



Monitoring Air Quality in Korea's Metropolises on Ultra-High Resolution Wall-Sized Displays

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<https://inria.hal.science/hal-01848431>

Submitted on 24 Jul 2018

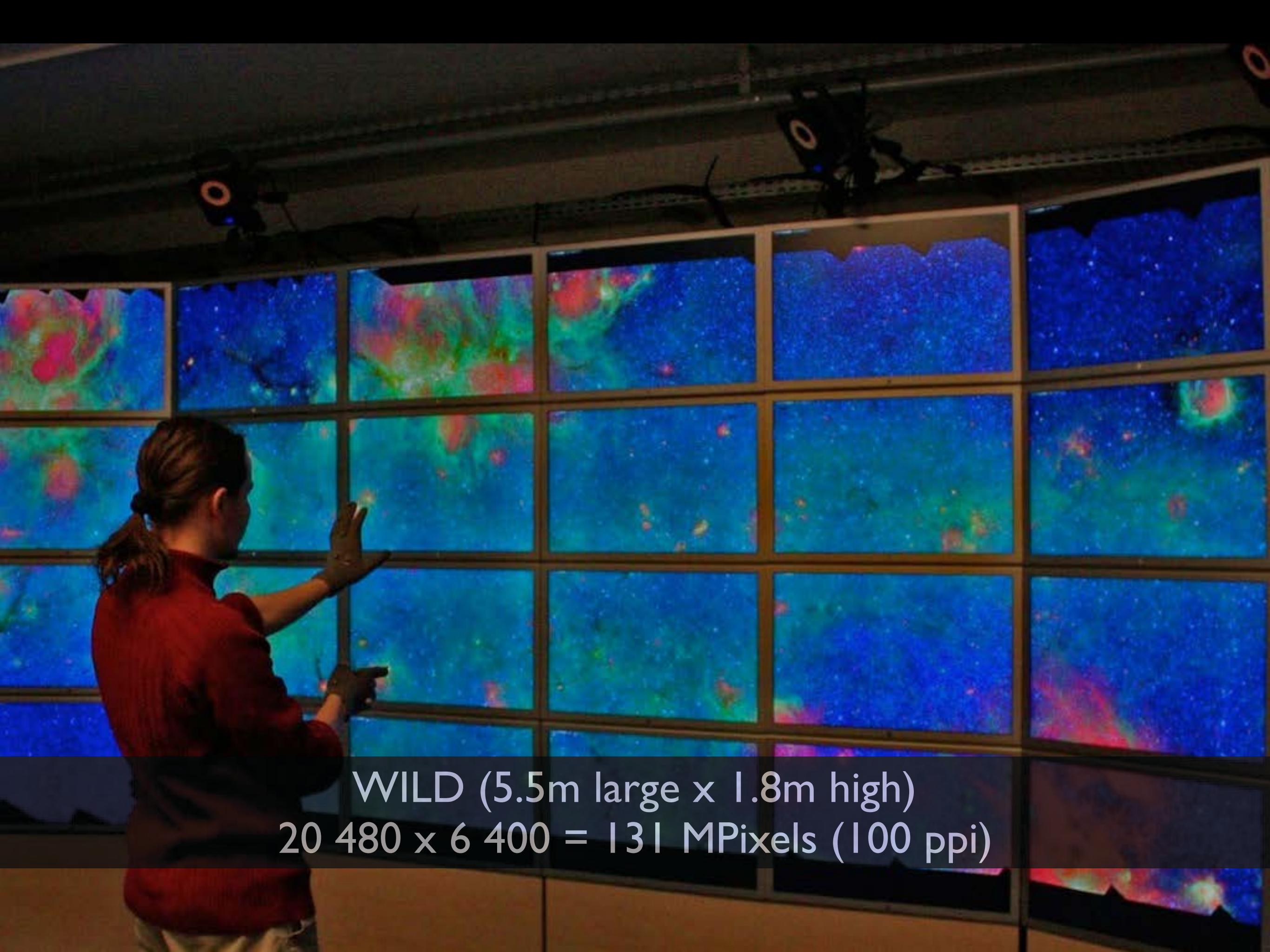
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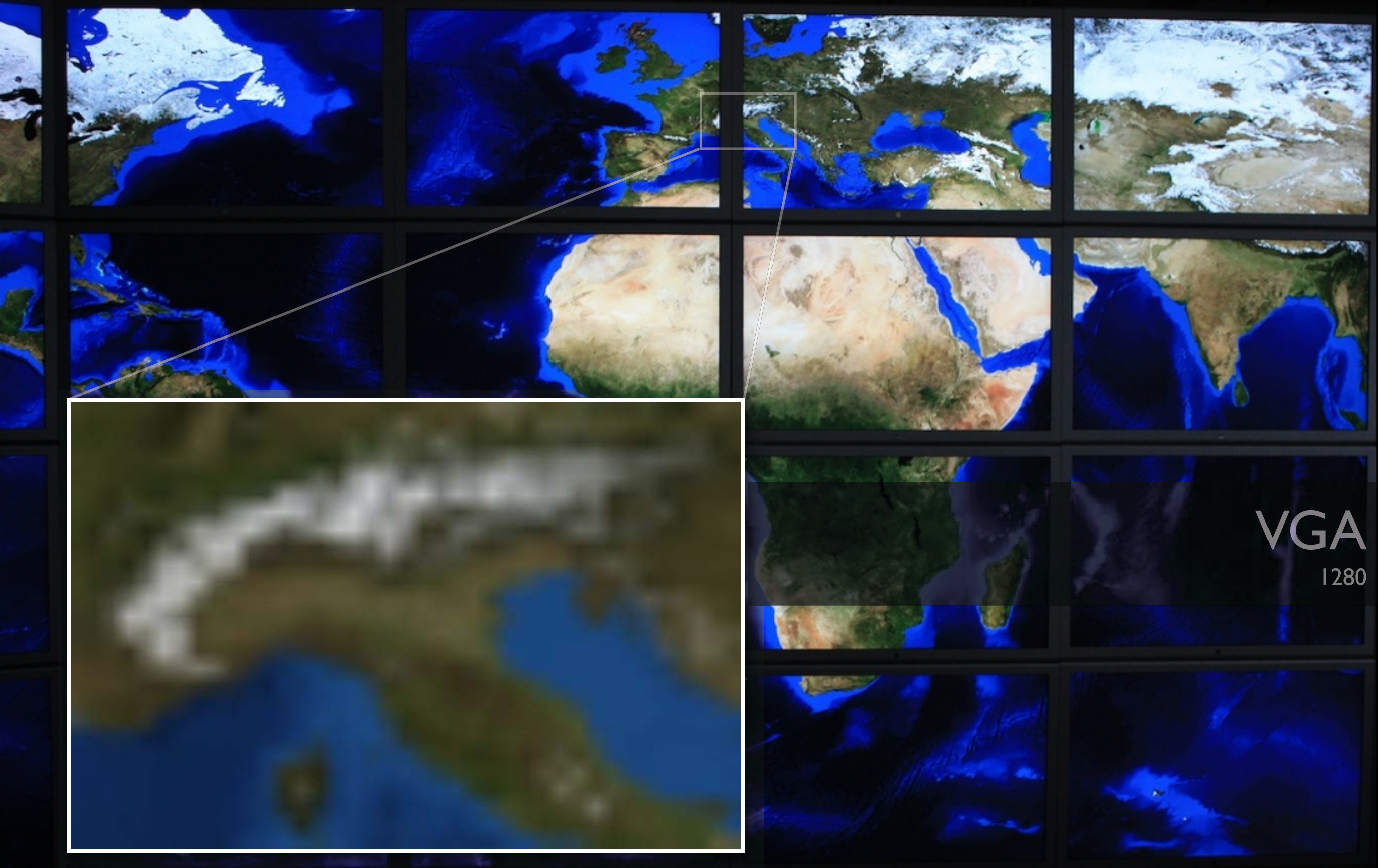
Monitoring Air Quality in Korea's Metropolises on Ultra-High Resolution Wall-Sized Displays

