanner
– monitor
– pinboard
– internet connection

keir:
– laptop x5
– scanner & printer
– video mixer
– video camera x2
– stills camera
– tv x4

consumables:
– scissors / glue / tape
– index cards
– a4 paper
– drawing pins
– sharpies
– mono filament / string
– clothes pegs

too much?

there is a 'fluid' mix of software being used, and the hardware list is by no means static or final. its worth noting that each person could participate in the work in a dis-located fashion. there is no sharing of equipment, only the products of the performance. the technical setup could be both reduced and increased in complexity. what were are proposing is context/perfromance specific network complexity.

[...] is

definitions within networked & distributed dance:

– dance is the product/artifact of movement presented within a performative context, where navigating and authoring the intertext of derived meanings is of equal or greater value than the embodied object.

– choreography is the making of performative structures in which 'dance' and the resultant intertexts can be navigated and authored.

– this is the rebirth of the author through distributed authorship

i reject the naïveté of 'pre-futurist dance' and its faliure to understand both the past and the present. i reject 'neo-futurist dance' and is redundant techo-assisted replication. i reject any notion that theory only occurs and applies after practice.

note: these definitions are not exclusive to dance & performance technologies but apply

to 'current' dance praxis in general. they were conceived as a response to the lack of 21st C 'dance' definitions

there is a real difference between creative 'tools' and the skills you learn in utilizing such tools.

'radical acts of movement' talks about the importance of a horizontal discourse when situating community dance in the professional sphere. i couldn't agree more, yet there is also a need and a place for all dance practices to develop new tools, and understand the wider context of the tools.

process does not lead (directly) to product ... learning about, or having documented what's been done is interesting ... but no more.

if i teach you my process what do you really learn ... nothing as it's exceptionally hard to teach you how i filter my choices in that process. moreover you only learn about how i made a particular work, which you are not going to make.

creativity does not follow a specific methodology, but tool use may (far a particular artist). reinvent the wheel, but compare your wheel to as many other wheels as you can ... see what you did better/worse or what contexts your constructions suits best/worst.

in (your own) time, find and develop your own practice/tools/skills, simply replicating what others have given you is creatively and instructionally redundant.

ahmad kavousian

worked with suze on elaborating intertexts. using both set and improvised material we practiced tagging through a variety of methods.

- impulse interruption (vocalize 3rd tag)

- descriptive, contextual and body location tags
- move -> tag
- tag -> move
- compound tags
- original context

a little play with fixed cq followed ... moving with, between and in counterpoint. when we have the performance area/systems constructed we can explore this more. spatial responses and instigation's also require the full setup.

it was good to watch suze explore repeated and improvised motive sets, lots of 'out of system' stimuli/contexts for the visual intertexts.

JUL 17
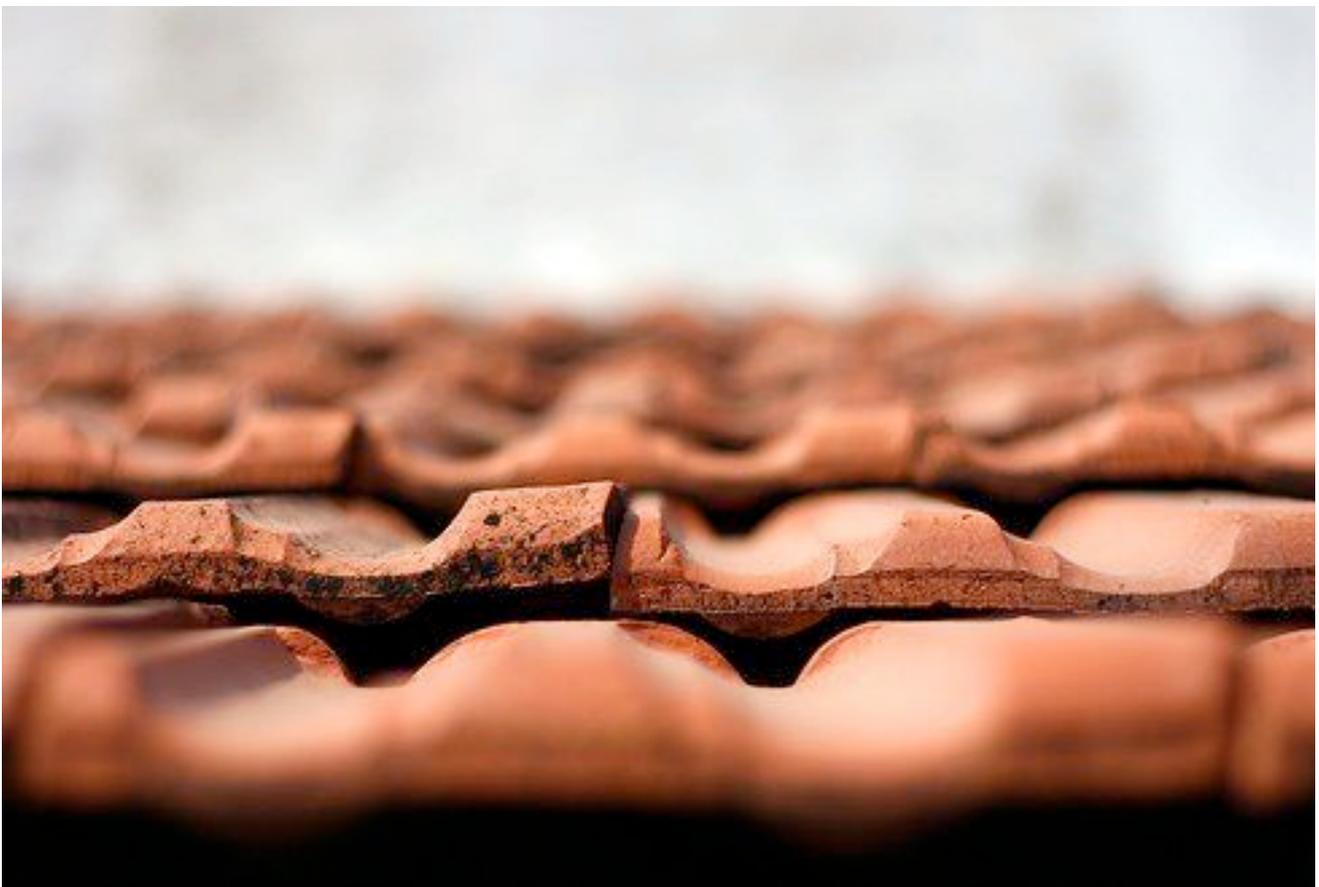
dilip muralidaran

2day ...
- setup performance space/systems
- run -> discussion -> acquire -> reset (repeat)
- day & cross project review

first run (partial set–up).

lots of info/data, most stations could be split into three tasks in their own right. there is a 'driven' momentum to the functional and creative aspects of the performance. this leads to a slight disconnection via focusing.

