Extemporising Digital Empowerment

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Abstract
The potential of spontaneity inhering in situated human encounters is threatened by rigidly coded interactive apparatusses. This effect is exacerbated as elements of interactive technology continue to permeate public spaces, thereby restructuring human lifeworlds. However, the presence of inflexibly coded couplings between human input and digital response constitutes no inevitability. Extending the notion of live coding, this text examines applications and conceptualisations of in-situ code production and code alteration. It thereby hopes to show how performative practices of coding can be employed within creative contexts of improvisation.

Author Keywords
live coding, performance, materiality, code literacy

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H.5.m [Information interfaces and presentation (e.g., HCI)]: Miscellaneous.

Improvising the Digital
At first glance the role of code within improvisational practice seems hard to conceptualise. Usually spontaneity is attributed to designers during contexts of production or to users during contexts of consumption of interactive technology. We will subsequently examine practices that

allow for spontaneous production of digital artefacts during contexts of use. Thus, we invoke the phenomenon of *live coding* [3, 2, 1], denoting a family of coding practices performed in-situ, often as part of stage performances [4, 8]. When doing live coding, digital artefacts are produced on the spot, creating the possibility to respond to the dynamics of situations as they unfold.

Subtle Despotisms

Within the context of expressive AI, Mateas conceptualises computational devices as modifiers of a network of 'flows of signification, matter, and energy [...] within the institutional and organizational particularities of situations' [7]. The described effect of remodulation and redirection of interactional flows constitutes a ubiquitous phenomenon within social realities. Shopping areas exploit it by employing olfactory, auditory and subtle visual cues in order to influence potential customers, seducing them into purchase decisions they would not otherwise make.

Whenever people remain subjected to these factors without seeing through them, without the ability to configurate them according to their situational needs, their autonomy is threatened and their spontaneity remains stifled. Our approach calls not only for allowing users to see through the ambiances produced, but also to give them the abilitiy of recognising themselves in the situational digital structures assembled. Whenever this succeeds, structures of alienation are punctured, albeit ephemerally.

This project aligns itself with intellectual endeavours calling for the development of 'code literacy'. In 'Code as code can' [5] Dreyer et. al. describe code as a structuring agent of social relations on par with social norms, market forces and state enforced laws. If one accepts this perspective, enabling spontaneous authoring of code is elevated to a new level of importance.

Spontaneous Empowerment

Our project is illustrated by a developed design prototype, mediating exhibition contexts. The preconfigured 'goal' of the system is that of increasing the likelihood of user-user interactions to occur. Acting on an ecology of displays and mobile devices, the system tries to choose modes of content presentation likely to spark spontaneous conversation.

Following our previous argumentation, working on the aforementioned material of user-streams should not be a privilege of designers and coders involved during the system design. Concretely, a party of users might want to isolate a fellow group of users, try to direct attention to a certain exhibit or aspect, try to make users angry, try to communicate a message to a potential romantic interest, ... Instead of trying to anticipate every possible user need, every possible situational configuration, the code itself has to be exposed in a form that allows digitally literate users to modify system mechanics.

Anticipated user insatisfaction among ditial illiterates is part of the educational goal outlined. The system itself is only partly at fault here. Paternalism towards users remains ubiquitous within digital societies, our configuration only renders it tangible. This frustrating aspect of system design can be read as following deconstructivist tenets of user-hostility [9] or in line with Dunne's notion of 'Inhuman Factors' [6]. It is subsequently left to the interpretive community of users to decide, if they view non-live coding environments as suppressors of spontaneity and improvisation.

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