International Workshop on Urban Data Science and Technology
@ADW 2017

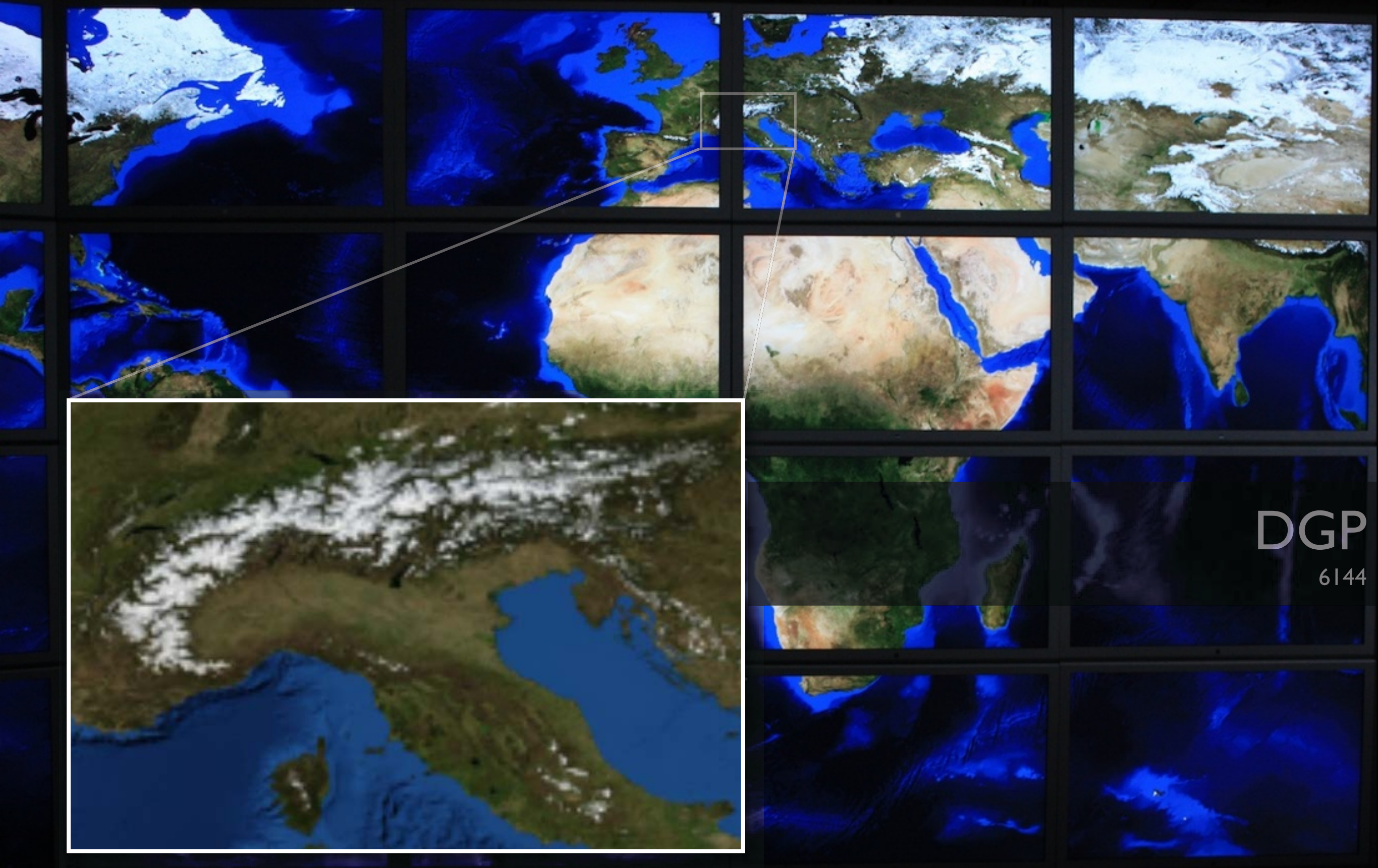




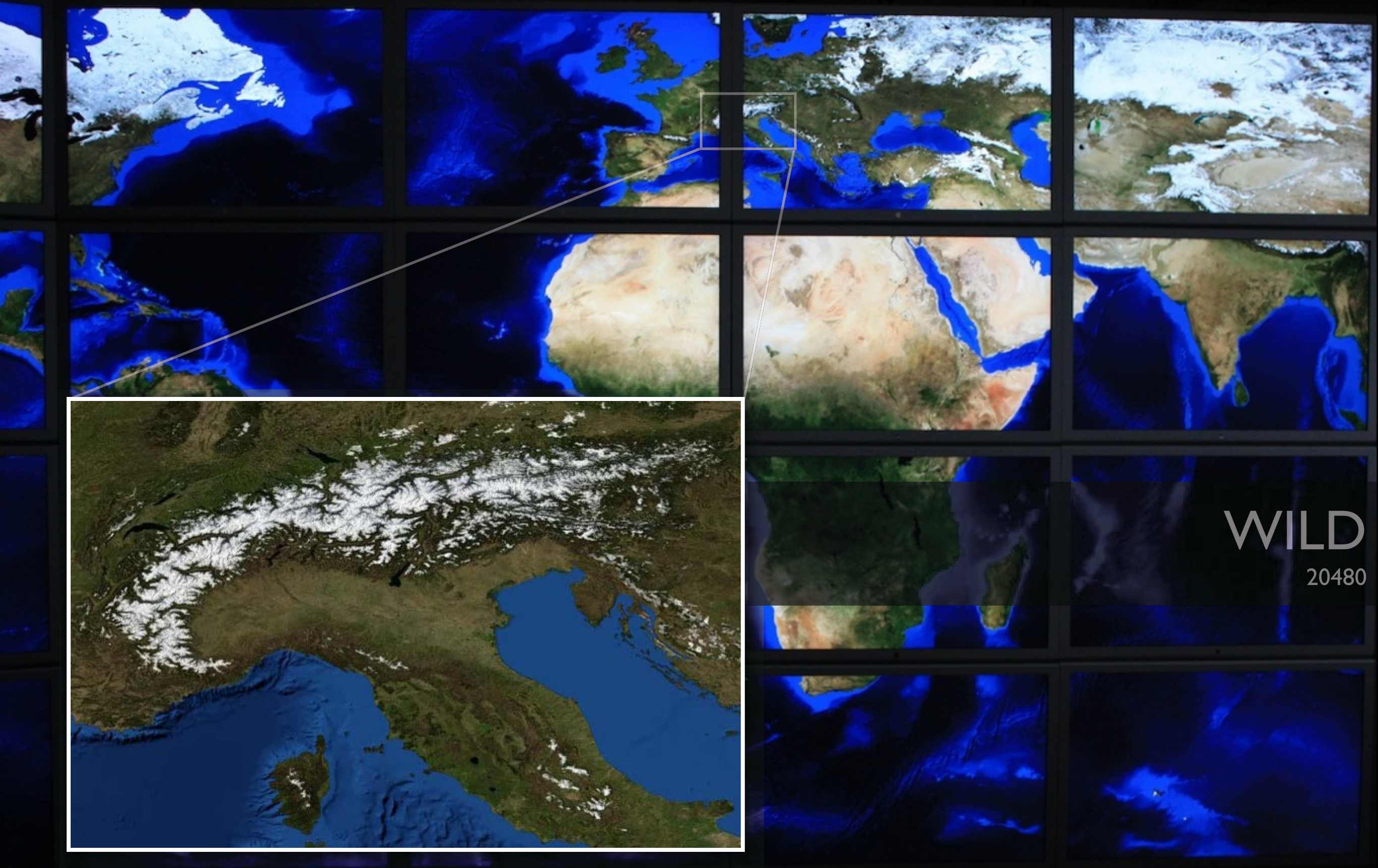
WILD (5.5m large x 1.8m high)
 $20\,480 \times 6\,400 = 131 \text{ MPixels (100 ppi)}$



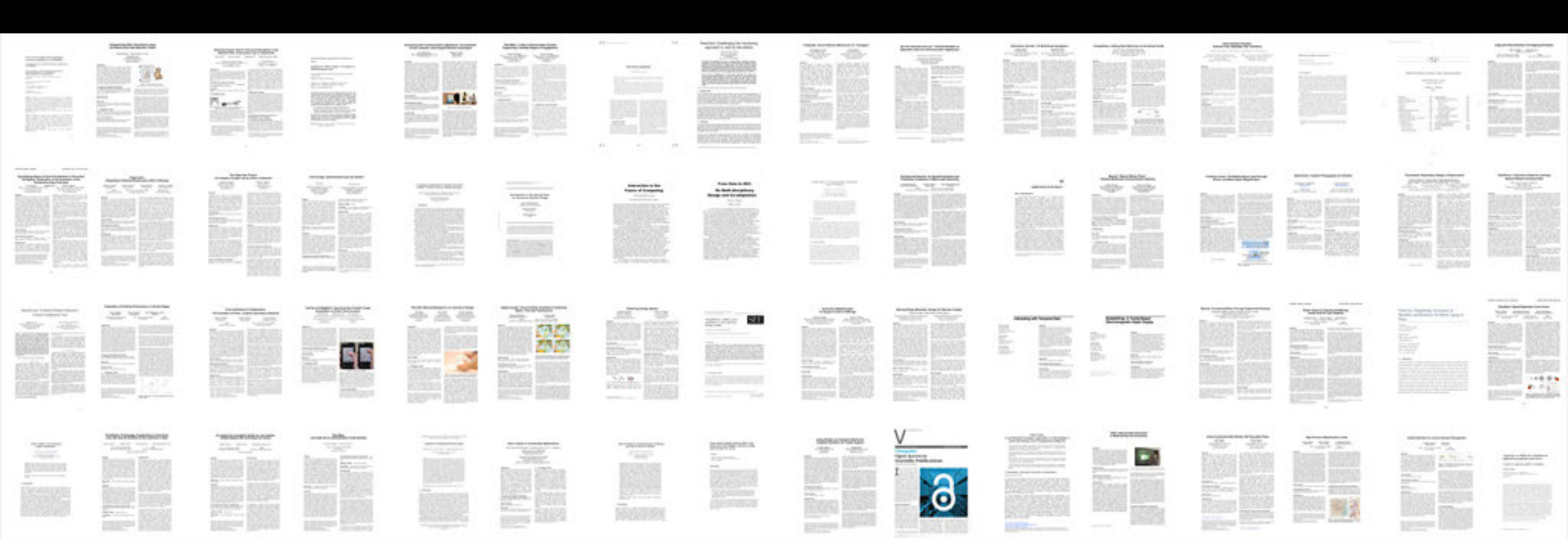
VGA
1280



DGP
6144

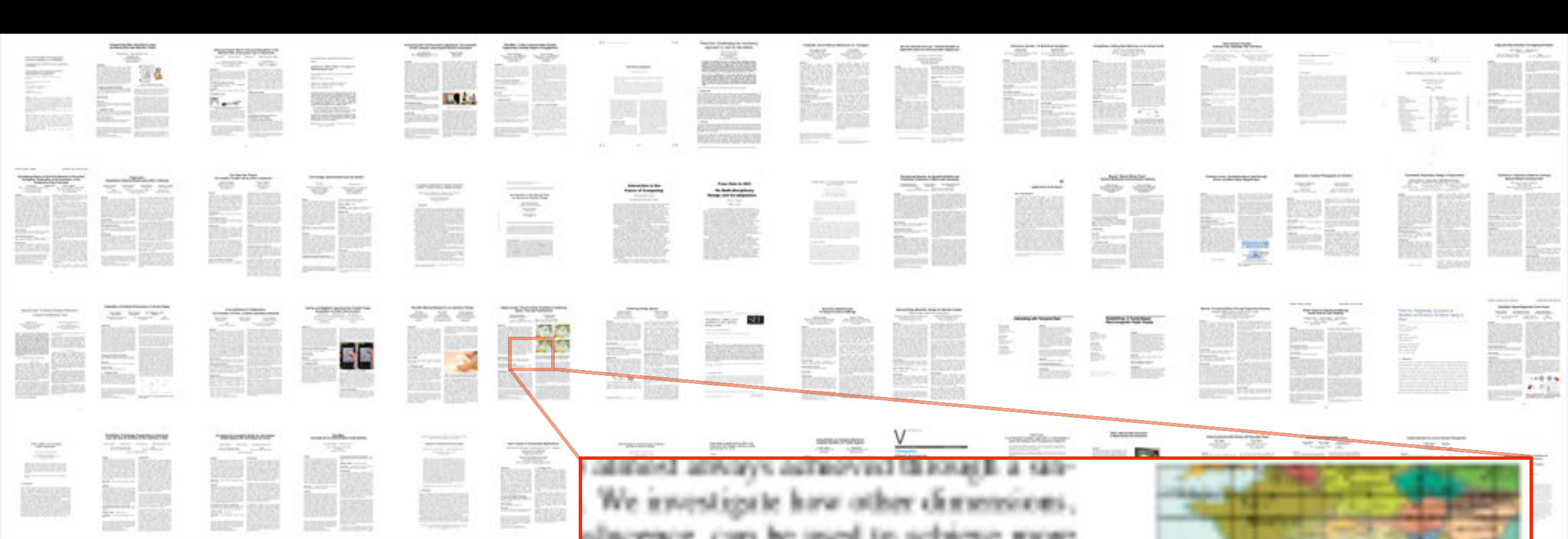


WILD
20480



64 PDF pages

on a 5.5m x 1.8m surface



...always achieved through a lens. We investigate how other dimensions, silhouette, can be used to achieve more. We present an extension to Carpen- ualifying presentation space accommo- dations. We define new lenses in that lenses, and compare them to existing lenses based on a generic task: focus. We show that one new lens, the Seem-Com- munity outperforms all others.