workflow is of prime importance.
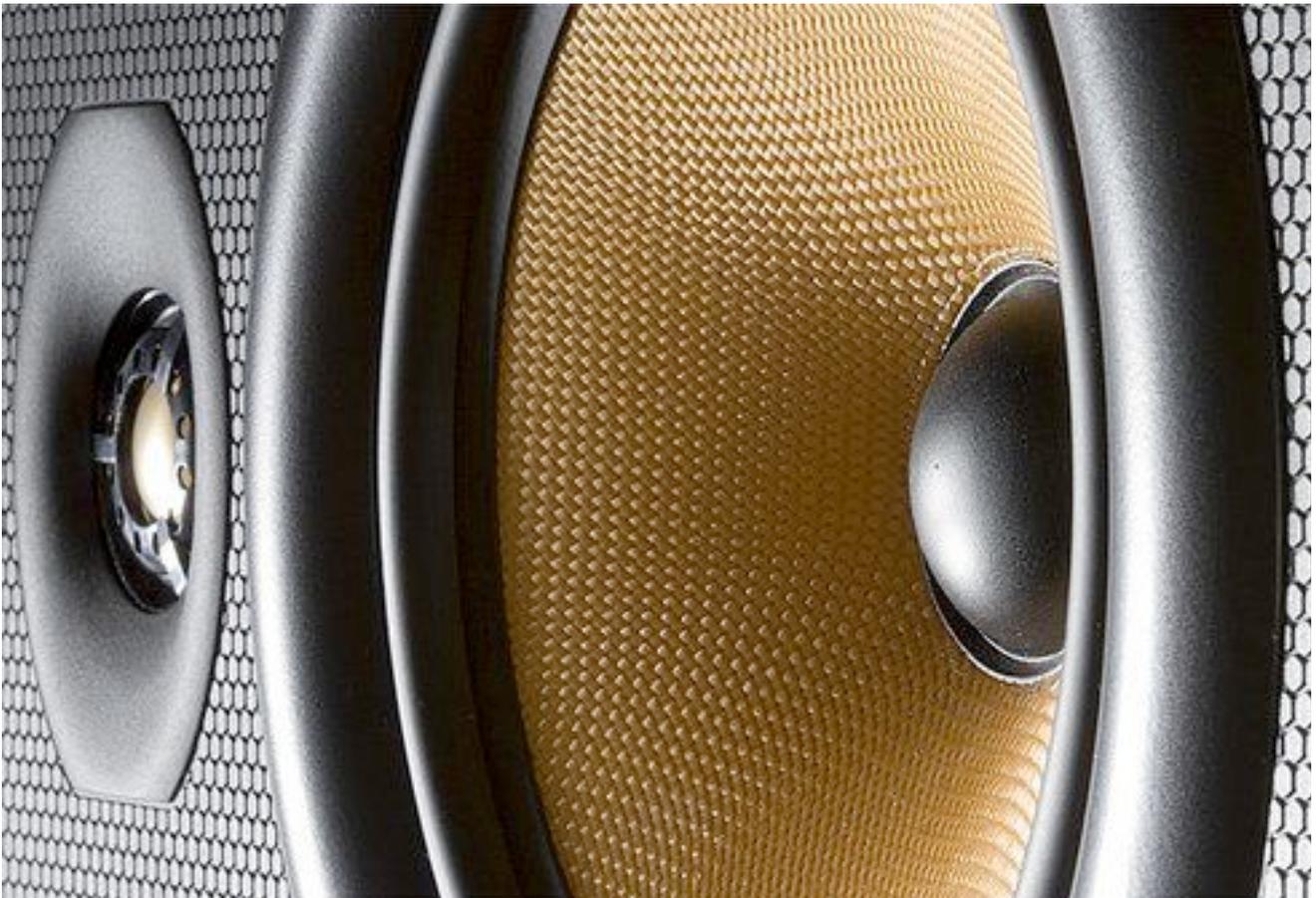
mr. flibble

after lucier

the resonant frequencies of the room are reinforcing themselves on the space ... unintentional products of acoustic artifacts.

process;processing

two projects and two approaches

– exploring a technology and its (possible) artistic application.
– exploring a philosophy of technologies in artistic practice.

whilst you could read this as 'practice -> theory' vs 'theory -> practice', that would be a limited reading.

what artistic endeavors are not play, we are well beyond a pure fascination with technology. whilst we may be equipment heavy it is simply the mode within which we work. you can split a screen image (frame) but that still leaves you with a single visual locus.

as i write this, sitting in a pub there is a 45" screen to my right, left and in-front of me. there is no directional bias for looking other than where my gaze enjoyed the respite of a 2d image (these being easier to perceive than 3d).

again, sound should be spatial, working with 'dual' speakers is flat transcription. everyday we respond to a variety of sounds from diverse locations. and then there is our usage of computers ...

oddly, something we have been against would clearly demonstrate why / and how we are working. but that also raises the question of how you look. how often do you wonder is you are reading correctly, to move beyond your initial assessment and see new. or perceive what 'is'.

we often pride ourselves on having seen it all before, but we choose what we wish to see. it's important to look closely and from far away, what seems to be something from one alignment may be nothing from another.

perhaps more importantly is the ability to separate 'claims' from 'proofs'. many 'neo-technological' praxes make claims which are simple to disprove. but the outer shell is similar (or can be read in a complementary fashion) to the genuine artifact.

which bring us to the question should i show you 'different', force to you look different (slight of hand & eye) or present the form as is?

come to the new openly, but with knowledge of the past validated, contemporary mainstream and current & un-validated practice(s). beyond old school bias, and recognizing the simplicity that underlies all complexity.

analogg

oud

a usual/routine day of development and 'discovery', the first run with ~ 60% of the setup was hectic. the second run was much more leisurely by comparison, but much more focused. there needs to be more 'listening' time, and care over our composition.

its not that we are careless, but having not worked together before (or in this manner) the dynamic is still fluid – each run teaches itself/ourselves.

what we are looking for is the 'working' ratio between distributed independent production and distributed/serial production. if i was so minded would/could describe it as asynchronous – distributed production. (we also half–jokingly discussed a 'ripped–screen aesthetic').

our adhoc network has a lag of at least five mins, (we may try and calculate this tomorrow) but we are not working within a strictly serial process. nor is the 'same' information being passed through the network, or the signal being purposefully degraded. it would be possible to show you a 'packet' and the transformations it undergoes, but that would be somewhat redundant.

i am not strictly passing on suze's info (via jg) to kier, but my 'own' writing derived through a myriad of intertexts. within this work we are engaging in, and revealing the fundamental nature / developing philosophies of networked performance & creation. there is alot not to get. much to misread.

viskleken?

