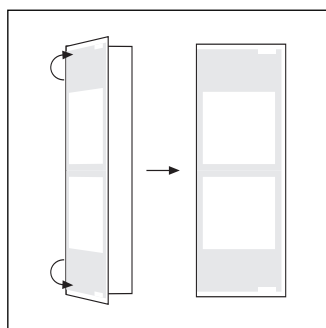
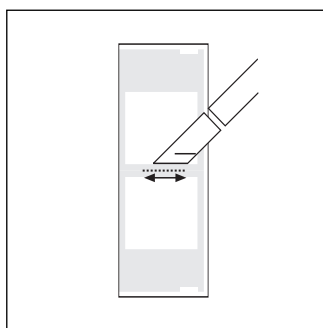


# DIFFUSION

1:

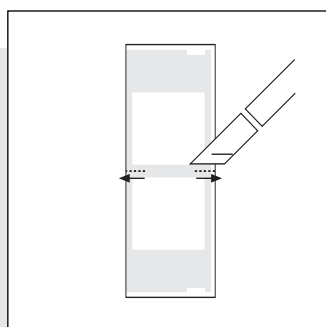


2:

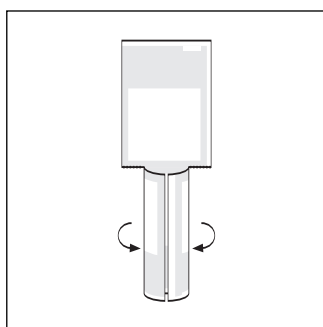


## Construction

3:



4:



1: First, fold each sheet in half along the vertical axis.

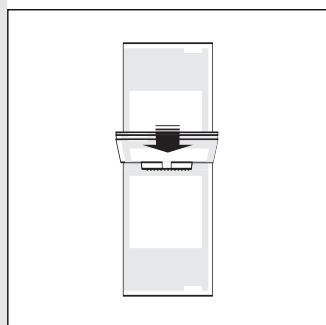
2: Using a craft knife or scalpel, cut a horizontal slot along the centre dotted line of the first sheet. (pages 1/2/13/14)

3: Then cut along the dotted lines on all the other sheets. Make sure to cut to the very edges of the paper.

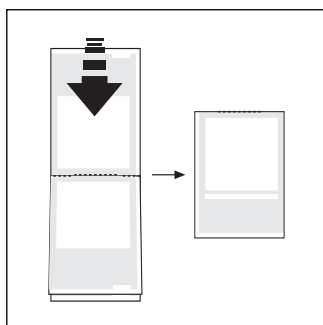
4: Stack the folded sheets in ascending order with the even numbers at the top. Curl the bottom half of the second page (pages 3/4/23/24).

5: Thread the curled page through the centre slot of the first page. Repeat this process with the third (pages 5/6/21/22), fourth (pages 7/8/19/20), fifth (pages 9/10/17/18) and sixth sheet (pages 11/12/15/16) with the even pages in ascending order.

5:



6:



6: When all the pages have been threaded through, check the pagination. Finally, fold the booklets in half along the horizontal axis.

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knowledge at play in locative media – a *sedentary*, static mode of maps and archives and an *ambulant*, mobile, in-between mode; that of walking art practices.<sup>(386)</sup>

Most often the overlay of these perspectives is represented through maps, on which the geospatial hotspots are dotted and the users' mobile trajectories plotted. This type of conflation was presented in the *Cartographic Command Centre*<sup>(37)</sup>, a collaboration of the Locative media lab, Project Atol and others, where maps of different scales – from satellite images to biomapped pedestrian paths and bicycled location video stream – were brought together in a stereoscopic 3D projection.

Military conversion, staging a 'centre of calculation' in an art context may be a tactical act in itself, but the simple overlay of geometries and perspectives did not add up to a oppositional message, the user experience was one of determinism, what was on view was a spectacle and not a subversion of the all-powerful visibility techniques. The project exhibits a general problematic of *tactical media*: its targeted micro-inventions often display an affinity with that which they seek to oppose.<sup>(387)</sup> Maps remain strategic tools: technologies for governing at a distance, and their use for oppositional or creative purposes may just end in a reproduction of their spatio-temporal dynamics and structural logics, in a benign form of irony. It thus is all the more important to deconstruct existing mapping techniques and to develop new formats.<sup>(40)</sup> Moving in this direction are projects in collaborative cartography such as *London Free Map*<sup>(41)</sup>, where open-standard maps are redrawn from bottom-up by gps-equipped walkers, cyclists and skateboarders, projecting the tactical on the strategic.