(c)

Figure 8. Various transitions between regions causing occlusion, (b) distort- ing transitions, (c) using a combi-

region of the context. While are generally favored and have in some situations [16, 22, 2] show their limits: for instance, densely populated regions, and

DGP

6144

Focus + Context, Fisheye lenses, Mapping, Controlled experiment

Keywords

Human-Computer Interaction, H.5 Information Interfaces and Pre- interfaces (H.5.2, I.3.6)

WILD

20480

almost always achieved through a single lens. We investigate how other dimensions, such as transparency, can be used to achieve more effective visualizations. We present an extension to Carpendse's lens, the SPEED-COUPLED lens, and compare them to existing lenses based on a generic task: focus + context. We show that one new lens, the SPEED-COUPLED lens, significantly outperforms all others.

Keywords: Focus + Context, Fisheye lenses, Targeting, Controlled experiment

Keywords

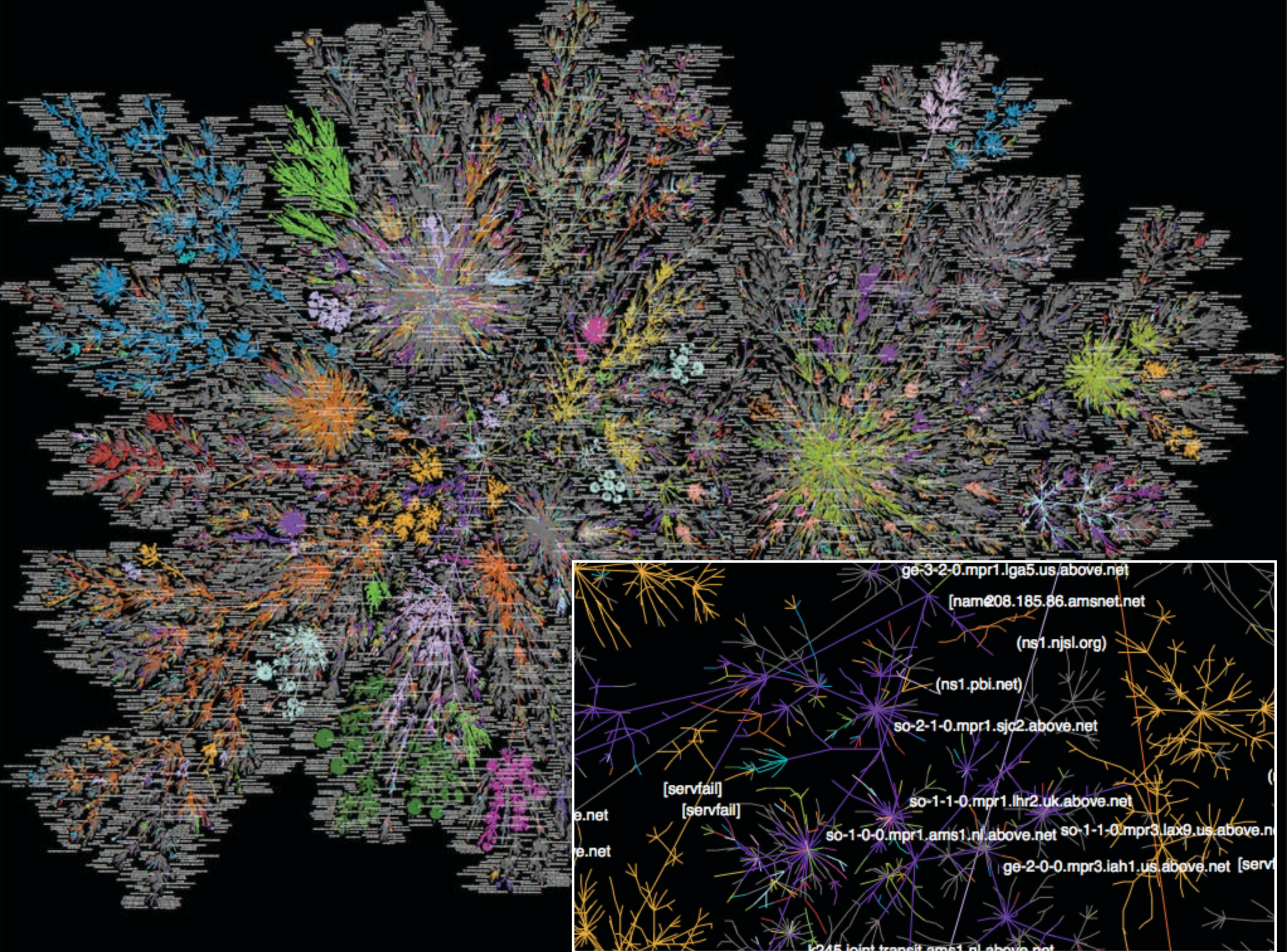
Terms H.5 Information Interfaces and Pre-Interfaces (H.1.2, I.3.6)

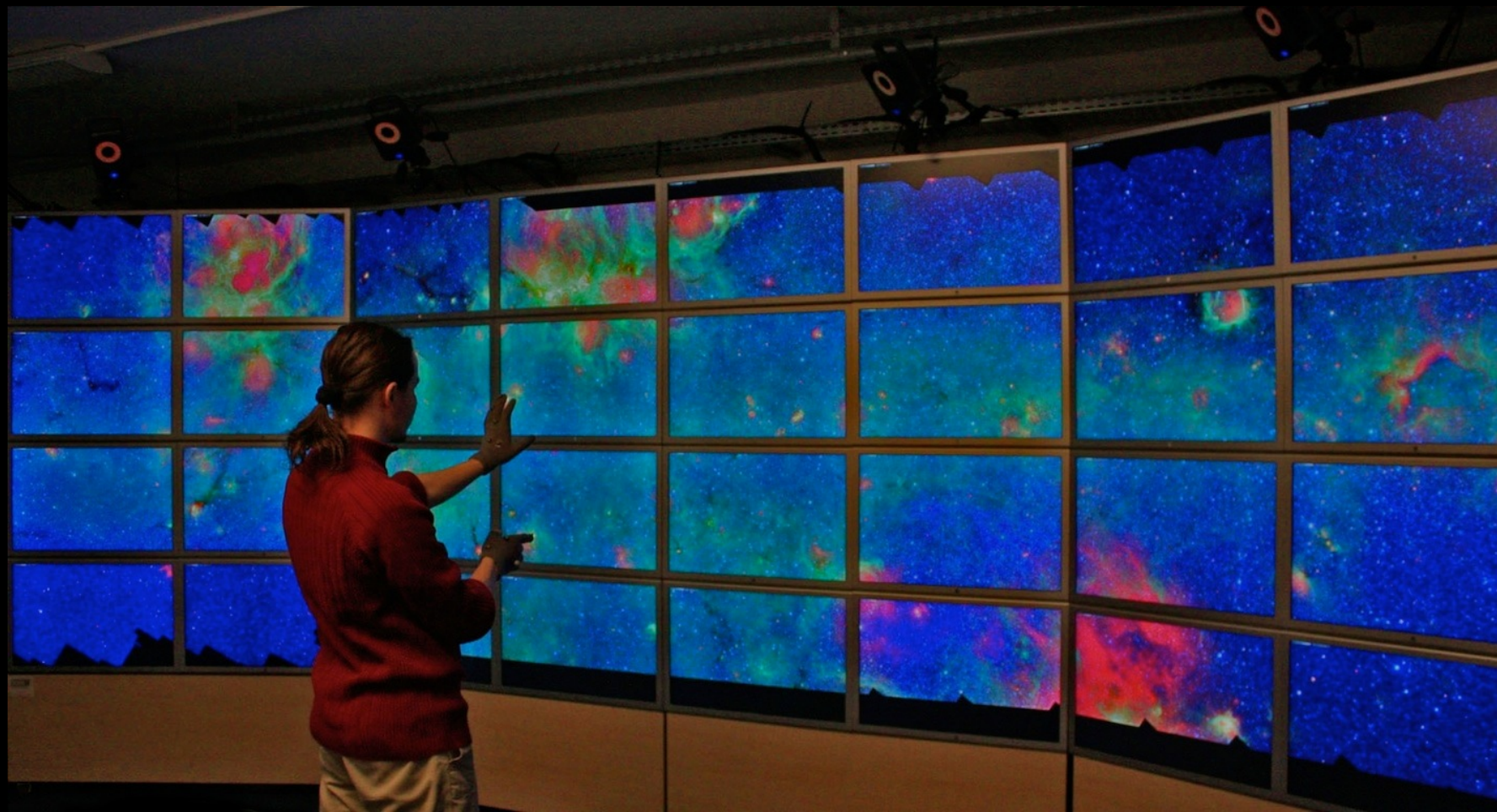


(c)

Figure 1. Various transitions between (a) focus + context, (b) distortin

region of the context. While are generally favored and have in some situations [16, 22, 24] show their limits: for instance densely populated region suc