suze is in the interesting position of closing a loop whilst breaking the cycle with new authorship. the network (being based on authorly interpretation rather than cumulative error) begins, but is not reiterated by her. propagation of 'packets' (we have been calling them drips) occurs only when new (if derivative) artifacts are produced, selected or classified by the distributed authors. this process is asynchronous.
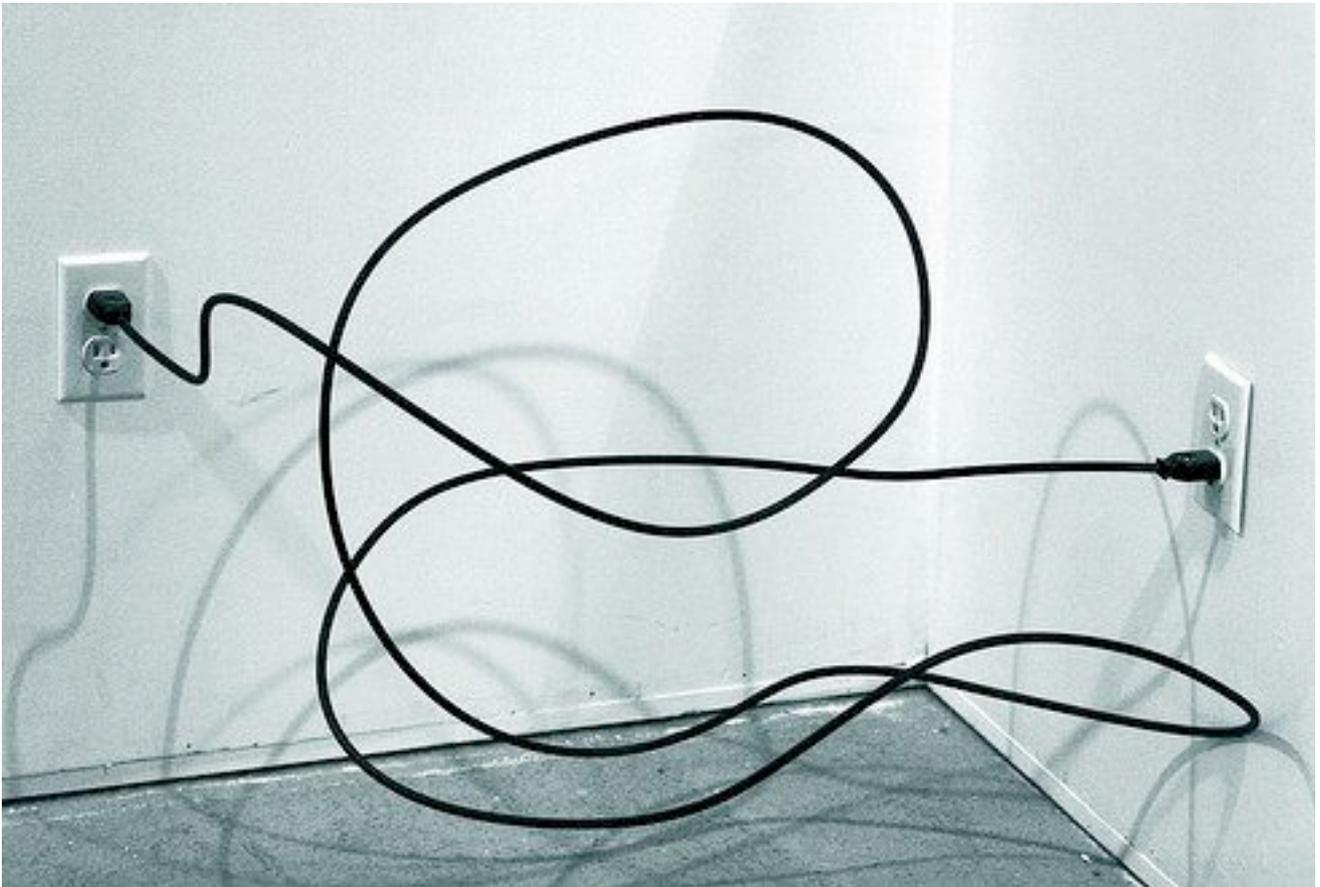
pulpolux

day2 notes

- folds & rips -> collage
- degrade (a little) for speed
- 4 cq contrapunto (via rss)
- + verbosity
- 40" plasma's (stationary)
- filter, remix reservoir & room delay
- listening time
- deregulate dynamic(s)
- isolate -> expand -> review
- consider composition

day3 - 2do

jg needs to finish some coding and hardware, we will do a full run @ 2pm (ish). this gives us a chance to look at re-configuring the space and work with the plasma screens.
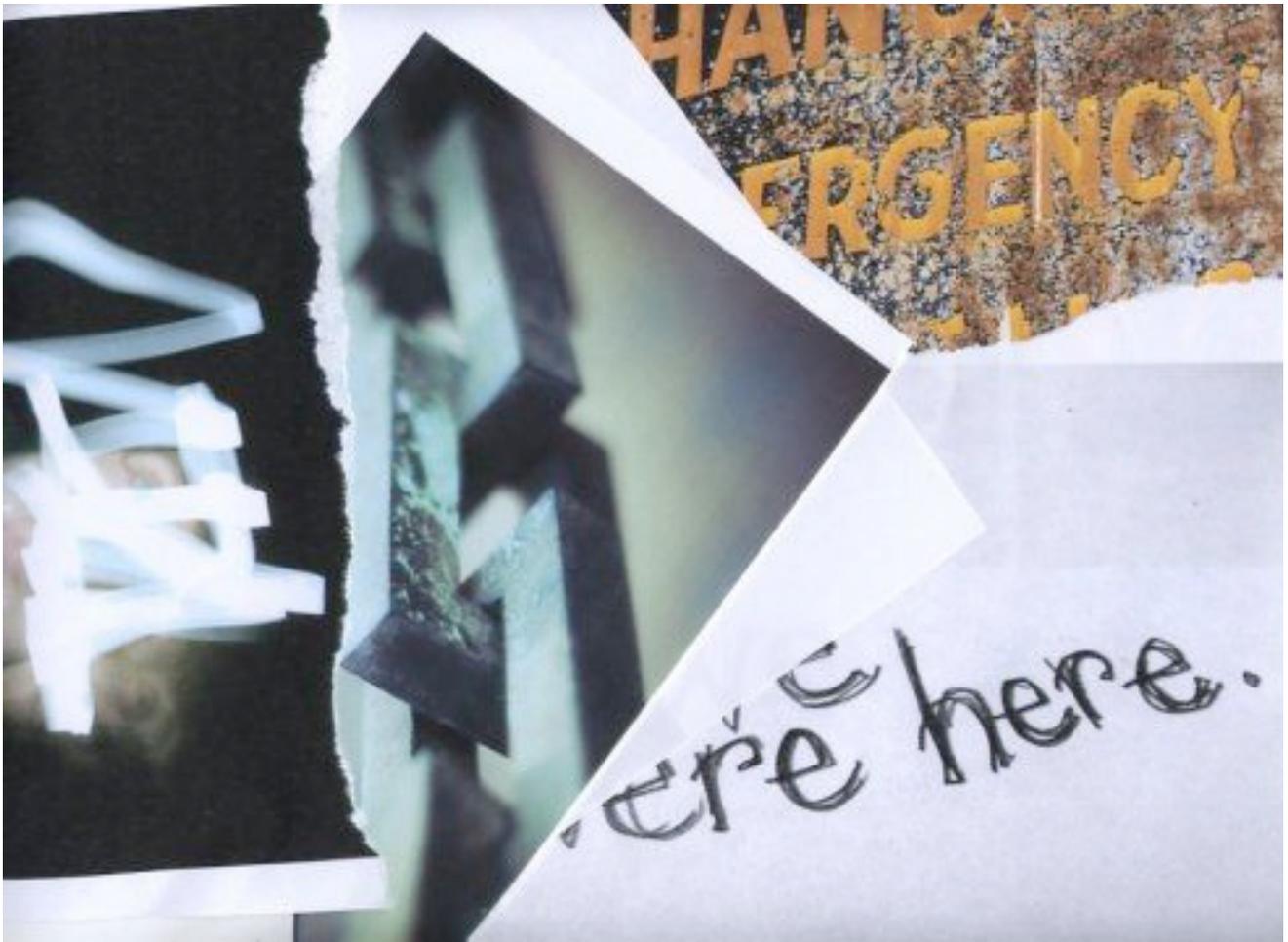
-> keir