What, then, are the visual practices involved in location based arts? The 'locative' gaze conflates a god's eye view – the frozen military 'view from nowhere' of satellite vision and atomic clocks – with the situated, embodied 'pedestrian' perspective, the fleeting glance of the flâneur and the tourist, in search of consumable places and experiences. The two types of gazes coincide with Michel de Certeau's distinction between strategy and tactic. If *strategy* is about assuming a place isolated from its environment, acting on the objects and targets from a distance, "which insinuates itself into the other's place, fragmenting a non-localised, temporal and processual activity" without taking it over in its entirety, without being able to keep it at a distance.<sup>(388)</sup> Besides overlays of physical and virtual worlds, 'locative' representations thus perform overlays of various power geometries. And of epistemic frameworks: Simon Pope discerns two modes of



A walk / each day / in different shoes.  
A walk / along a fold in a map.  
A walk / without landmarks.  
A walk / to the horizon beyond this page.  
A walk / along an imagined line across your city  
Simon Pope, Walking Texts, 2005

## THE TACTICAL/STRATEGIC OVERLAY

We are already familiar with the re-invention of spatiotemporal practices with mobile phones. To these street-level user cultures, the spatial technologies of GIS databases, GPS positioning, RFID tracing and CCTV networks<sup>(389)</sup> add a totalizing grid and mesh of surveillance. Further, ubiquitous or pervasive computing involves the idea of 'invisible computers' embedded in objects and spaces, 'smart' devices that can exchange information with each other over continuous networks and act together in a 'seamless' manner. The vision is to make technology calm and non-intrusive, to create "environments saturated with computing and wireless communication, yet gracefully integrated with human users."<sup>(390)</sup> The emerging landscape of *ubicomp* is thus an environment of translation, where aspects of agency and 'awareness' are delegated from humans to machines, computational processes and databases. Especially in cities, software is omnipresent as a kind of 'local intelligence', infused into every fabric of urban life. Nigel Thrift and Shaun French describe in detail the ways how software, through a series of performative 'writing acts', contributes to an automatic production of space which conditions our existence by a continuous rewriting, standardizing and for social inventiveness.

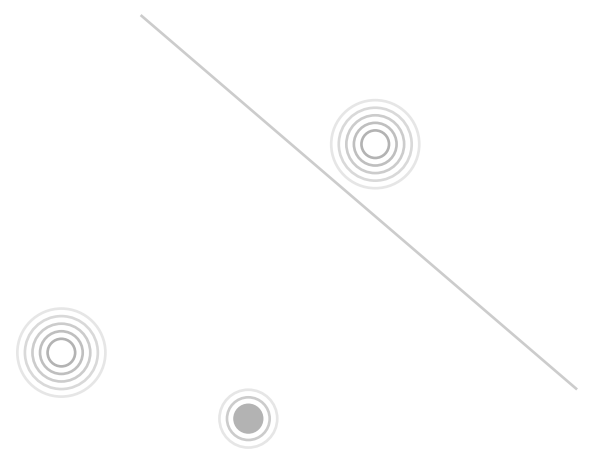
A lot of thought and action has been dedicated to the 'pervasive' media environment recently by artists, cultural producers and theorists. Ubiquitous computing, broadband media, wireless and wearable applications, collaborative tools and social software form a socio-technical assemblage that transforms our spatial experience and opens up new potentialities both for regimes of power

# LABOURS OF LOCATION

## ACTING IN THE PERVERSIVE MEDIA SPACE

MILNNA TARKKA

science and society? What kinds of potentialities, for thinking and acting, are performed into being?



Minna Tarkka is a researcher, critic and producer. She is director of m-cult, centre for new media culture in Helsinki. This article is a work-in-progress version of a chapter in her doctoral dissertation Performing new media.



## Species of Spaces

LABOURS OF LOCATION  
ACTING IN THE PERVASIVE MEDIA SPACE  
Minna Tarkka

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This publication is one of a series of essays commissioned by Proboscis for the series Species of Spaces – inspired by and in homage to George Perec's eponymous book. The series contemplates how we occupy space in the contemporary world of the twenty-first century – the virtual and physical, emotional and social – what Perec called the "infra-ordinary". Species of Spaces questions the trajectory of contemporary urban existence, intervening in current debates on how the virtual and the physical relate to each other, and how technological advances affect cultural and social structures.