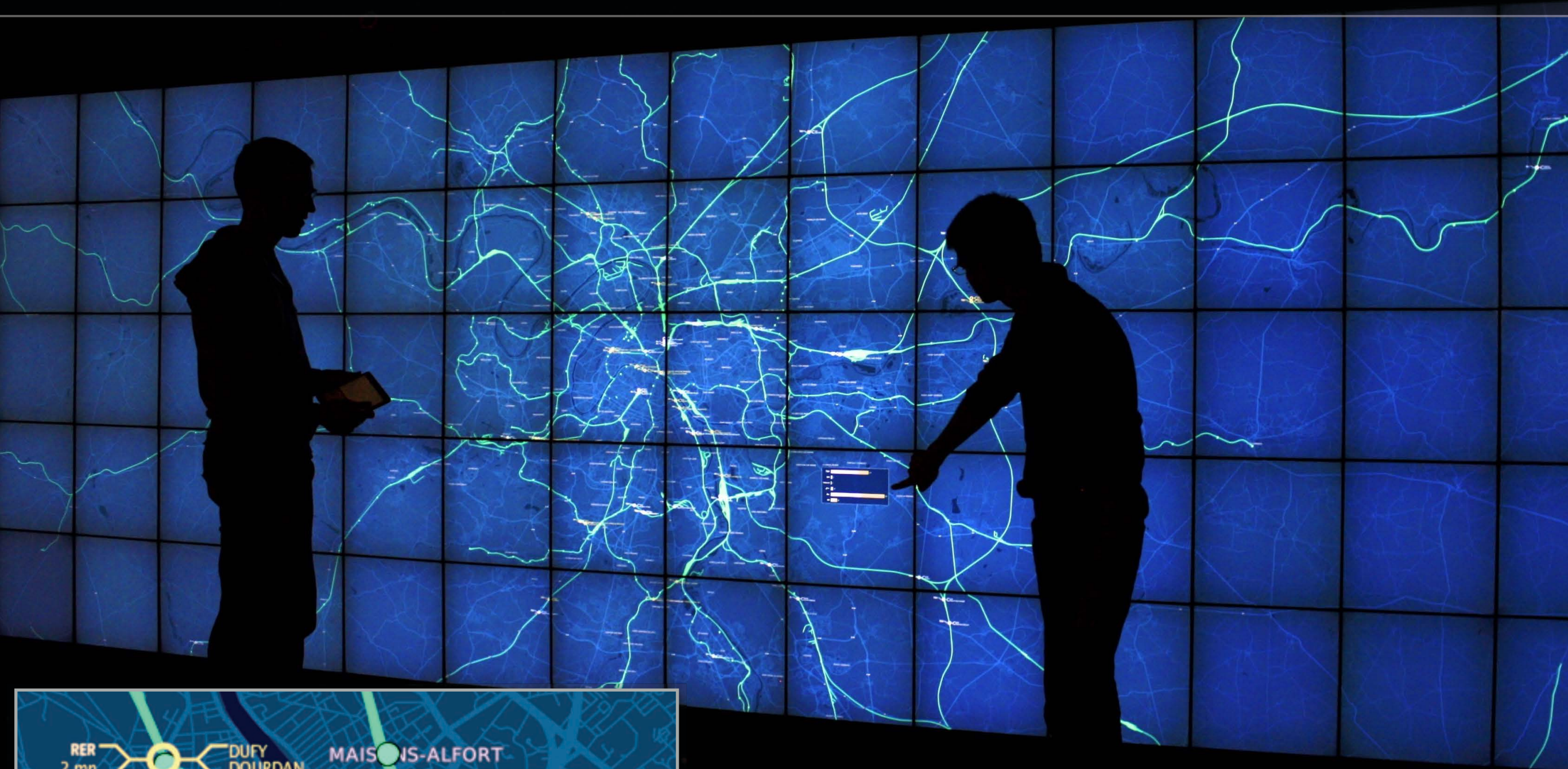


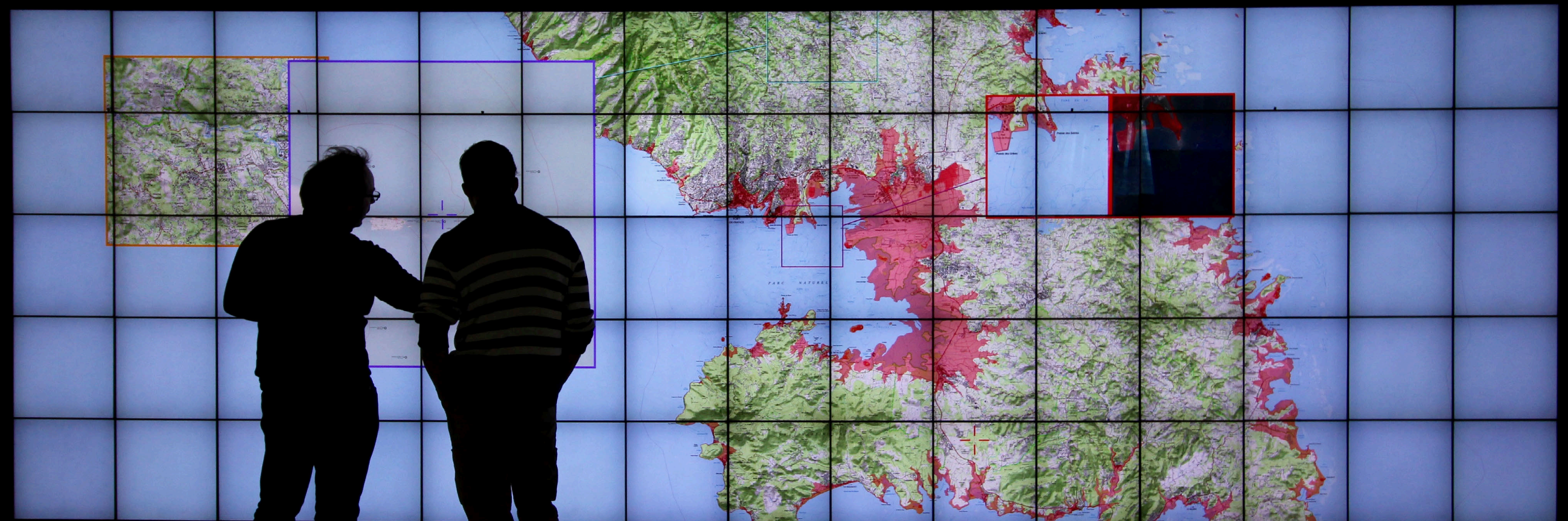
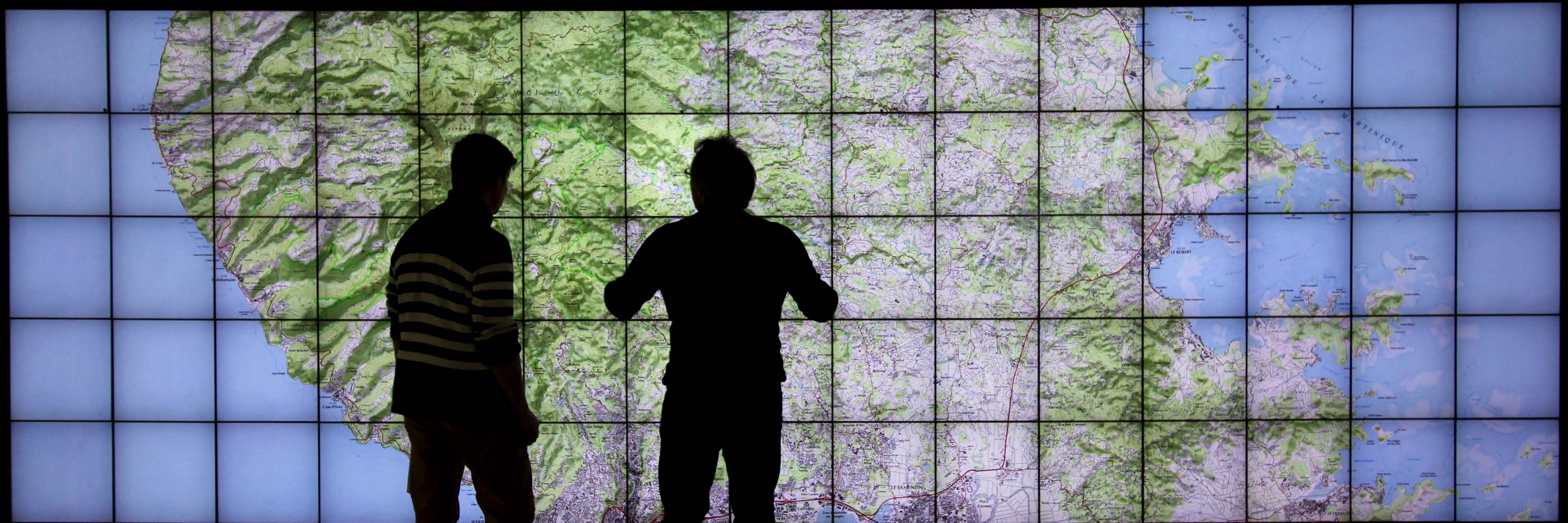
- Interactive visualization of large quantities of data
- Promote physical navigation

Collaborative Work



Real-time monitoring of geolocated data



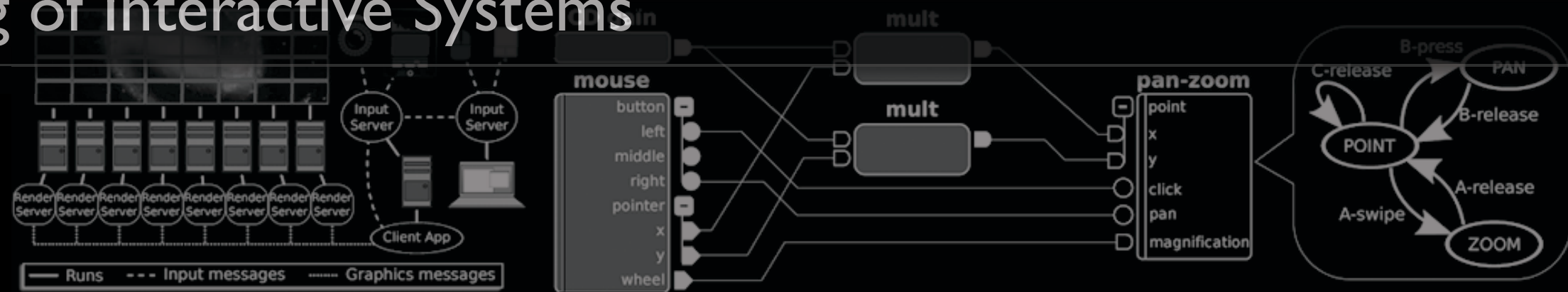


Exploratory Visualization of Astronomical Data on Ultra-high-resolution Wall Displays

E. Pietriga, F. del Campo, A. Ibsen, R. Primet, C. Appert, O. Chapuis, M. Hempel, R. Muñoz, S. Eyheramendy Duerr, A. Jordan, H. Dole, *Astronomical Telescopes and Instrumentation*, SPIE, 2016 (invited paper)



