In Flow Between Fascination, Awe, Despair and Trance: Algorithmically controlled live online trading experience

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1. INTRODUCTION

In the age where computer networks are merging with the human nervous system into a global hybrid sensorium, there is also the both fascination and anxiety towards dematerialisation of property and value. Algorithmically manipulated trading is a prominent arena where algorithms collide with human emotions and drives like greed, “fear-of-missing out”, euphoria, confusion and despair. This paper introduces motivation, main concepts and practical implementation for the artwork that maps time-sequenced change of multiple values (e.g. financial trading data) in sensorium-intensive real-time “audio-visualisation” manner. Although there has been a range of historic and more recent examples of 3D visualisation and ‘auditory displays’ of financial or stock data as efforts to enhance professional trading interfaces, this project tries to bridge extremes of unaesthetic usability and “sublime dysfunctionality” within the aesthetic experience.

2. TREATMENT OF TIME-SERIES DATA

For the installation, the data acquisition modules feed from several sources of financial data (stock and crypto-currency exchanges, aggregators, etc.) over their public Internet APIs. Installation accumulates historic and real-time trading data in the local data cache and uses provided calculations of trading trends (and indexes). Visualisation and sonification modules utilise several specialised financial TA (Technical Analysis) programming libraries to dynamically calculate tension sections in the audiovisual score for the real-time 3D graphics and sonification engine.

3. INSTALLATION EXPERIENCE

The imagery swings from abstracted pulsating ‘segmentation of space’, that is increasingly filled by chart models of traditional stock rate displays in which several popular financial TA patterns are ‘matched’ on incoming trade data. Various time zoom scales reveal the phases of past, historic trends, that emphasize the position current trade execution as a spatially expressive metaphor. Spectators can activate (via touch screen) further levels of complexity that range from observing single- to multiple-value relationships. The progressing or visitor-triggered mode-shifts induce a challenge to audiovisual sensorium: experience of the conflation within multiple reference systems, and plays with visitor’s perception effort of ‘sense-making’. It is achieved by the juxtaposition of spatially organised visual and sonic cues (perspective, sharpness/blur manipulation), audio-panning and timbral, spatial effects, etc.

Figure 1: Installation testing view.

4. CONCLUSION

This project aims to propose methods, defining interaction framework to enhance a dynamically adaptive control of complex tempo-spatial semantics during a live staging of incoming and archived data streams. The installation format provides interaction channels to establish cognitive and psycho-emotional feedback loop with incoming data and the experienceable audio-visual output. It

can be also run as an audiovisual performance and may involve registration of gestural and viewpoint tracking, input from a collaborating on-stage performer. The main limitation of the system currently is lack of neuro-feedback measurements for the 'flow state', but further iterations of this project will investigate several options of bio-feedback sensor integration.

Figure 2: Visualisation study.

5. REFERENCES

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