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dardisation and modulation of urban situations and rhythms.<sup>63</sup>

However, instead of hegemonic or conspiracy theories of machines taking over, Thrift and French stress the contingent, distributed, ad hoc, and patched-up nature of this computing environment – a 'technological unconscious' rooted in the software cultures of programmers. This perspective prompts us to look closer at practices: it is through the mundane and minor – through everyday activities of programmers,<sup>64</sup> designers and developers – that new forms of the social are being thought up and put into action.<sup>65</sup> With the focus on practices, account is taken of the tools and discourses of the work process – but also of the various kinds of invisible work and immaterial labour that are involved in the activity of production.

Of special interest here is the artistic and activist practice of the ubicomp environment, recently subsumed under the banner of 'locative media'. It is crucially important that cultural producers intervene in this space whose parameters are set by the military and ICT industries: not only as 'early adopters' to develop cultural and social applications to new technologies,<sup>66</sup> but importantly, through their capacity to create new 'pervasive imaginaries' and to resist the totalizing tendencies and closures of ubicomp spaces. In addressing these labours of location, the key questions relate to how practices are positioned and negotiated within networks of culture, technology and society. What are the tactics and strategies and how effective are they? How is the minor and mundane linked to grand narratives of progress in

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## SPACE, PLACE, CASE (OR RACE)?

*One camp is comprised of wild eyed zealots who are fervently convinced that we need to have freely available, machine readable, open licensed geo-data, and will do anything to make that happen. The people in the other camp ... stare into your (wildly flashing) eyes, their pupils dilate slightly and in a cracked bass exorcist monotone they say 'We have a very good relationship with the Ordnance Survey'.*

University of Openness/Faculty of Cartography, Why London Free Map? 2004

'Locative media' is a loose common nominator for artists, developers and activists who explore the possibilities of mobile, location-based and other pervasive technologies. Their practice has presented a rich variety of projects ranging from participatory annotation of space to platforms for *moblogging* or *biomapping*, from exercises in *psychogeography* and *collaborative cartography* to experiments in public authoring, mobile imaging, sound and performance. The writing that accompanies the projects involves utopian and dystopian reflections, playful and poetic manifestos as well as programmes for design and policy action.<sup>(7)</sup> As is typical of any media still in the making, there is a lot of 'weak rhetoric': a heterogeneous mixture of concepts, tools and genres that are not yet aligned.<sup>(8)</sup> There is also the familiar romance with the 'new' in media; a passionate fumbling where a temporary loss of

historical sense is combined with a search for antecedents and originators. In the case of locative media, the most often cited forefathers are Guy Debord and the Situationists, Gordon Matta-Clark, Michel de Certeau, Kevin Lynch and Archigram. From this list we can infer that locative media is about urbanism: perhaps the artistic counterpart to the emerging discipline of urban ICT studies proposed by Stephen Graham?<sup>(9)</sup> Not too many critical debates have taken place within the geographically dispersed locative community, connected by mailing lists and a chain of workshops and seminars.<sup>(10)</sup> Instead of a *problematisation* of locative practices, the discussion has mostly been in the *problem-solving* mode, tackling with technicalities, proposing projects and collaborations, exchanging useful information. Terms for an initial debate span from different understandings of space and place – a classical topic as such<sup>(11)</sup> – and revealed some *us-them* positionings, camps within the community. Giles Lane of Proboscis opposes locative media's inherent reliance on the abstract Cartesian idea of space, a "desire to simply lock digital content to the most banal definition of place – i.e. the longitude and latitude coordinates that specify a location." Instead of locative media, he proposes to talk about *places*, seen as spaces of lived experience, social and cultural constructions.<sup>(12)</sup> Marc Tuters, a key spokesperson of the Locative media network, responds by referring to network *topography* – the media should be distributed in a peer-to-peer mode and not stored on a central server, as is the case of Proboscis. This 'walled garden' approach is to be made obsolete by semantic web, an *esperanto* for the internet, and the cre-

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ation of open source architectures, Tuters predicts.<sup>(13)</sup>

So there seem to be two versions of urbanism here, the one more cartographic, the other more ethnographic in orientation. Connected to these are questions of openness of structure and ownership of tools. But the discussion doesn't stop here. "Locative is a case not a place," Karlis Karlins reminds the list readers about the linguistic origins of the term, which was inspired by languages such as Latvian and Finnish with their several locative cases – corresponding roughly to the preposition 'in', 'at', or 'by', and indicating a final location of action or a time of the action.<sup>(14)</sup> In his posting, Karlins seems to be proposing a purification of the term in almost structuralist fashion.