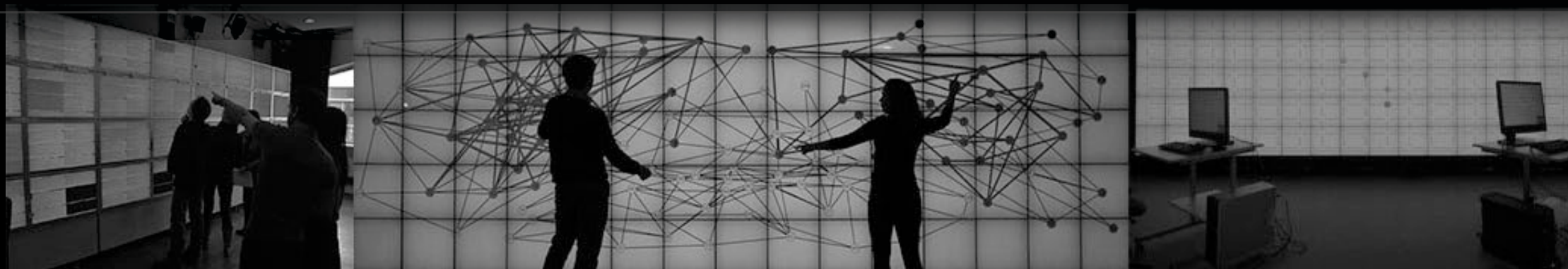
Engineering of Interactive Systems

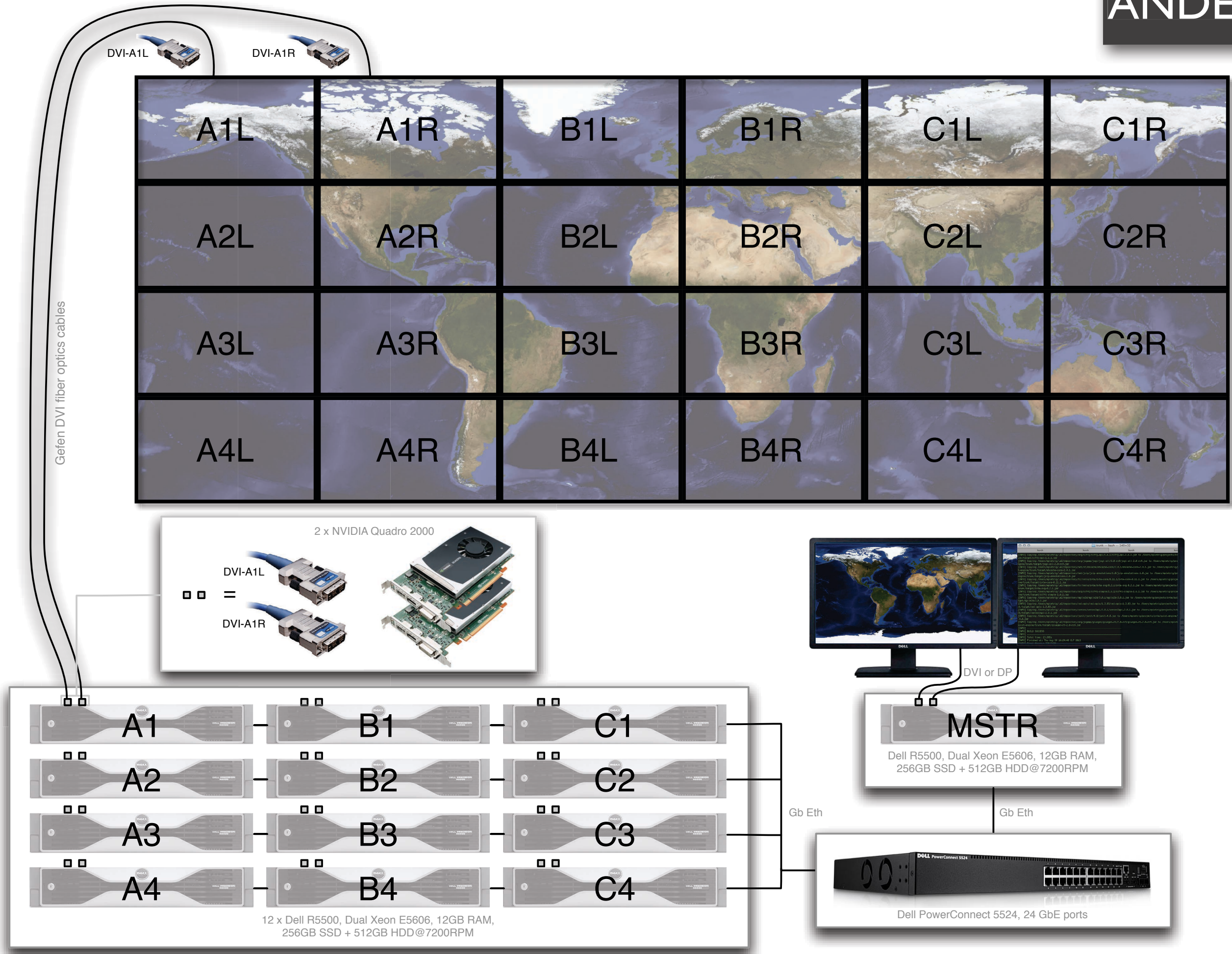


Interaction and Visualization Techniques



Computer-Supported Cooperative Work







WILD (Paris, France)

16 nodes + 2 masters

- 8x4 tiles (2560x1600)
- 36 NVidia GeForce GT8800
- Mac OS X & Linux Ubuntu
- 144 Intel Xeon cores
- 192 GB RAM
- HDD storage (10TB)

1 Gb eth network

Vicon motion tracker (10 cameras)

Fat bezels



ANDES (Santiago de Chile)

12 nodes + 1 master

- 6x4 tiles (1920x1080)
- 24 NVidia Quadro 2000
- Linux Fedora 19
- 144 Intel Xeon cores
- 156 GB RAM
- SSD+HDD storage (10TB)

1 Gb eth network

No motion tracking

Narrower bezels

ZaagTech multi-touch frame



WILDER (Paris, France)

10 nodes + 2 masters

- 15x5 tiles (960x960)
- 10 NVidia K5000
- Linux Ubuntu 2014
- 40 Intel Xeon cores
- ??? GB RAM
- SSD+HDD storage

1 Gb eth network

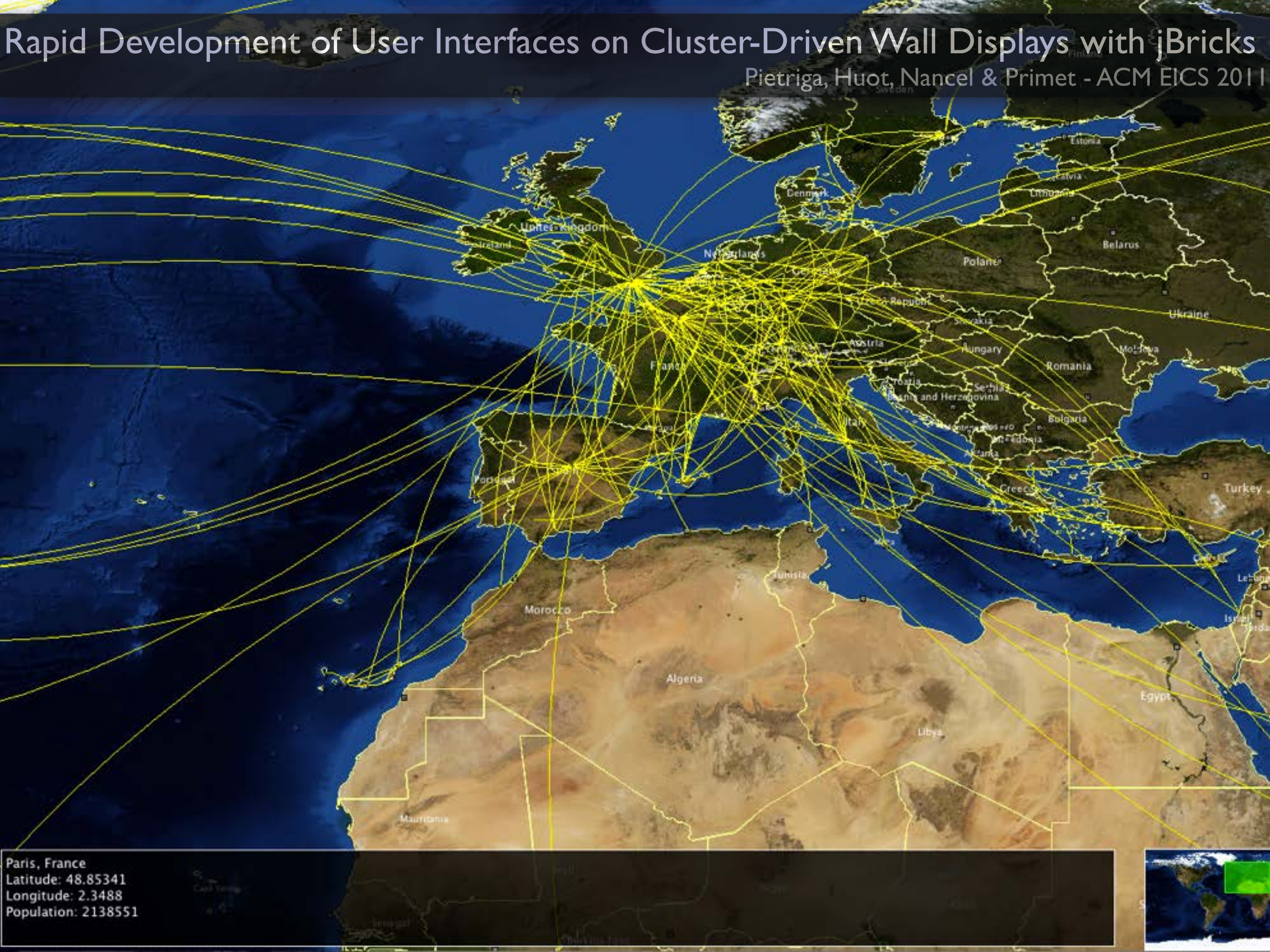
Vicon motion tracker (6 cameras)

Very narrow bezels

PQLabs multi-touch frame

Rapid Development of User Interfaces on Cluster-Driven Wall Displays with jBricks

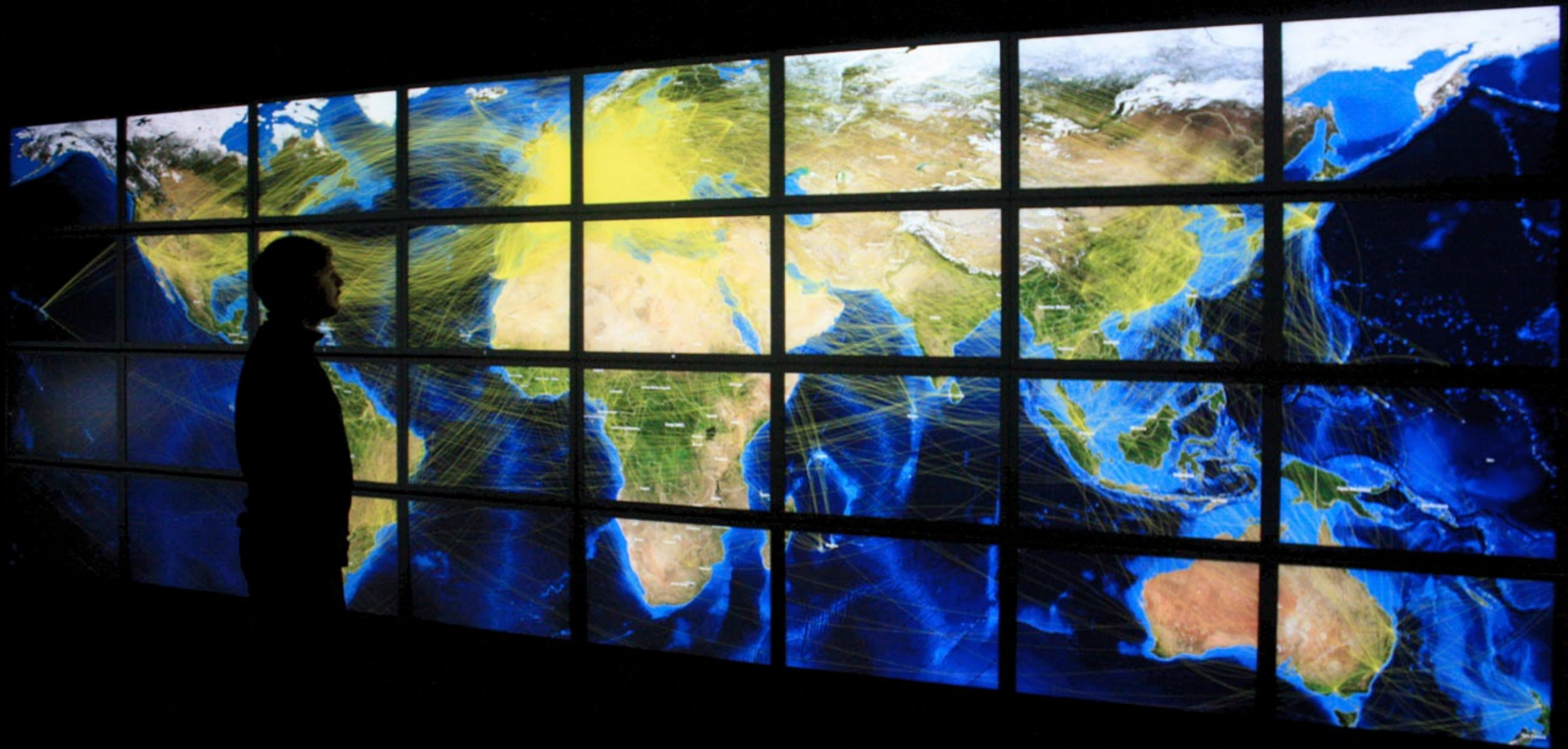
Pietriga, Huot, Nancel & Primet - ACM EICS 2011