» ditdahbit

just testing, trying ... nothing really to see (yet).

> "
> duration: circa 1384, from *old french*. duration, from *medieval latin* durationem (nom. duratio), from *latin* durare

> **"**
>
> endure: circa 1382, from *old french* endurer, from *latin* indurare "make hard," in *late latin* "harden (the heart) against," from in- "in" + durare "to harden," from durus "hard," from *proto-indo-european* *deru- "be firm, solid."

toyishone

languidity

dues to technical issues we not yet run the full setup. we have also been remiss in uploading content. given that we should be able to get in two runs tomorrow i'm finding the lack of upload more of an 'issue'. we also need to consider how we regulate (or not) the removal of artifacts from the space.

so where are we? at about 75% and still refining. it would be great if we would get 'there' for friday and in some senses we will.

[i've just thought of a question i have for jg ... i'll ask it here anyway "if we were discloated how would you manage/treat the sound?"]

we undertook some significant changes today, namely around the organization of the space but also (and due to) equipment. we have been cutting the cruft daily, and seem close to a 'final' setup. in the back of our (my?) mind(s) is the installation later in the year.

friday's performance-workshop will be a pseudo sketch for the installation – in the form of a short-duration performance in its own right. we can only develop this work by doing it ... as with all works of this nature it remains in flux (but that does not exclude stasis). there is however an aesthetic and philosophy.

with more time and the (perhaps before the installation) the path is clear, and that revolves around developing and sharing specific skill sets. i'm not arguing this to be a feature of all collaborative praxes but something very suitable to ours.

some isuues return ...

– composition
– sound
– visuals
– text(s)
– motion

mostly because we know more of what we are looking at. it's exceptionally hard to take an overview from the inside. pull things together and apart whist letting voices (& artists) speak for themselves ... develop & extend.

this work is duration, i'd like it to run over at least four hours ... this would require at least 9 artists. run over four days (four hours each day) the scope of our production would reveal itself more readily.

languisity

updated equipment list

suze:
– mic

jg:
– macbook pro
– mic x2
– sound board
– typewriter
– camera
– tv

– infrared sensors x8
– speakers x3

matt:
– mackbook
– printer & scanner

keir:
– mackbook pro
– g4 powerbook x2
– 20" apple cinema display
– 30" apple cinema display
– 40" plasma
– midi fader
– scanner

[sort]

we have been engaged in a process ... and i don't mean of the 'soft kind'. there has been much focused talking around the doing, and a constant refinement of the doing. we have a diverse set of skills, and we have intentionally stayed (for the most part) within our own practice.

each person has a defined role, set of tasks and rules. outside of performative context we are also contributing to the 'general' construction of the work. the clearer constructional contributions lie with jg (audio), keir (visuals) suze (dance), i'm working with a 'view' to concept of the work, but we all contribute to shaping the artifact.

does real-time collaborative art making resolve in a single 'object' or 'linked objects'. we tend to perceive the single as more valid because it is clearly delineated from parallel (& serial?) making. this bias remains when the collaboration is distributed (and especially when dislocated).

it is also exceptionally hard to differentiate distinct, individually authored parts when they are able to fit into a greater whole. our endless goal to reduce the entropy of information results in a observation of 'words' rather than ' l e t t e r s '.

-> keir
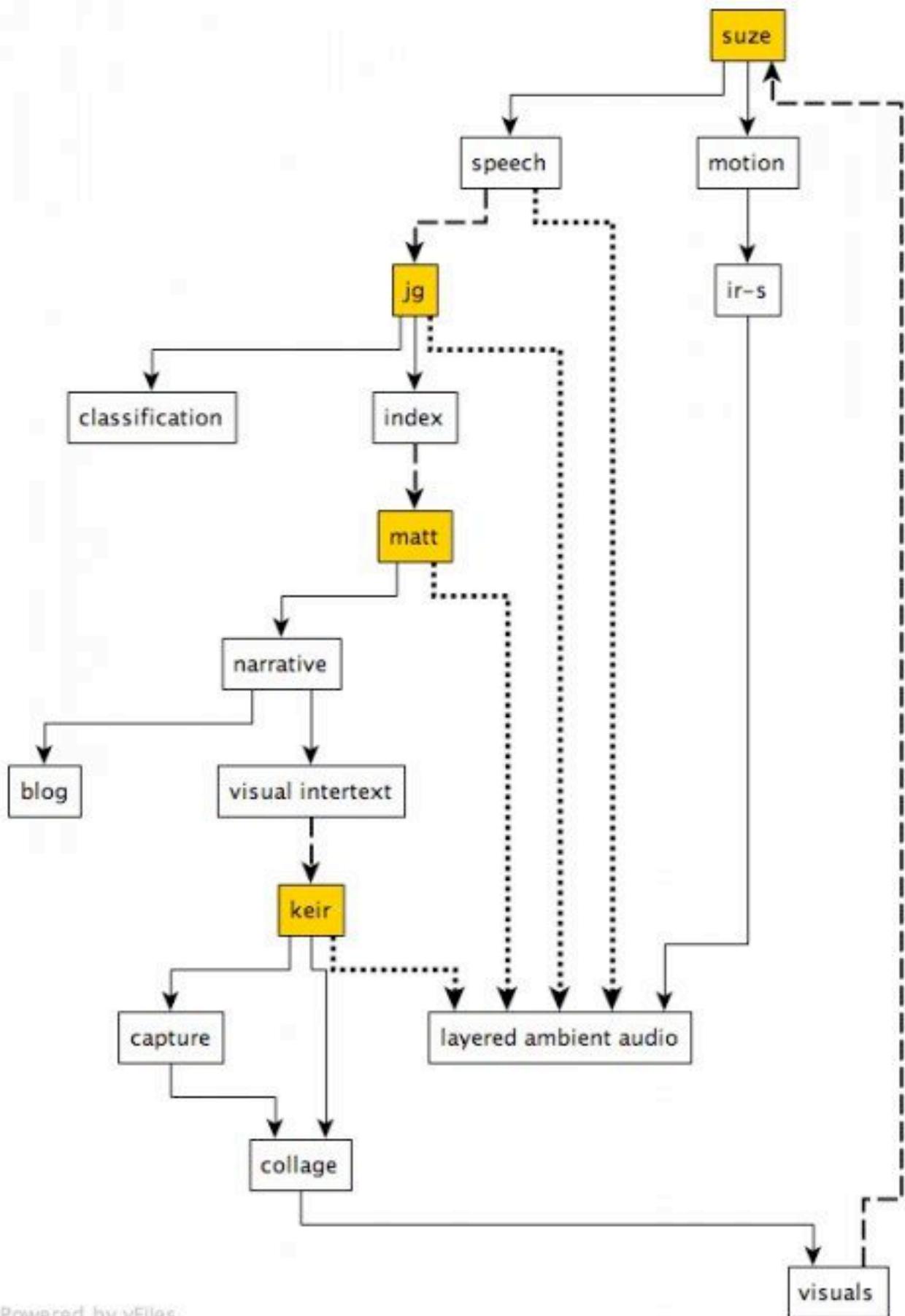
network map (excluding audience intervention)
dashed lines are 'divergent, interpretations'
dotted lines 'indirect effect'