The emphasis on linguistics is justified by the fact that a lot of locative development deals with semantics and formalisms needed for the description of space, the storage and retrieval of media and the creation of algorithms. Here artists complement and contradict the evolving 'universal' standards for geography (OpenGIS) or navigation (W3C) markup languages by proposing more particular metadata schemes: semantics to describe mental maps, neighbourhoods or psychogeography.<sup>(15)</sup> thus translating the social and cultural into machine-readable form, to the languages of software architectures.

Should we, then, approach locative media with geographic (*space*), social (*place*) or, linguistic (*case*) terms? All, I would say, and it is not even enough. The interesting point about the locative cases is that they transform the nouns by *inflicting* or *inhabiting* them; they have a performative force. Even the six Finnish locative cases can,

besides location and movement, also indicate time, causes and means, and even qualities, sensations or relations of possession.<sup>(16)</sup> This already allows a more *relational* understanding of location, one that is not treating locations simply as containers, 'in', 'at' or 'by' which 'content' can be placed. Locations also create asymmetries and 'localise' others, as Michel Callon and John Law point out from the relational approach of science and technology studies. "The local is never local. A site is a place where something happens and actions unfold because it mobilises distant actants that are both absent and present."<sup>(17)</sup> The question of *localisation* brings us to some absences in locative discourse. Another debate thread on the locative list was initiated by Coco Fusco's critique on the contemporary mapping-and-hacking enthusiasm which "evades categories of embodied difference such as race, gender and class, and in doing so prevents us from understanding how the historical development of those differences has shaped our contemporary worldview."<sup>(18)</sup> Locative media, as a new technology of localisation, has been largely silent about issues of globalisation, ethnicity and gender, and about locative media's potentially colonizing effects on neighbourhoods.<sup>(19)</sup>

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- (27) Deleuze 1992, see also Rose 1999.  
 (28) Bowker and Star 1999.  
 (29) Graham 2004.  
 (30) Walsh, in Tuters and Smite 2004. See also the 'backend information politics' of the web discussed by Rogers (2004).  
 (31) <http://www.blackbeltjones.com/warchalking/index2.html>  
 (32) <http://www.eventnetwork.org.uk/petegomes/>  
 (33) For example Sonic City, [www.tii.se/sonic-city/](http://www.tii.se/sonic-city/) See Galloway (2002) for discussion.  
 (34) To question the transparency dictum in pervasive media, more fine-grained visibility techniques have been developed in the creation of "seamful" interactions. See Chalmers, MacColl and Bell 2003. More questions remain to be posed.  
 (35) De Certeau 1984.  
 (36) Pope 2005. Kwon (2002) makes a similar distinction between sedentary and nomadic approach to site-specific arts. For Pope's walking art projects, see <http://www.ambulantscience.org/>  
 (37) <http://www.deaf04.nl/deaf04/program/events/item.xml?url=urn:v2:deaf04:rss:projects.rss:040929104400-ccc>  
 (38) Also Coco Fusco (2004) wondered about the politics of these representations, when she realised there were "more men (without uniforms) playing with maps" in galleries.  
 (39) This is the critical assessment of tactical media by one of its key theorists Geert Lovink (2005).  
 (40) Latour 1987; Haraway 1998 and Rogers 2004, Sant 2004 for a discussion in the locative context.  
 (41) <http://uo.space.frot.org/?LondonFreeMap> London is perhaps one of the most mapped cities in the world, especially as it comes to 'pedestrian versions'. The most famous cartographer is Phyllis Pearsall who trod the streets to produce the London A-Z atlas. Consume.net has mapped the diy wifi nodes, Proboscis weaves Urban Tapestries in Bloomsbury while the London Free Map extends its streetnet from East End on.  
 (42) Debord 1958.  
 (43) <http://www.socialfiction.org/dotwalk/>  
 (44) <http://urbantapestries.net/>  
 (45) <http://murmure.ca/>  
 (46) Yates (1966) traces the art's origins from ancient Greece and points out its continuity with evolving scientific methods in the 17th century. The analogy between new media and the art of memory was first applied to the navigable spaces of virtual reality and hypermedia in early 1990's.  
 (47) See Virno (2004) for discussion of commonplaces and Kwon (2002) for community arts examples.  
 (48) Haraway 1999.  
 (49) Cf. Kwon 2002.  
 (50) Location-work: Gupta and Ferguson 1997, multi-sited ethnography: Marcus 1998. Suchman (2000) builds her located accountability on Haraway's situated knowledges.

