Piggy-Back : Collecting data from those collecting other's data

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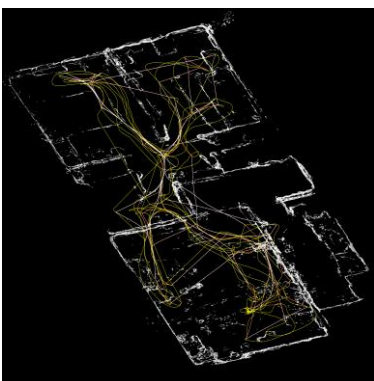

Search the hearts...

The participant wears a HoloLens helmet through which he can "see" the heart beat of anyone he looks at. His mission is to collect such data around the exhibition hall.

What is more intimate than your heart, symbol of life, seat of feelings? What if anyone can have access in real time to the inner secrets of your body, the details of your metabolism ? Maybe someday, just as in the TV series "Person of interest", special glasses will show you the data of each person around. As we know, there is a lot of concern about the use that may be made of these data by insurance companies, advertisers and politicians.

But there is something else: what change in human relationships would this induce? It seems that anyone spends a lot of efforts and energy to appear different or be seen in a better light than what he thinks he really is. A big part of culture and education aims at taming or at least hiding the animal within. All that would become pointless. Our emotions, feelings and health would become transparent. How would we look at each others? Could it turn out to be a factor of peace and tolerance or would it exacerbate aggressiveness?
Just walk around and watch the faces of your fellow-visitors emerge as strange ghost-like figures, read their heart-beat, and enjoy the experience.

Technical details: We will use the holens device and our remote imaging photoplethysmography software [1] [2] to capture users' hear rate.

Stolen data ...

This is another installation, located in a separate place. Here, the path of each visitor from the previous experiences is recorded, without him knowing. This creates 3D lines (time spent at each point is the third coordinate). These lines are collected and treated through various mathematical filters. The result is the creation of new and interesting patterns that reflect a new "data aesthetics".

For each visitor, it questions his own experience of the exhibition, from an unexpected point of view.
Additionally, and this important, it stages an example of how one can be "tricked" into providing data that can be used for unwanted purpose. Here, the observer is the object of observation.

Technical details: The collected temporal and geographical data [3] will be display using information visualisation techniques. As such we will show animated particle system [4] and trail simplification technique [5] to show wearer movements during the exhibition

References:

[1] D. McDuff, C. Hurter, M. González-Franco **Pulse and vital sign measurement in mixed reality using a HoloLens.** *VRST 2017: 34:1-34:9*, November 8–10, 2017, Gothenburg, Sweden

[2] C. Hurter, D. McDuff **Cardiolens: Remote Physiological Monitoring in a Mixed Reality Environment.** *SIGGRAPH 2017 Talks*, August 2017, Los Angeles, CA, US

[3] B. Bach, P. Dragicevic, D. Archambault, C. Hurter, S. Carpendale. **A Descriptive Framework for Temporal Data Visualizations Based on Generalized Space-Time Cubes.**, in *Computer Graphics Forum* , Wiley, 2016

[4] R. Scheepens, C. Hurter, H. Van de Wetering, J. Van Wijk. **Visualization, Selection, and Analysis of Traffic Flows.** in *IEEE Transactions on Visualization and Computer Graphics* , Institute of Electrical and Electronics Engineers, 2015, PP (99)

[5] C. Hurter, O. Ersoy, S. I. Fabrikant, T. Klein, A. Telea. **Bundled visualization of dynamic graph and trail data.** in *IEEE Transactions on Visualization and Computer Graphics* , Institute of Electrical and Electronics Engineers, 2013, PP (99)

CV:

French artist **Charles Giulioli** was born in 1954 in Paris, He lives and works in Toulouse (France).

He graduated in engineering and physics at the Ecole Centrale in Paris. He then turned to painting at the age of 25. He has made a living out of his art ever since.

He has spent seven years in New-York and California, represented by the Schlumberger Gallery. In addition to his studio work and exhibitions, he has painted large scale murals, public and private commissions.

He has been working with computers since 2003, developing his own software titled "L'Oeuvre sans fin" and recently "Lignes sans Calcul", creating digital prints, interactive installations and generative works.

Two pieces have been purchased by the Pompidou centre in Paris. He has been giving lectures on "art & mathematics" since 1999.

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Christophe Hurter, professor at the Interactive Data Visualization group (part of the DEVI team) of the French Civil Aviation University (ENAC) in Toulouse, France. He is also an associate researcher at the research center for the French Military Air Force Test Center (CReA).

In 2010, he received his PhD in Computer Science from the Toulouse university and in 2014 he got his HDR (Habilitation à Diriger des Recherche).

His research cover information visualization (InfoVis) and human-computer interaction (HCI), especially the visualization of multivariate data in space and time. He also investigate the design of scalable visual interfaces and the development of pixel based rendering techniques. Throughout his career he has been involved with several projects including: large data exploration tools, graph simplifications (edge bundling), paper based interactions, augmented reality, 3D visualization...

http://recherche.enac.fr/~hurter/