Pixel Based techniques to support interactive data exploration and cleaning

12\textsuperscript{th} December 2017

Christophe Hurter
Professor
ENAC- Ecole Nationale de l’Aviation Civile
Toulouse, France
Christophe.hurter@enac.fr
http://recherche.enac.fr/~hurter/
Strip’TIC
Exploring Augmented Paper Strips For Air Traffic Controllers
Catherine Letondal, Christophe Hurter, Jean-Luc Vinot, Rémi Lesbordes and Stéphane Conversy

Strip’TIC: designing a paper-based tangible interactive space for air traffic controllers.
(CHI 2013) In Proceedings of ACM SIGCHI 2013,

Christophe Hurter, Remi Lesbordes, Catherine Letondal, Jean-Luc Vinot and Stephane Conversy.

Remote / Augmented Tower
ATC Data
Hurter, C., Tissoires, B., Conversy, S.

**FromDaDy: spreading data across views to support iterative exploration of aircraft trajectories.**

*In IEEE Transactions on Visualization and Computer Graphics xx(y), (Proceedings of IEEE InfoVis 2009).*
Average traffic density

1 am 10 am 12 am 4 pm 11 pm
time

Abnormal traffic density

Paris area

Dense Flight Route
Eclairage dynamique
Valeur d'accumulation

Discontinuités

Heure
Image Data
C. Hurter, A. R. Taylor, S. Carpendale and A. Telea

Color Tunneling: Interactive Exploration and Selection in Volumetric Datasets

PacificVis 2014
Medical Data
Color Tunneling
Point based visualization technique

C. Hurter, A. R. Taylor, S. Carpendale and A. Telea
Color Tunneling: Interactive Exploration and Selection in Volumetric Datasets
PacificVis 2014
Context & Motivation

Study of AD (Alzheimer’s Disease) is a major societal challenge

Our study uses the 3C Cohort
French National study on 9500 people

Focuses on Verbal Fluency Tests

Is a representation of a patient Cognitive Maps (Isaacs and Akhtar, 1972)

As AD affects Cognitive Maps, we will be able to study it.

Our Goal; Study the geo-spatial distribution of the citations trajectories
Visualizing Fluency Test

(A) Alzheimer group

(B) Control group
The Future
Alzheimer disease

T8  T4  T0

Non dement  dement
Interactive Multidimensional Big Data

Data Analytics

Immersive Analytics

Safety

Personal Data
How to support data cleaning?

The key to supporting this task is not only to visualize data, but also to allow users to interact with them.

I explored new computing techniques called pixel-based algorithms so as to support efficient interactive visualizations for the exploration of large datasets.
Contact

Christophe Hurter
http://www.recherche.enac.fr/~hurter/

@TofHurter

Christophe Hurter