## PROMISES OF PARTICIPATION

*Understanding the crucial relationships between people, places and things will increase our ability as designers and policy-leaders to suggest more open and people-centric uses of such technologies. We aim to create compelling scenarios and experiments demonstrating the benefits of authoring platforms that treat people as co-creative and not just consumers.*

Giles Lane, Social Tapestries, 2004.

In working towards a critical contextualisation of locative media, it may be useful to revisit the history of *site-specific* art. Miwon Kwon has pointed out how the label 'site-specific' became an uncritically accepted signifier of a critical and democratic art practice. By uncovering a genealogy of site-specific arts, she records the various uses – formal, functional, political – the concept has been put to and surveys the movement from a more sculptural site-orientation to community arts and collaboration with local groups.

The focus on locations as locality, and the conjoined positioning of the artist as ethnographer, is a key element also of locative media practice. Moreover, the practice is seen to be that of *collaborative* and *participatory* media. The turn, in new media, from 'interactive' to collaborative and participatory forms runs in parallel with a reconfigura-

tion of social space, where the 'ubicomputing' delegation of human agency to automated forms coincides with new regimes of 'governance' and freedom. In the governance model, social responsibilities are increasingly delegated from the public sector and the government to communities and corporations. The weakening of the 'social' in society is supported by technologies for empowerment and self-management of communities – and in the end, for the responsabilizing of individuals – that The ethos – often expressed as a morality – that underpins the emphasis on participatory media is that people should be liberated from being mere consumers and aided to become producers of their own content. But the sharp opposition between producers and consumers has already dissolved in the contemporary cultural economy. The work of linking and chatting performed in social software environments, the annotation of places in collaborative mapping and public authoring are further examples of *immaterial labour* – the cultural, affective and technical production that characterizes the contemporary 'social factory'. Simultaneously voluntarily given and unwaged, enjoyed and exploited, free cultural and technical labour is not exclusive to the so-called 'knowledge workers' – but is a pervasive feature of society. The 'anytime, anywhere' of mobile communications is thus also the new quality of work, realised in collaboration with 'anybody/everybody'. Perhaps fittingly, the usual metaphor in geolocated messaging concepts is that of 'post-it' notes: the fetish of teamwork and brainstorming – of digital labour now made ubiquitous. For Paolo Virno, immaterial labour is best exemplified

## FOOTNOTES

- (01) GIS: Geographic Information Systems, GPS: Global Positioning System, RFID: Radio Frequency Identification, C-CTV: Closed Circuit Television systems.  
 (02) IEEE Pervasive computing <http://www.computer.org/pervasive/faq.htm>  
 (03) Thrift and French 2002  
 (04) Ibid.  
 (05) This is the approach of the history of the present as proposed by Rose (1999).  
 (06) Galloway (2003) reminds us about ubicomp originator Marc Weiser's vision to frame the research field in cultural and social terms: an orientation which was later more or less effectively dropped from the agenda.  
 (07) See, for example, Russell 1999, Tuters and Smite 2004.  
 (08) Cf. Latour 1987.  
 (09) Graham 2004a  
 (10) [Locative] <http://base-x.net/mailman/listinfo/locative>, [New-Media Curating] <http://www.iscm.ac.uk/lists/new-media-curating.html>. In 2004, dozens of workshops on locative media were organised and the issue was foregrounded in most international media art festivals.  
 (11) For discussions on the dynamics of space and place, see for example Lefebvre (1991), de Certeau (1984), Auge (1995).  
 (12) Lane 2004.  
 (13) Tuters 2004.  
 (14) Karlis Karins, posting to the [Locative] list, May 10, 2004.  
 (15) See, for example Jo Walsh's mudlondon <http://space.frot.org/NML>, Neighbourhood markup language proposal by David Rokeby <http://proboscis.org.uk/prps/artists/rokeby/nmls.html>, PML: Psychogeographic markup language, <http://www.socialfiction.org/psychogeography/PML.html>  
 (16) Dictionary of world languages [http://www.explore-language.com/language\\_noun\\_cases.html](http://www.explore-language.com/language_noun_cases.html)  
 (17) Calton and Law 2002.  
 (18) Fusco 2004. Discussants on the locative list in December 2004 and January 2005 included Pail Thayer, Brian Holmes, Saul Albert, Armin Medosch, Karlis Karins and Drew Hemment. The discussion mostly revolved around locative media's unproblematic relation to military industry, while it also showed some generational differences in new media art discourse.  
 (19) Production of neighbourhoods: see Appadurai 1996.  
 (20) Kwon 2002.  
 (21) See Rose (1999) for a discussion on government through community.  
 (22) Terranova 2000.  
 (23) Virno 2004.  
 (24) It (2005) summarizes the current version of emergent democracy, see <http://www.socialfiction.org> and Tuters (2004) for similar comments in the locative media context.  
 (25) <http://www.waag.org/realtime/>  
 (26) <http://www.biomapping.net/>