day3 notes

- phrasing
- ir-s position / test (interrupt levels)
- refine text 2 narrative -> images
- images lead to and from narrative
- movement composition (details)
- (ask) list task roles
- upload ++
- presentation?

JUL 19

day4 - >>

ok ... lots to do today. set up a flickr account & linked it with the tumblr. much scanning
and uploading shall follow. hope to get in some long runs ... (need to go shopping)
writing up ... planning the workshop. – busy!

greater than or equal to (≥)

at what point does, the instigation become redundant. i've already posited that here the
'meanings' are ≥ the object/artifact. yet to take it out of the loop seems equally
redundant. jg is configuring the sensors, which have been absent up until this point. last
night i made a circular version of the network plan, it points the the layered ambient
audio as the focus of the work.

there is a play i like there 'motion -> noise' ... thats simply physics.

the sensors will give some motive context (response) but not affect our 2d vs 3d
preference. as i've said before, it is simpler to perceive a 2d image over a 3d image.
spatially i would aslo rather be working with two 40" plasmas ... back to back and on the
diagonal. using one 40" and a 30" lcd orientated @ 90° is a 'compromise'.

notes to selves ... disrupt plasma picture in proximity (dev)

movement composition is this space is also hard, as it's an indirect response to the
visuals & sound. then there's the 'in the round' sight-lines, downward gaze to the plasma

& lcd and notions of phrasing. there are many components to engage with.

jg just mentioned he he working with discreet channels, 16 of them, there is a huge amount of purposeful separation in this work. in all aspects, the layering (both authored and interpreted) can lead to the reading of loops where there are none.

the ambient noise, is not a loop – but an artifact ... an audio pampliset (after alvin lucier).

-> -> ...
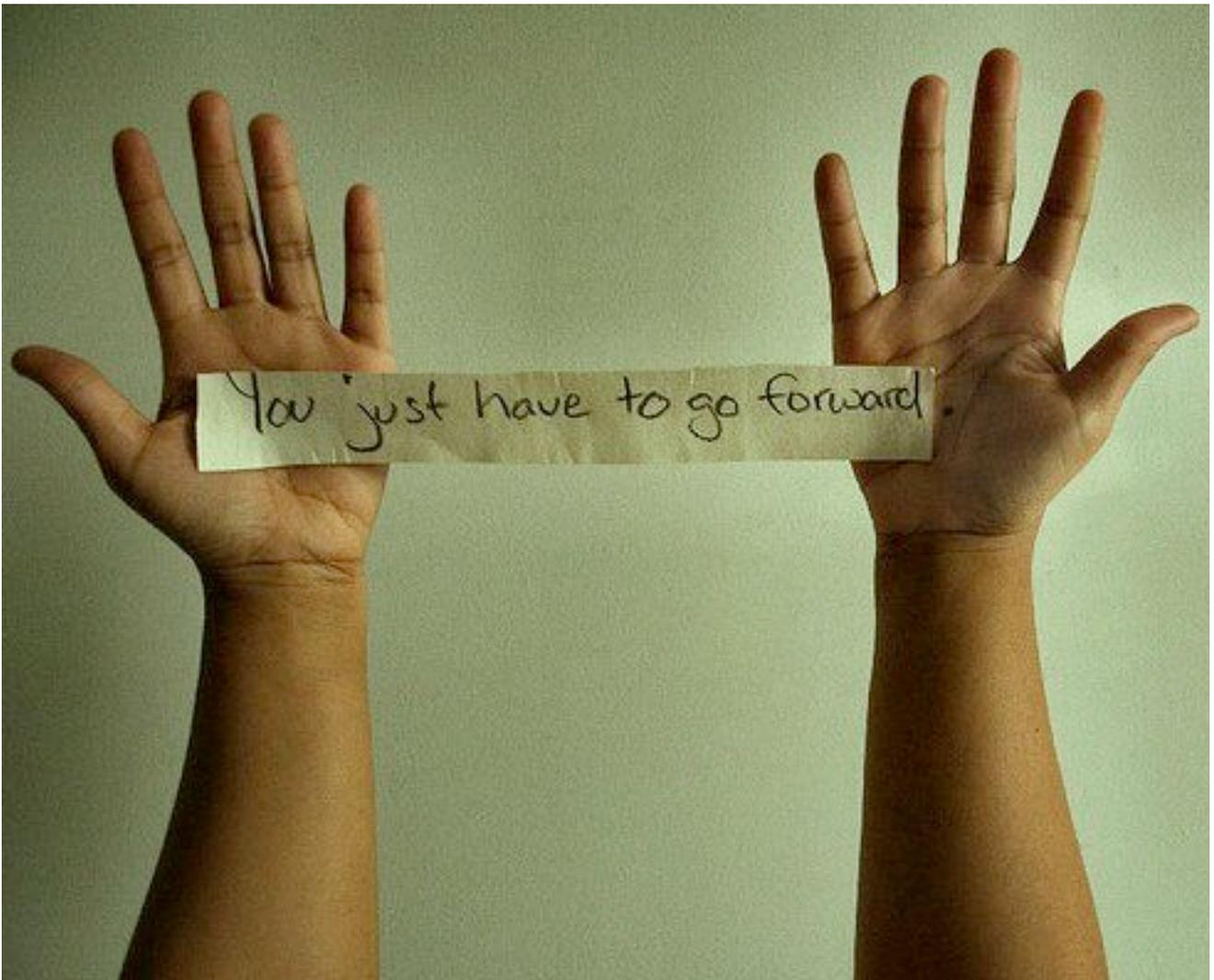
languisity

just finished our first full run, went well ... lunch. >

mike priddy

mike priddy took some pics yesterday ... the space has more artifacts today.