Paris, France
Latitude: 48.85341
Longitude: 2.3488
Population: 2138551

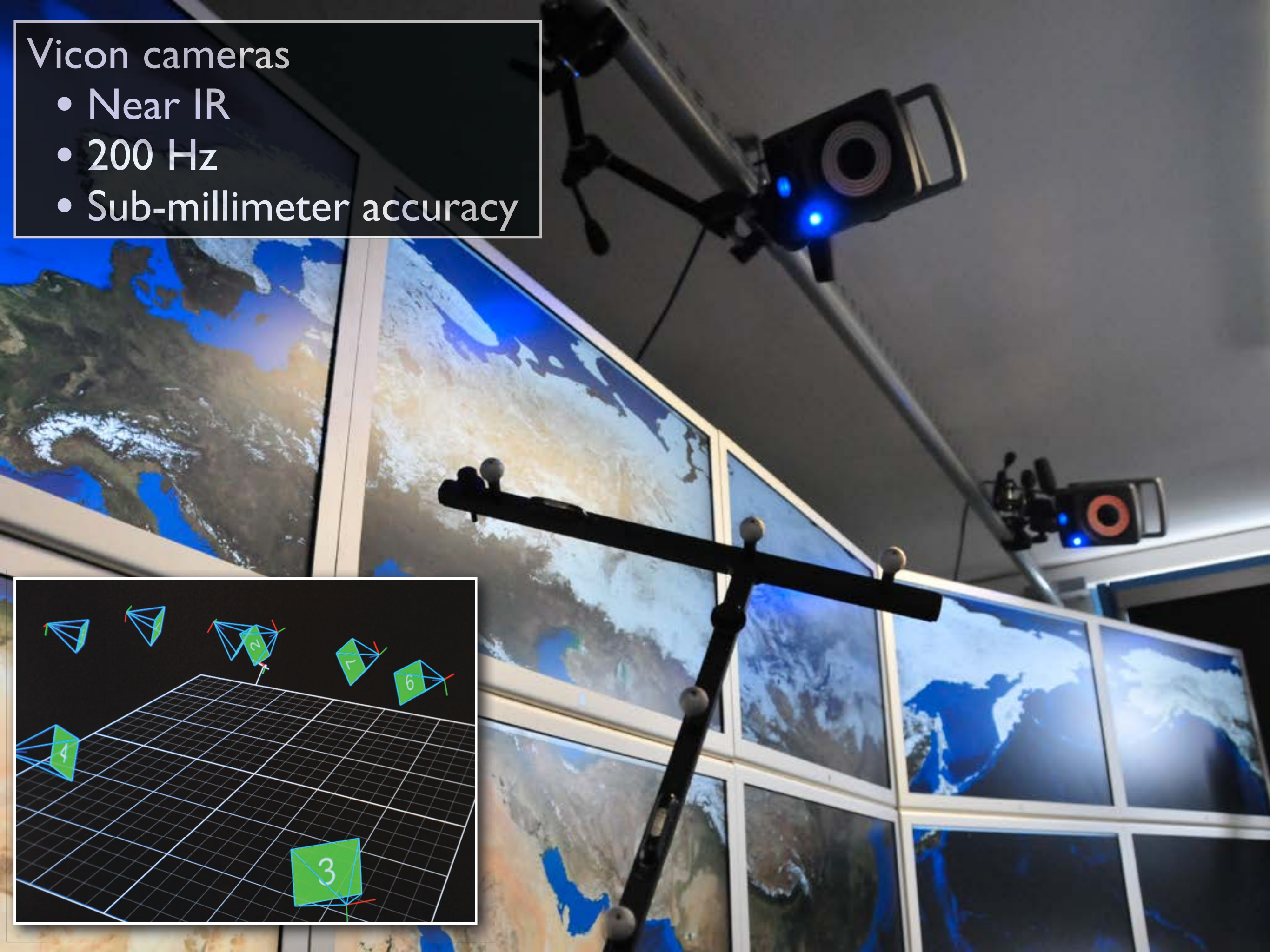
Rapid Development of User Interfaces on Cluster-Driven Wall Displays with jBricks

Pietriga, Huot, Nancel & Primet - ACM EICS 2011







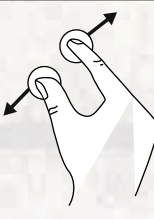
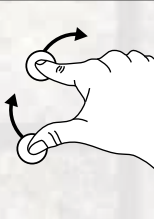




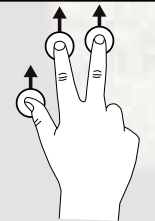


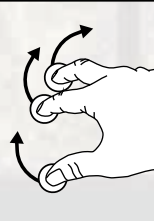
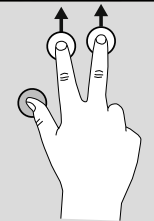



Vicon cameras

- Near IR
- 200 Hz
- Sub-millimeter accuracy



Multi-touch gestures for discrete and continuous control

Olafsdottir and Appert - ACM AVI 2014

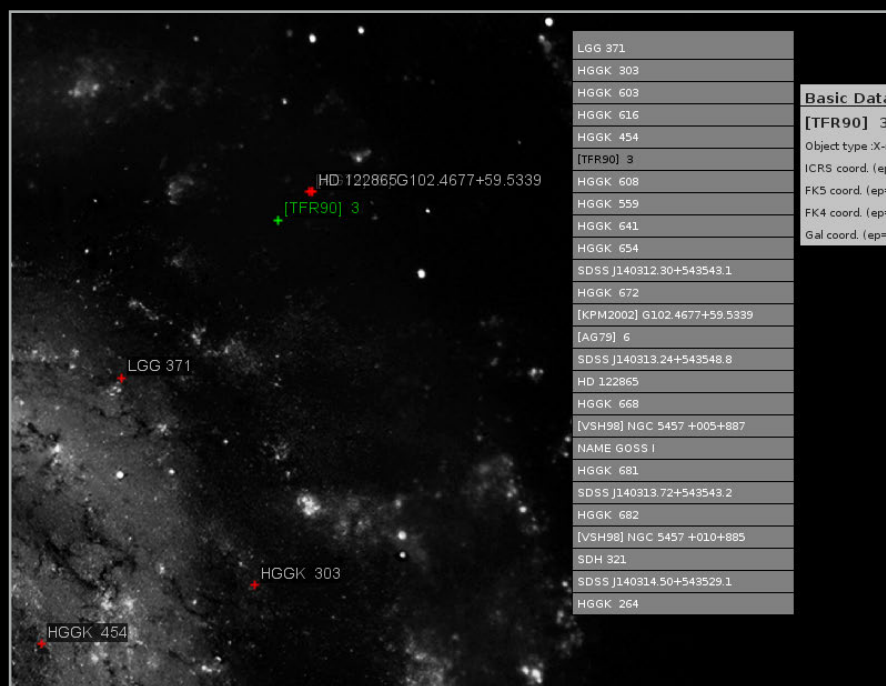
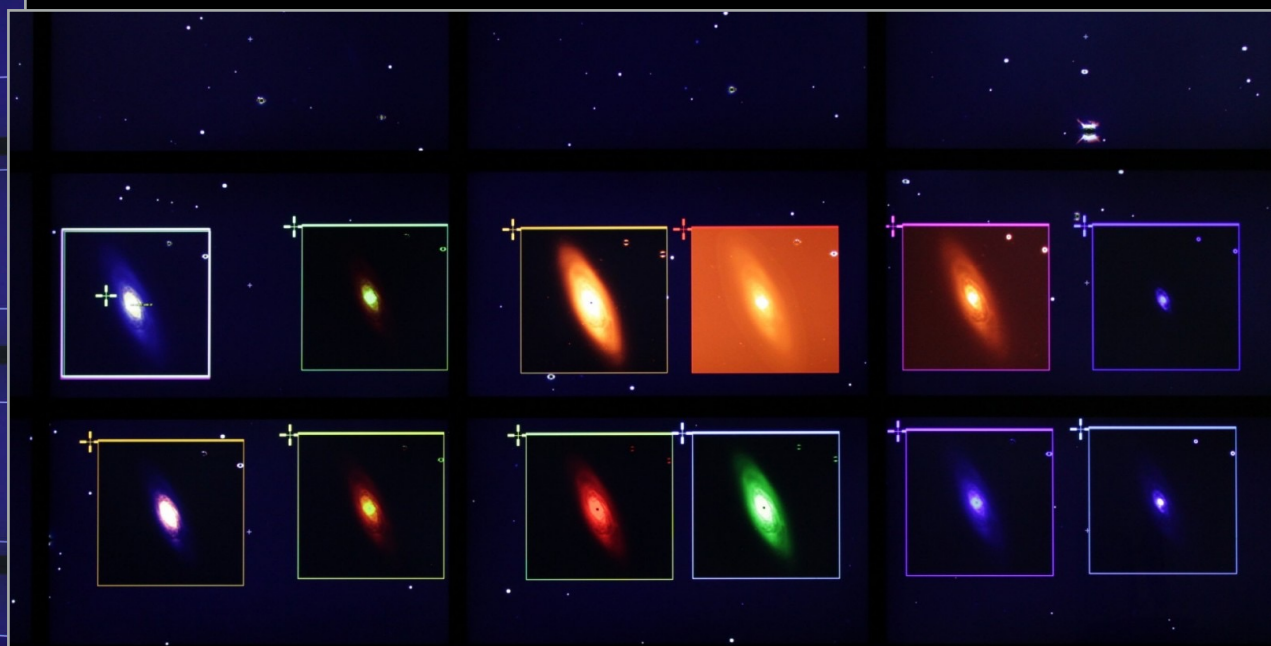
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Reference	EXTERNAL		INTERNAL		EXTERNAL		INTERNAL	
Shape	LINEAR	CIRCULAR	LINEAR	CIRCULAR	LINEAR	CIRCULAR	LINEAR	CIRCULAR
1 CP								
2 CP								
3 CP								
4 CP				
5 CP				

- Handling collections of images
- Dynamic color lookup table/scaling algorithm
- Handling heterogeneous data sources (SIMBAD queries, PDF documents, ...)