ising political movements and flash mobs. Attached to these metaphors are a selfish theory of action, 'power laws' to explain link economies, and microlicences to enclose a 'creative' commons. There is a deep fascination with ant colonies, which display collective intelligence through emergent organisation and pheromone trails.<sup>(12)</sup>

lematized their spatial practices, especially of the author-ity towards studied communities, which goes hand in hand with the discipline's foundational concepts of *field* and *site*. In this view, sites are not primarily spatially determined, the ethnographer's practice is multi-sited, a 'location-work' that puts attention on the practitioners' social and cultural location, and creates epistemological and political links with other locations. These situated, partial perspectives have also been applied to a feminist re-imagining of technology production in terms of *located accountability*, which stresses the careful negotiation between users, producers and heterogeneous contexts.<sup>(13)</sup> Some examples of such multi-sited practice can be found in the locative arts as well. In *Situations and Imaginary Journeys*<sup>(14)</sup> Heidi Tikka exposes the relative immobilities of families with small children. Through temporarily arranged sequences of mobile images, her projects bring to view the rhythms and repetitions of families' spatial practices and explore ways to reimagine private geographies in collaboration with distant actors. Esther Polak's and Ieva Auzina's *Milk*<sup>(15)</sup> follows the routes of dairy production from rural Latvia to Netherlands: what is traced is not only the gps paths leading from the milk farms to the cheese gourmand, but also the changing networks of food production in the European Union. By employing simple documentary means of narrative and photography, these projects manage to bring in the mundane aspects and the wider contexts of everyday life. In their minor and partial ways, they also describe hybrid economies of space, time and location, negotiated across sites of the material, the social and the technological.

as a servile labour, a work-without-end-product where communication and cooperation are the main productive forces.<sup>(11)</sup> This is exactly the situation in participatory media, where artists increasingly operate as *service providers*: their work becomes that of building platforms for user participation and collaboration, and of *maintaining* and *moderating* communicative situations. The continuous logic of collaborative value production also introduces challenging questions of accountability for the artist. If Kwon shows how communities are not only invented, but also exploited for the purposes of artistic career building, the creation of 'user' content in public authoring projects introduces new dilemmas of ownership. Should the virtuosity and 'linguistic performances' (Virno) by users be considered as intellectual properties, gifts to the artist-provider, or voluntary services to 'community'?

There are several approaches to these questions, which entail different theories of values and politics of collaboration and different models for public organisation. A 'street' version of the internet, locative media often subscribes to the discourse of early visionaries of the net and their contemporary legacy, the weblog theorists. Here the promise is of a participatory, open and democratic media space, a space of creativity and freedom of expression. Once again, allegories for networked, collective intelligence and its alleged emergent result – an augmented, better version of participatory democracy – are fetched from the world of evolution. In a conjunction of biological and technological determinism, the flocking behaviour of animals is compared to self-organ-

The colonisation of new spaces, as before, takes place through translation, formalisation and mapping.