collage wall (phone cam)

what do?

talked about what we do / have done for the work –

suze:
- tasks – choreography & composition, tagging, observing, authoring.
- rules – no direct verbal communication, no communication with matt, 'honest' tagging
- role(s) – inspiration / creating initial movement material

jg:
- tasks – interpretation, classification, index typing, index delivery, speech monitoring, sound monitoring
- rules – no communication with keir, avoid visuals, observe rather than communicate.
- role(s) – audio creation / shaping, sensor (usage) co-development, spatial organization

matt:
- tasks – index scanning, interpretation, narrative generation (text), visual intertext selection, print delivery,
- rules – no verbal communication with suze, text -> image -> image -> text progression, new index – new rhizome
- roles(s) – blogging / theorizing, spatial organization, over-viewing

keir:
- tasks – photography (suze 'on site'), scan & collage, digi flips, visual overlay's, wall collage
- rules – scan before wall mounting, no 'static' imagery, no communication with jg, respond to suze's rhythm (screen motion), (strong) visual aesthetic for video, content composition for collage.
- role(s) – visuals creation, spatial organization, sound integration

this is loose, rather than definitive. everyone has put in out of hours work ... and we evaluate our/the work as a group

ditdahbit

we are mostly good and ready to go. each of us (i think) has some personal ends to tie up but we are positive. it's been great fun & hard work in parts. i think that there has been & will be a expectation of something different from what we have done. but this work speaks volumes about our collaboration and the diversity of work(s) real-time collaborations can generate.

i have lots and lots of notes / reflections that come from a variety of conversations. at some point i will try and write this all up in a 'formal' paper? but for now bits and bobs.

oh yes ... we did go for calling the work 'ditdahbit' i'd been using it as a personal working title up till now.

» kier's scan collages (flickr)
90% of the images are from flickr, their individual copyrights belong with the (original) authors

we ended the run today when flickr got the hiccoughs (yes that is my desktop).
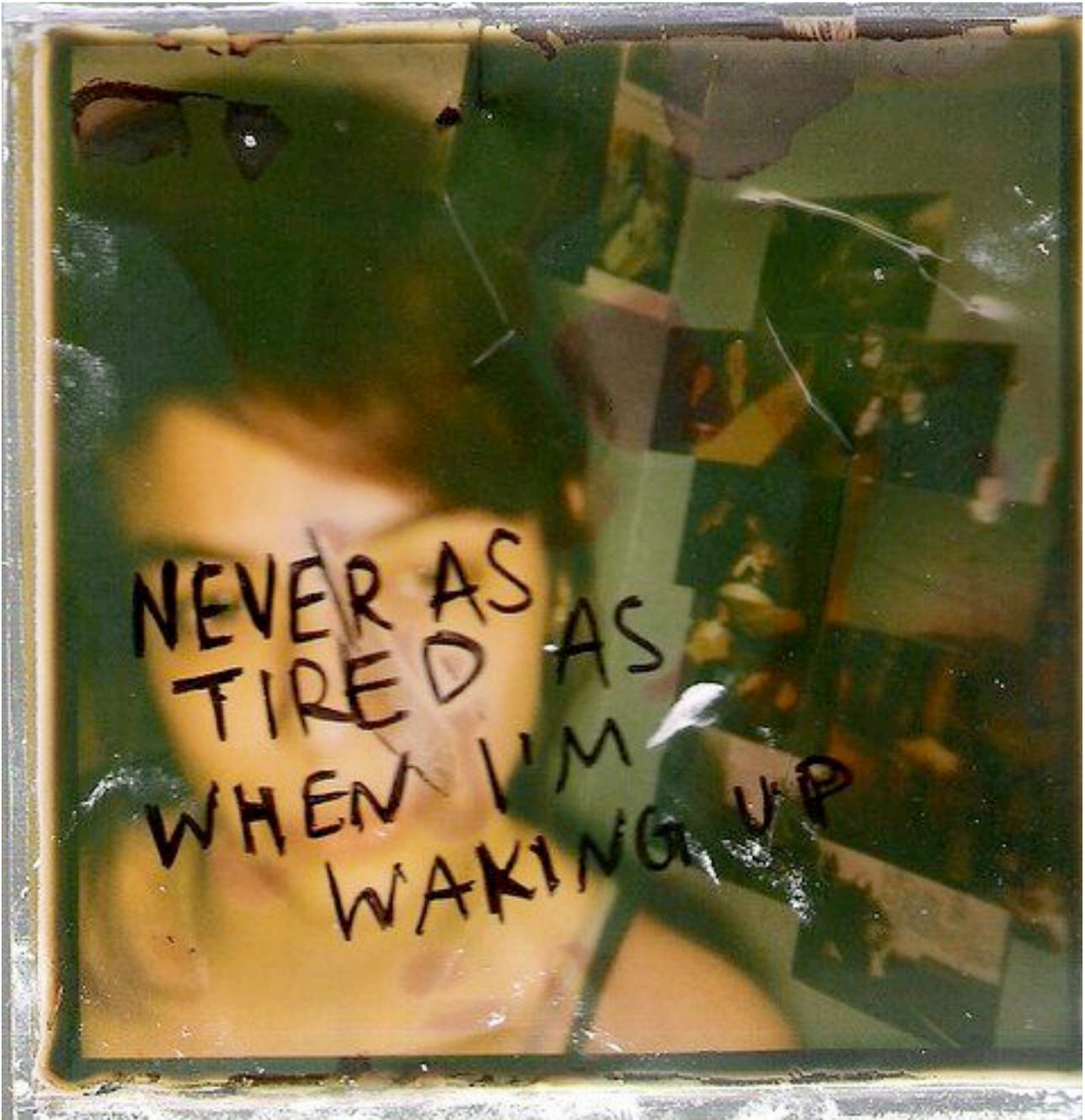
» ibm system/360

» ibm selectric typewriter

oh!? [...]

two things that might strike you about 'ditdahbit':

1. low tech
2. co-location

the two issues are intertwined with how we approached this project and explored our particular aesthetic(s).

there is a deep conflict in exploring (distributed) online collaboration and being co-located. redundant cabling and comm's makes for a jarring experience. as we would be working together for the four days prior to the 20th we decided to co-locate the work, but ensure that a dis-located version would be possible and have artistic/output parity.