Interaction:

- Gestures, multiple input devices (handheld devices, RT motion tracking, ...)
- View management
- Collaborative work

FITS-OW: Visualization of large HDR imagery



LGG 371
HGGK 303
HGGK 603
HGGK 616
HGGK 454
[TFR90] 3
HGGK 608
HGGK 559
HGGK 641
HGGK 654
SDSS J140312.30+543543.1
HGGK 672
[KPM2002] G102.4677+59.5339
[AG79] 6
SDSS J140313.24+543548.8
HD 122865
HGGK 668
[VSH98] NGC 5457 +005+887
NAME GOSS I
HGGK 681
SDSS J140313.72+543543.2
HGGK 682
[VSH98] NGC 5457 +010+885
SDH 321
SDSS J140314.50+543529.1
HGGK 264

Basic Data

[TFR90] 3

Object type: X-ray source

ICRS coord. (ep=j2000) :14 02 51.4,+54 39 40,(~),D,[3000 3000 90],~

FK5 coord. (ep=j2000 eq=2000) :14 02 51.4,+54 39 40,(~),D,[3000 3000 90],~

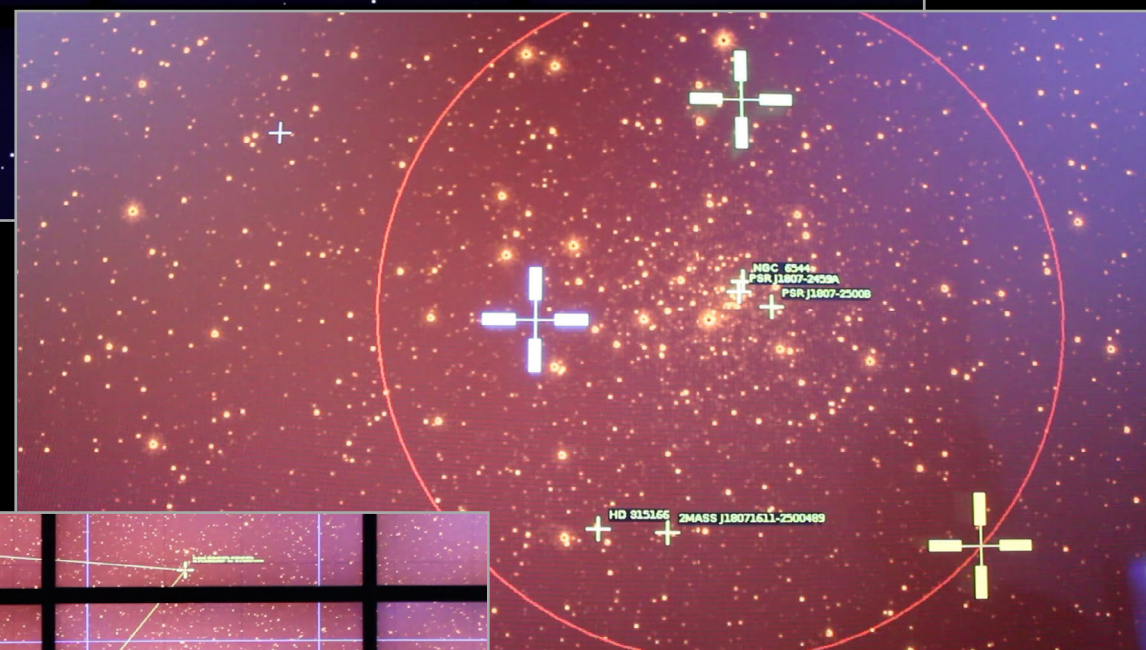
FK4 coord. (ep=B1950 eq=1950) :14 01 05.7,+54 54 03,(~),D,[3000 3000 90],~

Gal coord. (ep=j2000) :102 27 25,+59 32 12,(~),D,[3000 3000 90],~

Measurements

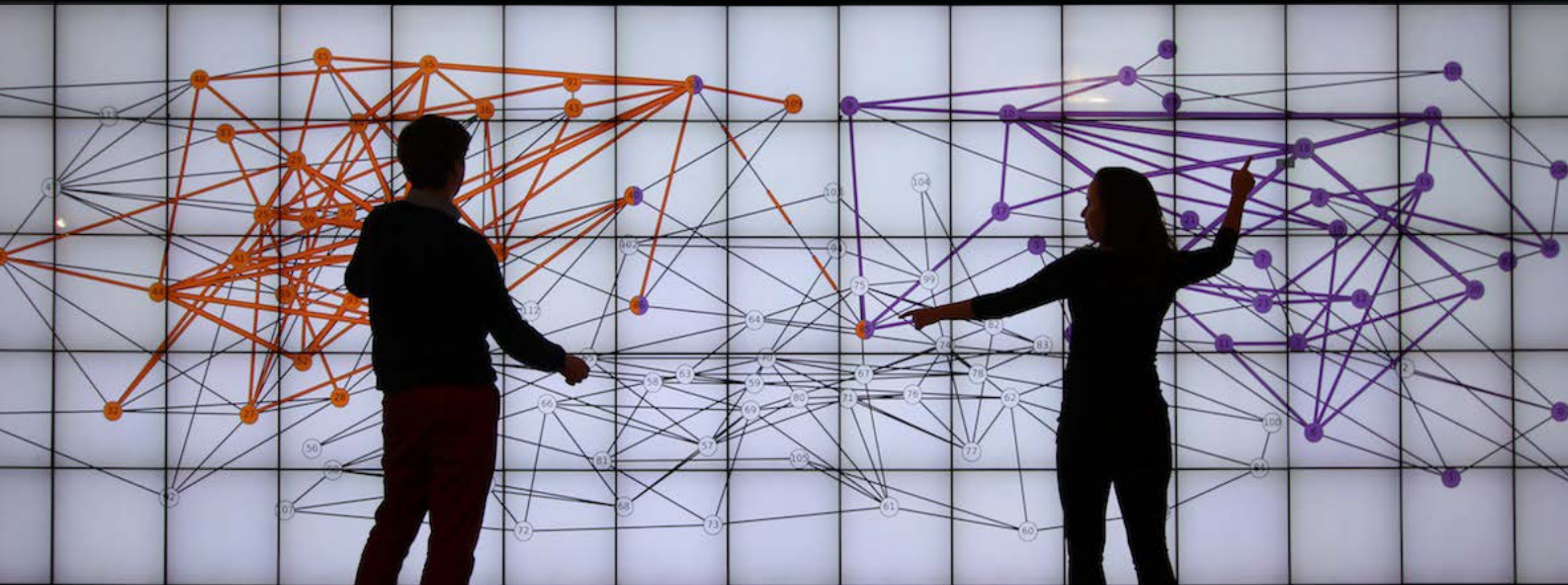


Equatorial: 18h00m33.8554s -25d28m41.1003s
Ra: 271.6410641522005 -- Dec: -25.47800569087148



Evaluating Multi-user Selection for Exploring Graph Topology on Wall Displays

A. Prouzeau, A. Bezerianos, O. Chapuis, *IEEE Transactions on Visualisation and Computer Graphics (TVCG)* 2016



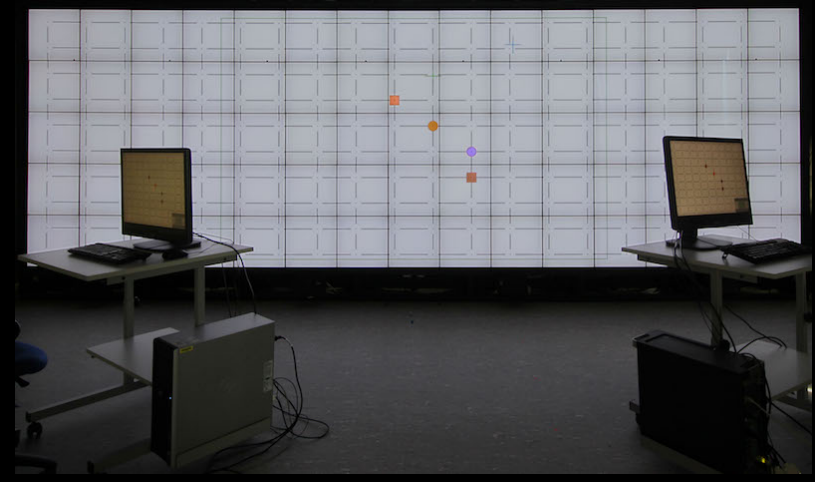
Towards Road Traffic Management with Forecasting on Wall Displays

A. Prouzeau, A. Bezerianos, O. Chapuis
ACM Interactive Surfaces and Spaces (ISS) 2016



Trade-offs between a Large Vertical Display and Two Desktops in a Collaborative Path-Finding Task