We can also already decipher new fetishisms forming around the production and consumption of place, and locative media participates in their production. Fetishisms are made of immaterial social and spatial processes when their tropes – eg. links and maps – are taken literally, for the thing itself. Donna Haraway talks about genetic maps as “ways of enclosing the commons of the body – of *corporealizing* – in specific ways, which, among other things, often write commodity fetishism into the program of biology.” Could we, in a similar vein, interrogate the ‘localizing’ effects of current locative practices which, as Haraway’s gene maps, seem to defend “the subject from the too-scary sight of the relentless material-semiotic articulations of [...] reality”?<sup>(200)</sup> Scanning through the emerging canon of ‘locativity’, it is disturbing to see how the very *context* (awareness of which is often claimed as key element of the practice) is bracketed out in the reductive move from spaces to maps, places to dots and sociality to links. The locative ‘cartographers’ shun away from the dirt and materiality of everyday life and prefer a resistance-at-a-distance.

If there is a certain degree of romanticism in these gestures of cartographic and psychogeographic subversion, the same can be said about the locative ‘ethnographers’, whose engagement with and empowerment of local communities run the risk of becoming functional reforms for governance-through-community or nostalgic evocations of authenticity.<sup>(400)</sup> Meanwhile, anthropologists and ethnographers themselves have for some time prob-

Urban locations, with their ‘creative’ demographics and ‘authentic’ experiences are a prime source of value for contemporary capitalism, and since the great spectrum auctions at the turn of the 21st century, location based services have been cast as a key ‘value-added’ in mobile telecommunications. Services for routing and tracking, fleet management, pervasive games, and user-profiled target markets figure strongly in the industrial imagination. The demise of the ‘commons’ gets a new turn in this ‘dividualised’ landscape of push and pull. Besides the already raised questions of spectrum allocation and ownership, we now have to ask whether we will still have rights to our own location in space and time, or the trajectory we perform through movement? After all, also other immaterial phenomena, such as oral traditions and genes, have already been brought under patent regimes.

Ieva Auzina, [Locative] list, July 4, 2003.

... they will be confronted with an image of their week, as well as the paths of the other participants. We register their reactions, ask questions, focus on landscape, politics, on their experiences and attitudes towards their surroundings, their perceptions of the potentials of the landscape, economic circumstances, myths about space, local songs, family relationships to the land, etc.

## LOCATION ECONOMIES

If surveillance classically was about the visibility of disciplined objects to the panoptic gaze, through pervasive technologies such as GPS, RFID, CCTV and algorithms for face, gesture and movement recognition, it has extended beyond the panoptic spaces of enclosure and become vectoral. This is the society of control described by Deleuze, a system of variable controls which act to *modulate* behaviour, like a sieve whose mesh transmutes from point to point. Through the logic of code, “individuals become ‘dividuals’ and masses, samples, data, markets or ‘banks’”<sup>(22)</sup> This technical administration of difference adds an important perspective to the issue of visibility: the question of information infrastructures. The ‘invisible work’ of categories, classifications and data structures has very material consequences. When embedded in software, standards, archives and infrastructures, they turn invisible and disappear into the uncontested background of practices, from where they are not easily brought back for assessment or adjustment.<sup>(200)</sup> From this hidden background they in turn operate on exclusion and inclusion, performing audits which again render some things visible and possible, keeping others out of sight and reach. The coming together of geospatial data with other types of metadata and statistics adds a totalizing dimension to this archive of behaviours, which enables pervasive techniques of social sorting and increasingly acts towards closure and commodification of the public space.<sup>(200)</sup> This is why the work of activist developers to free information infrastructures and open GIS databases is extremely valuable for ‘us all data subjects’<sup>(300)</sup>

## THE USES OF VISIBILITY

*I globally positioned the shadow of a cherry tree in blossom [N 56 56 648/E 024 06 646], chalking the coordinates on the floor inside the tree shadow, and writing the time from my GPS clock beside it. Then I wrote a haiku poem about it.*

Pete Gomes, [Locative] list, May 14, 2004.

Curiously, but perhaps not coincidentally, many of the locative art projects, especially those using GPS tracing, also bring to mind the patterns of ant paths. Esther Polak’s *Amsterdam Realtime*<sup>(300)</sup> shows movement patterns of gps-deviced people moving about in the city, and Christian Nold’s *Biomapping*<sup>(200)</sup> adds an ‘affective’ dimension by visualizing galvanic skin responses along the path. Both projects however aim to encourage the users’ reflexivity towards their relationship with urban space, by recording and exposing its patterns of use.