lets take the index cards as an example. we are wanting to create 'rich' artifacts and processes. to this end we use a typewriter to create index cards that are physically transported from one location to another. in the dis-locacted version we would use something like paired selectric typewriter's over a network (typing on one would result in type being produced on the other). in both instances we are dealing with 'push messages' as the receiver is making no requests.

or, during the performance kier (at times) follows and photographs suze. we can replace this physical intervention with remotely controlled cameras (servo mountings: pan, tilt & zoom). whilst we 'could' implement these 'electronically' networked solutions when co-located its 'kit overkill'. the audience would spend so much time looking at the 'sexy' redundant kit they would forget the 'artistic' validity.

it's not the kit, but how you use it that validates the tools, and your artistic praxes.
technology: circa 1615, "discourse or treatise on an art or the arts," from greek. tekhnologia "systematic treatment of an art, craft, or technique," originally referring to grammar, from tekhno- + -logia.
we have purposefully chosen to work with tools whose functions we understand and are building personal practices around (software, hardware, protocols, techniques etc). throughout this week we have developed and extended our skills, and observed and learned from each other. collaborations are not easy - but can be thoroughly enjoyable.

ditdahbit is our engagement with a particular form/philosophy of real-time online collaborative art-making (rtocam). it is both interesting and pertinent that we have taken a different approach (form/philosophy) to our sister project (the collaborative drawing). we have been able to identify the following facets of rtocam, which apart from the binary pairs are not mutually exclusive:

- **serial / parallel**
- **synchronous / asynchronous**
- **collective / distributed**

ditdahbit is asynchronous and distributed, and as such is partially parallel. we believe the

collaborative drawing group have been working to a synchronous and collective model.

given (y)our prior experience of 'multimedia' based works its possible you will look for, or read into the performance hermeneutic loops. cause and effect is often articulated in works like this to develop 'artistry' with the tools, and cognitive closure for the audience.

ditdahbit is layered rather than looped, discreet artifacts (in there own right) that are 'complimentary' (but ultimately divergent) are over/under-laid. we are not passing on messages but packets. whilst some of these packet my be corrupted, the corruption is self evident (homophonic text, key miss strike, image glitch, video glitch, sound glitch). more importantly the packets are interpretive inspirations, instigating new authorship.

inadvertent passing of of packet 'meanings' is avoided by reducing cross talk. verbal, aural & visual communication is regulated by rules and system functionality enquires, maintaining signal integrity (the individual outputs/artifacts).

although the co-located the interleaved artifacts of ditdahbit are separate. for example, the ambient audio system utilizes sixteen discrete channels (inputs & outputs). this allows us to select the most suitable delivery method when dis-locating the work, whilst retaining our artistic choices and aesthetic.

so what would the dis-loacted work look like ... much like the co-located one, but with slightly different technology. the main difference would be that suze & jg would be in one location keir and matt in another. keir & matt would retain the scanners & printers and collage wall ... but the (large) screens would be in the other space. a selection of wall images would be faxed to suze and jg's location for suze to 'hang' if she wished.

the ambient audio would be shared across both locations in the same manner as the co-located work. the index cards would be networked as previously described. in this manner we retain the process, artifacts, environment and composition we have developed this week.

looking over our pre-development week emails and entries on this blog its clear how much we have refined. both technology, concepts, and products have been stripped down to what we felt worked, fitted or made work. the tv's are a case in point. at first kier was going to use multiple tv's in the space on trolleys, rearranging their position in response to what was displayed and suze's movement.

we have culled this to less, and static tv's (although they are larger). although here is one of our compromises ... we wanted to use two 40" plasma screens but only one was available. with one large screen the space is slightly unbalanced, two screens split focal gaze and spatial positioning. however, the space behind the screen has offered new

avenues to explore.

spatially the screens set up another issues with suze. because there is no 'loop' and we are easily distracted by tv's (2d images are easier to perceive than 3d). we already know the issues of presenting 'dance' in multi media works. suze has had to learn how to 'author' with authority – but more than that ... its a reflection of a proposed concept(s):

– **dance** is the product/artifact of movement presented within a performative context, where navigating and authoring the intertext of derived meanings is of equal or greater value than the embodied object.

– **choreography** is the making of performative structures in which 'dance' and the resultant intertexts can be navigated and authored.

– this is the rebirth of the author through distributed authorship

the last statement sums up the key thread throughout ditdahbit. we have engaged in delineated distributed authorship alongside collaborative authoring. we have worked towards producing an artwork using the most 'suitable' tools, techniques, technologies, and concepts.

as a group, this is our first time of working together, but there has been lots of listening, learning and enough shared knowledge/experince alongside our individual expertise. we have a 'work' and our artistic engagement in the 'process' to share ...
The workshop is geared for artists and academics in the visual and performing arts who are interested in the potential of networked technologies as a creative platform. The workshop will support and encourage work in this area, introduce some of the technologies and demonstrate applications. *

note: when i get some time i might revise this text, its been written on the hoof (in a few hours) so the participants tomorrow can have some 'theory' or context to mull over asap.

carloss serrano

day 5 - workshop

so, today is the day. we are on in the afternoon but will leave ditdahbit empty but 'live' over lunch and possibly the morning. there is already some discussion around 'today' at "Let's Talk about Collaborative Art Making".