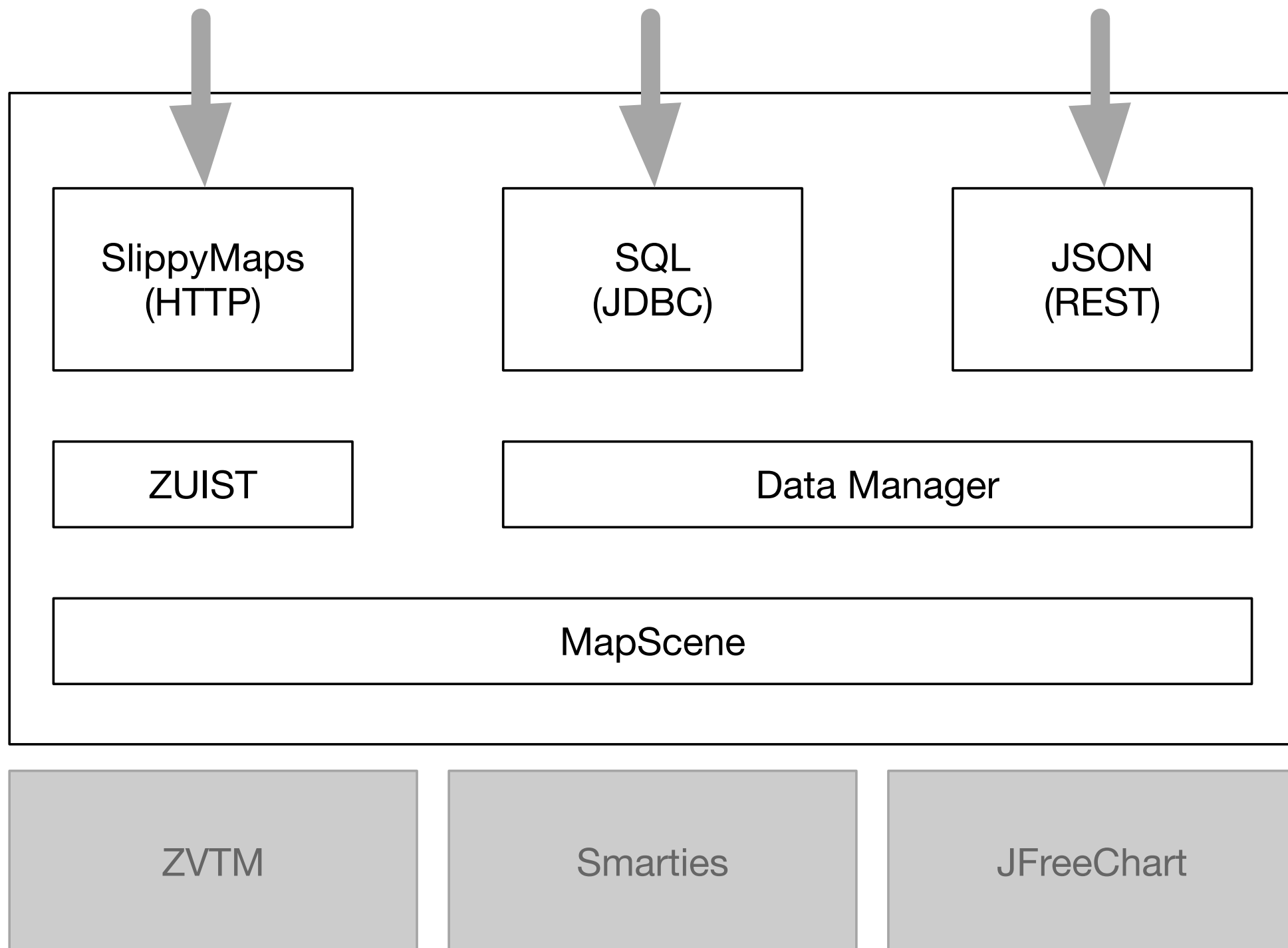
A. Prouzeau, A. Bezerianos, O. Chapuis
Graphics Interfaces (GI), 2017



Monitoring Air Quality in Korea's Metropolises



KAM: Data Management & Dependencies



KAM: Multi-scale Navigation

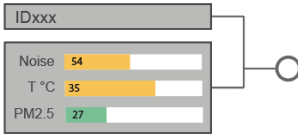
Zoom L0



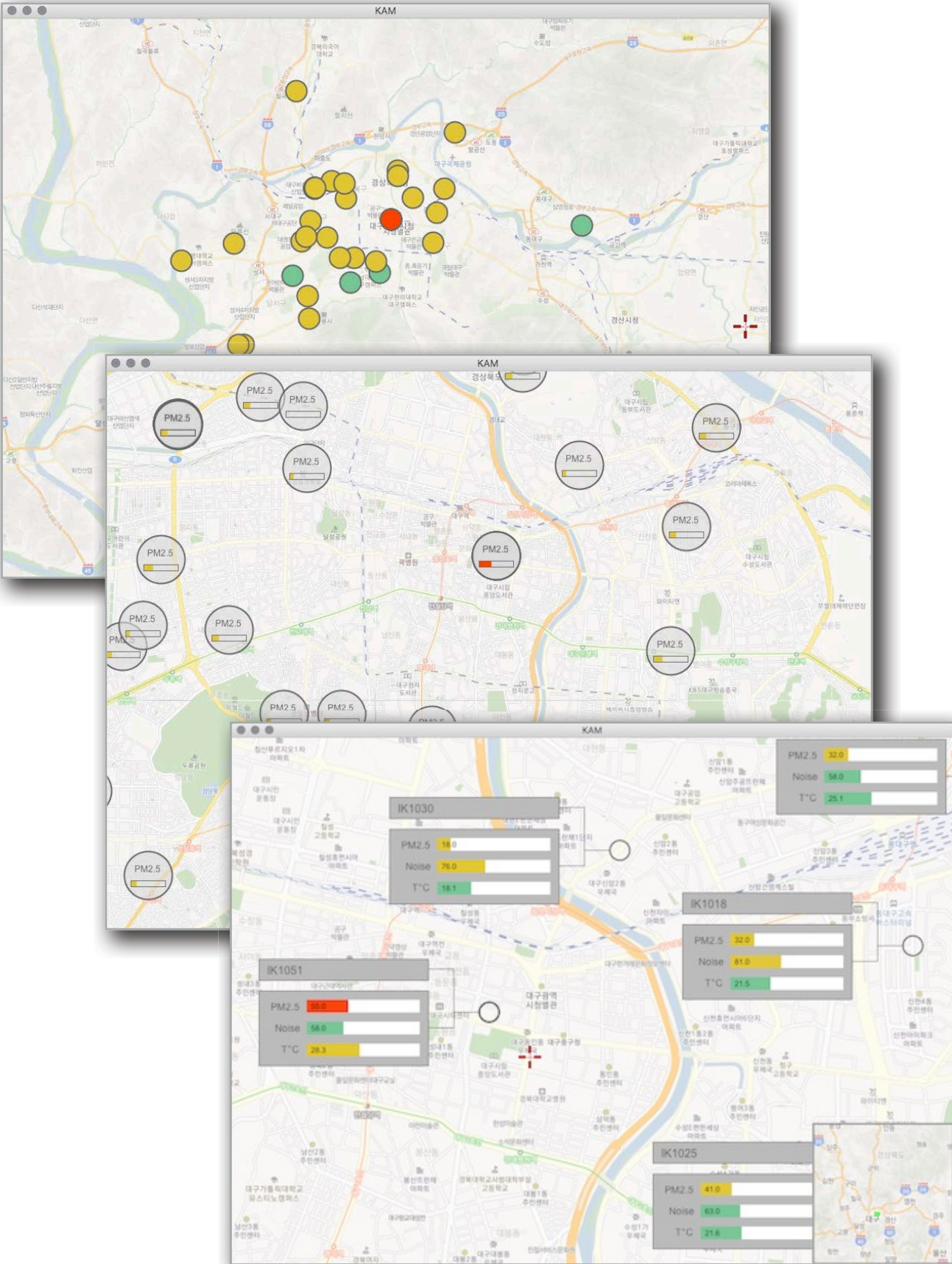
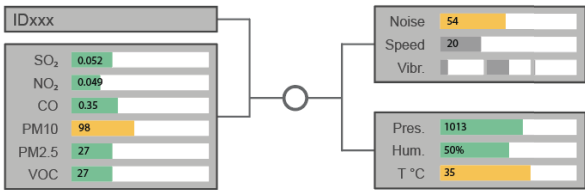
Zoom L1



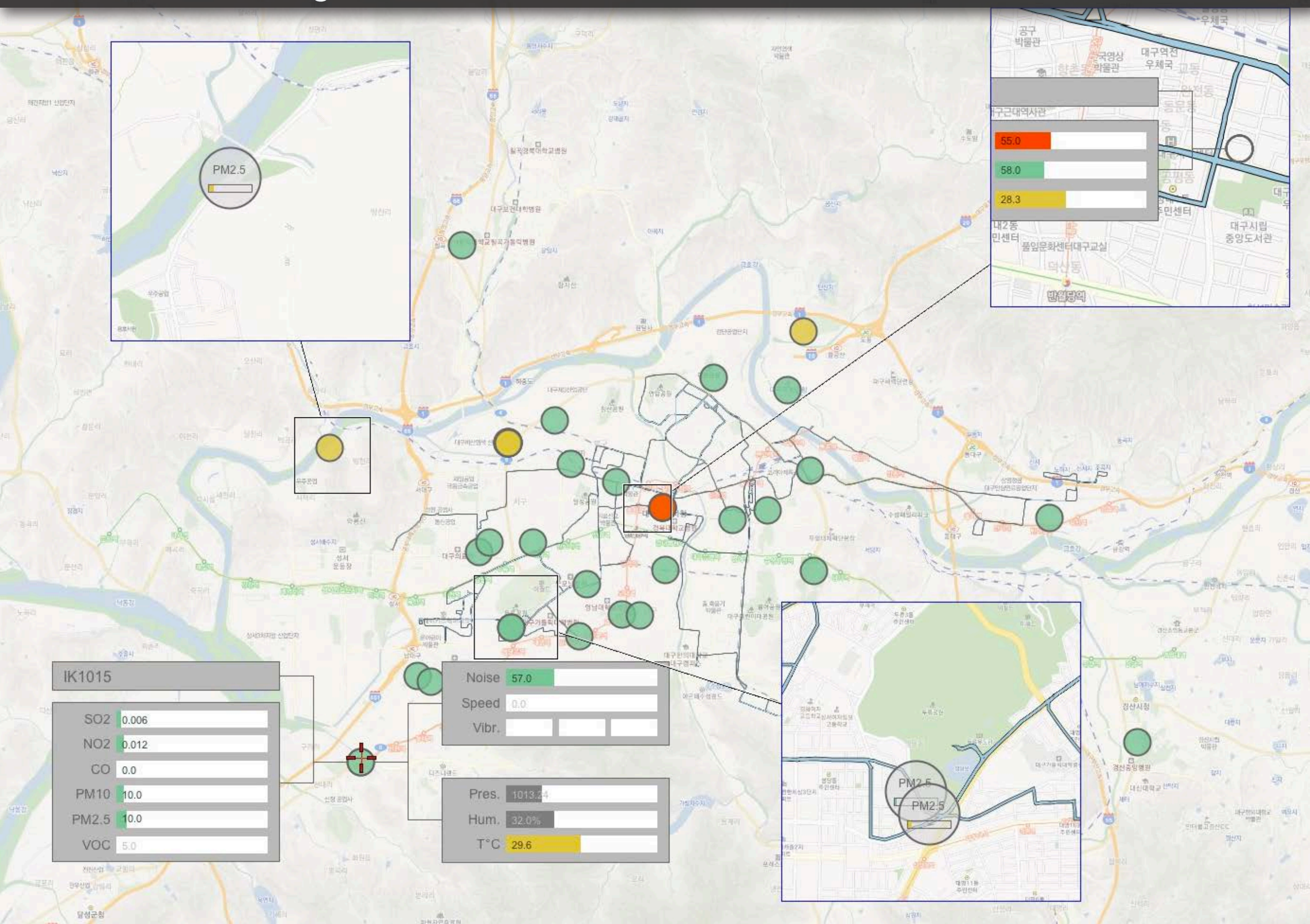
Zoom L2



Zoom L3



KAM: Multi-scale Navigation



KAM: Route & Sensor History