As already noted, a key feature of ‘ubicomputing’ space is that its workings are largely invisible. The conditions of experience are being subtly changed from ‘below’ – through algorithmic instructions, program runs, database searches – and constrained by the immaterial spatialities of bandwidth and frequency. It is therefore understandable that *making things visible* is a desire shared by a variety of agents who seek to control, describe, develop or resist the goings-on in this new space.



tal images on them in order to bring the speech topics back to mind during delivery.<sup>(30)</sup> Whereas the classical mnemonics was used in one-to-many situations – deliveries of political speeches or poems by orators – its locative many-to-many version promises an archive of lived experience, a community memory, or even a new type of ‘commons’.

The participatory annotation of urban space fits well into Certeau’s description of tactical practice – for what else is annotation than a writing in the margins, a commentary which is never taking the space over in its entirety? Thus also: “It has at its disposal no base where it can capitalize on its advantages, prepare its expansions” (de Certeau). The room offered for maneuver is not an empty container or wax tablet, but a space already configured by architecture, urban planning and the telecommunication industry. Users operate within parameters created by these infrastructures – and those of the platform-providing artists. In this context it may be necessary to question also whether this work advances the specificity of sites, or the proliferation of *commonplaces*? The “authenticity” that artists help communities to express is easily infused into programmes of urban regeneration and branding, as has been the case in previous local memory projects.

From the design perspective, the urge to make things visible relates to the immateriality of the phenomena – the ‘beacons’ that beam urls, the geolocated messages suspended in ‘mid-air’, the coverage of wifi nodes. The clear visibility of elements to be acted upon, and the provision of immediate feedback are cornerstones of usability design, but how to make these happen off-screen, on the move? An example of wireless usability design is Matt Jones’ *Warchalking*<sup>(31)</sup> a sign language to mark wifi hotspots on the street which became a short-lived urban tech trend in 2002. Similarly, Pete Gomes’ *Location, location, location*<sup>(32)</sup> aims at creating future signage for the invisible via a conceptual architecture on the street. The use of chalk to mark streets is a low-tech version of a general visibility method, that of the *overlay*, where co-existing physical and virtual worlds are represented in relations of transparency, background and foreground. *Mixed or augmented reality* applications use data visualisation techniques for layered representation, while the sonification of locations may produce embodied sonic experiences in urban settings.<sup>(33)</sup>

In addition to these functional and expressive concerns we of course have the counter-practices employed by most media art, which in the traditions of *détournement*, appropriation and irony expose representational practices by change of context, rearrangement of elements or literalisation of function. In fact the many uses of visibility – functional, surveillant, descriptive, resistive – in the pervasive media space suggest the need to establish an interdisciplinary research field, *visibility studies*, to complement and revitalise the perceptually oriented

Another locative genre combines the cartographic/sedentary and ambulant approaches in the creation of location-based public repositories. *Urban Tapestries*<sup>(34)</sup> and *murmur*<sup>(35)</sup>, among other projects of public authoring and urban annotation, invite users to participate by locating their own messages and stories in urban space, and audiences to follow the trails and threads signposted by these messages. In many ways, these projects are a further development of rhetorics, the art of public speaking and writing. They have a strong resemblance with the ancient art of memory, where places (loci) such as streets or squares were memorized and used in the manner of wax tablet, by orators who would place men-

A further dynamic, an interplay between determinism and chance, between *locating* and *stumbling* seems to run parallel with the sedentary and ambulant modes. This is also where the inspiration of situationism, and the *dérive*, enters the game. Debord stressed that psychogeographic drifts are not random, they have a method of operating in the city and a political programme have mostly used them as inspiration for ‘disorienting’ expeditions. Thus Socialfiction’s *walk*<sup>(36)</sup> takes ‘method’ to its extreme by presenting a human-executable algorithm for walking in, or stumbling on, the city. The algorithm (in its simplest form: “1 st street left / 2 nd street right / 2 nd street left”) should be able to produce a walk without navigational friction, but repeatedly produces more confusion than certainty. “Technology will find uses for the street on its own” reads the project statement in a cyborg-ironic reversal of Gibson’s slogan of street-level innovation.

agendas of visualization and usability research. In this field of study, also some critical questions of the effects and effectiveness of visibility techniques could be posed.