i'm well aware of the limitations of tumblr for archival purposes ... so after today i will collect and archive all of these posts into a single pdf.
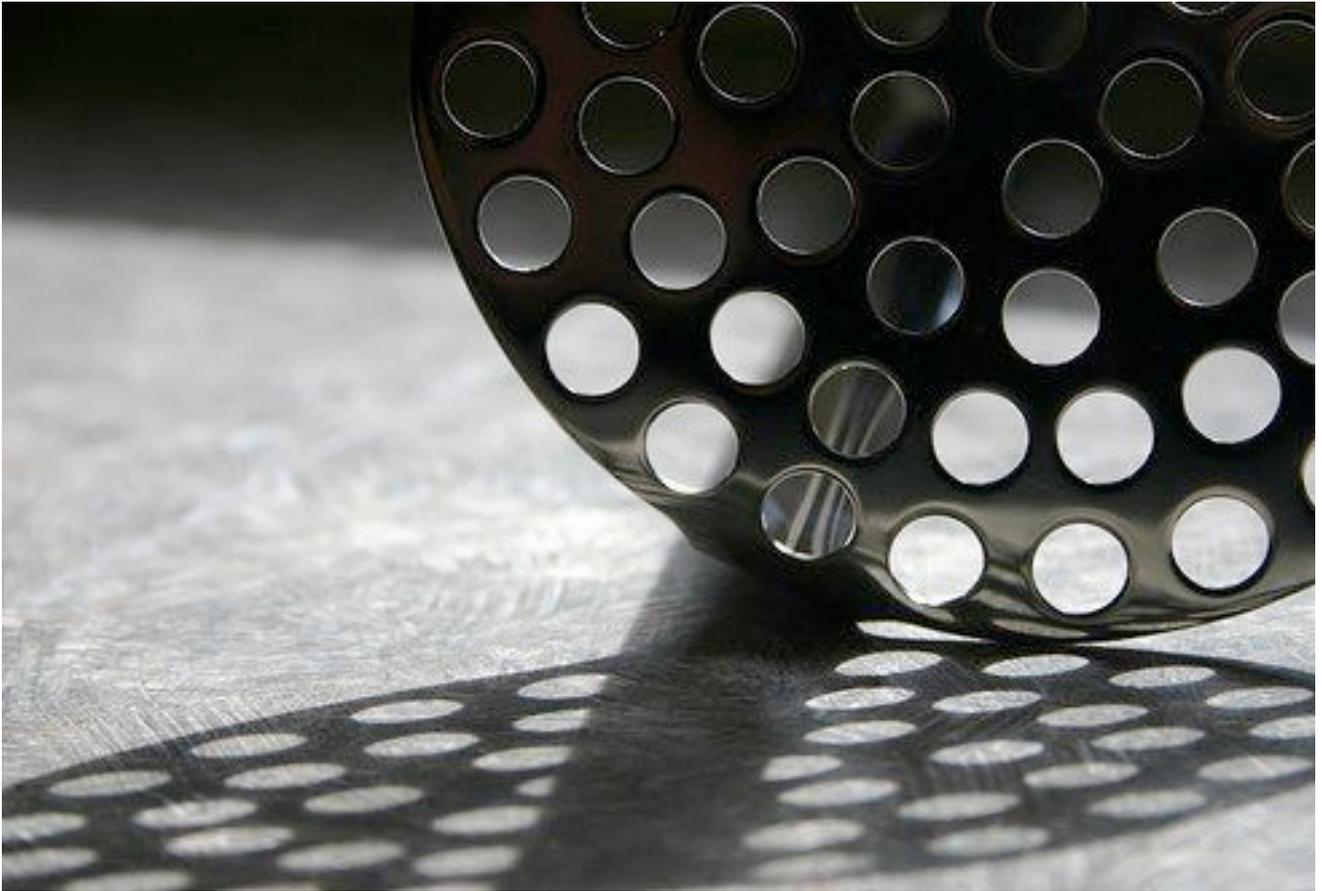
i_linda

ditdahbit is not a mashup (at least no more than any other work).

getting going ...

lots of rain outside ... should be starting soon. a 'mixed' audience with a few live laptops, think someone else is blogging too ... will try and find out a url
getting warmed up and ready ... running the audio, testing ... talking , laughing. should be fun. will try and blog from the other workshop too.

when are ... and are not, art praxes 'play' or 'playfull'. even within 'traditional' forms we undertake deep exploration – try to find our own methods etc etc.

anon nona

there seem to be some access grid issues ... not sure if the live linkup will happen.

" mices don't move themselves

— suze

and we are back ...

connected now ... and linking upto the other site.

'and with & through: the technologies of performance' greg's presentation / demonstration.

[isn't technology great – imagine playing a piano that de–tuned every time you pressed a key in relation to velocity & duration ... actually that would be interesting]

ok .. greg talking about how the technology is fore–grounded and a series of approximations to which we cannot reach a 'final' point.

and = adding technology, but working within established boundaries.

with = mediating between the technology and existing practices (is using the first coda mashup as an example. suggesting that the means which which the tech is achieved is normally disregarded in this mode. [there is a bigger issue here about if and where technology drives new paxes]

through = [this is the collaborative drawing / motion demo] carla and greg are using the <u>e-beam</u> kit to draw in the space holding the pens and moving. the sensor is setup 1.5m off the floor arranged at a horizontal angle (rather than it's normal vertical) there is a capture volume in 3d – but all motion is transcribed in 2d.

greg talks about how things like curves are simpler to draw with e-beam in this manner. [the arm swings they are undertaking remind me of the video's i've see of <u>freehand circle drawing</u>]

the mark making is interrupted due to the limitations of the system outside its normal use. eg miss mapping / relocation. the screen has a series of marks, straight and curved.

[fixing some screen issues in the remote location ... they are finding it hard to see the mark making process]

followed a methodology of looking at the limitations / extension of the technology. when they felt they had 'learned' the instrument they moved onto trying out some set material with the system.

the intention was to see what kind of marking the material created (the choreography was not made for this demo but taken from elsewhere).

so they have done a 20sec phrase 4x and we can se a set of traces on the e-beam canvas. diagonal and curved marks, in a 'pattern'.

gregs asks what is he doing with this ... talks about the development of techniques that allows creative practice to emerge.

rounding up ... using technology as the shaping process. talks about the notion of latency briefly .. how can we exploit this and similar issues. technology to support the creative practice ... moving from platform to form.

talking again about different methodologies...in creative practice he is talking about methodologies. questions if technique learning is really important – does it help you be an artist. [?].

looking for us in the technology ... technological culture.

- reflexivity
- complexity
- practicality
- teleology

and then role of theory

- enquiry
- proposition
- process

greg considers that the theory is before the practice because the tools are hard to get for many people. so people talk rather than do. questions if the theory will hold up in time [theory should not be monolithic].

greg is closing up now ...

examples: motion-marking

greg is now talking about and showing examples of the process they have been undertaking.

jg just asked if the work was 'and, with or through'? ... greg suggested this was not about dance but drawing [does that mean the dance is redundant or the instigator]

greg is suggesting that what he has is a 'with', claiming a fusion [my word] of dance and drawing ... that motion paths lead to distinct mark making. suggesting that the 'results' are abstract.

not claiming this as 'newness' but in-between dance and drawing per se. possibly an extended technique of drawing ... new departures mixed mode outputs.

denny talks about the interest of recoding the 'trace' as an artifact of performance. revealing what we know to be there, but are unable to see.

referring back to the first workshop demo with tablet pc's. mike wonders if this is motion capture [tracking]. greg suggests that his aim is not to replicate human motion, but transcription of motion.

lisa suggests it is a crude filter, detailed motion to crude output .. and that is what's interesting. the action of filters on actions. [i'm thinking about procedural art now]. posits that what has just been shown is not a performance for audience, how greg might refine

for performance and the effect/affect that might have. moving from development to artistry? [just missed a very excellent point ... i think this is being recorded audio ... was about the deterministic nature if these technologies vs human variability]

lunch !

roundup

ok, so we lost net connection 'just' after we finished yesterday afternoon. ditdahbit went well and raised some stimulating discussion. i'll write up notes etc later ... need to rest for a while, feeling mentally and physically grazed.

thanks to the attendees for coming and all your thoughts, mike for tech assistance, greg for inviting me to be a part of this project.

and big high fives to suze, jg & keir for making this such a fun a rewarding week.

if you came to the event and want to contact me ... i have a gmail.com account, and the username is mpgough

nils jorgensen