Internships at Inria / Aviz

Inria
INVENTORS FOR THE DIGITAL WORLD

Scientists | Businesses

Inria | Research | Innovation | France | Europe & International | Calendar

Search

+ **Interview**
Nextleap: Next Generation generation data...

+ **European Research Council 2016**
ERC grant for María Naya-Plasencia

+ **European Research Council 2016**
Cătălin Hriţcu awarded an ERC grant

+ **Conference**
Understanding the origins of thought

› See all news

Recruitment

Inria's positons for:

- Researchers
- Engineers
- All our positions

All our offers

Research

Researchers here & elsewhere

Maciej Krupa
A mathematician specialising in the field of mathematics applied to the neurosciences

Anke Brock et Maria Kazolea

Live from

Latest news

Hiring
PhD positions : 2015 recruitment campaign under way

Hiring
Campaign "Research Positions": Inria is hiring 7 researchers

MoocLab
Available soon on FUN: a MOOC on

Innovation

Focus

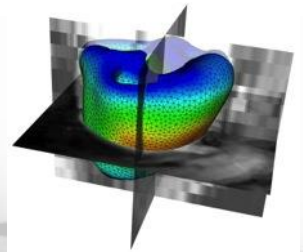
open source initiative

Open-source license
CeCILL licence recognised by the Open Source Initiative

Inria-Industry Meetings
Find demos in videos

Science at Inria

MODELS
AND SIMULATION



HIGH-PERFORMANCE
COMPUTING, CLOUD

NETWORKS AND
CONNECTED
OBJECTS

SAFETY,
RELIABILITY

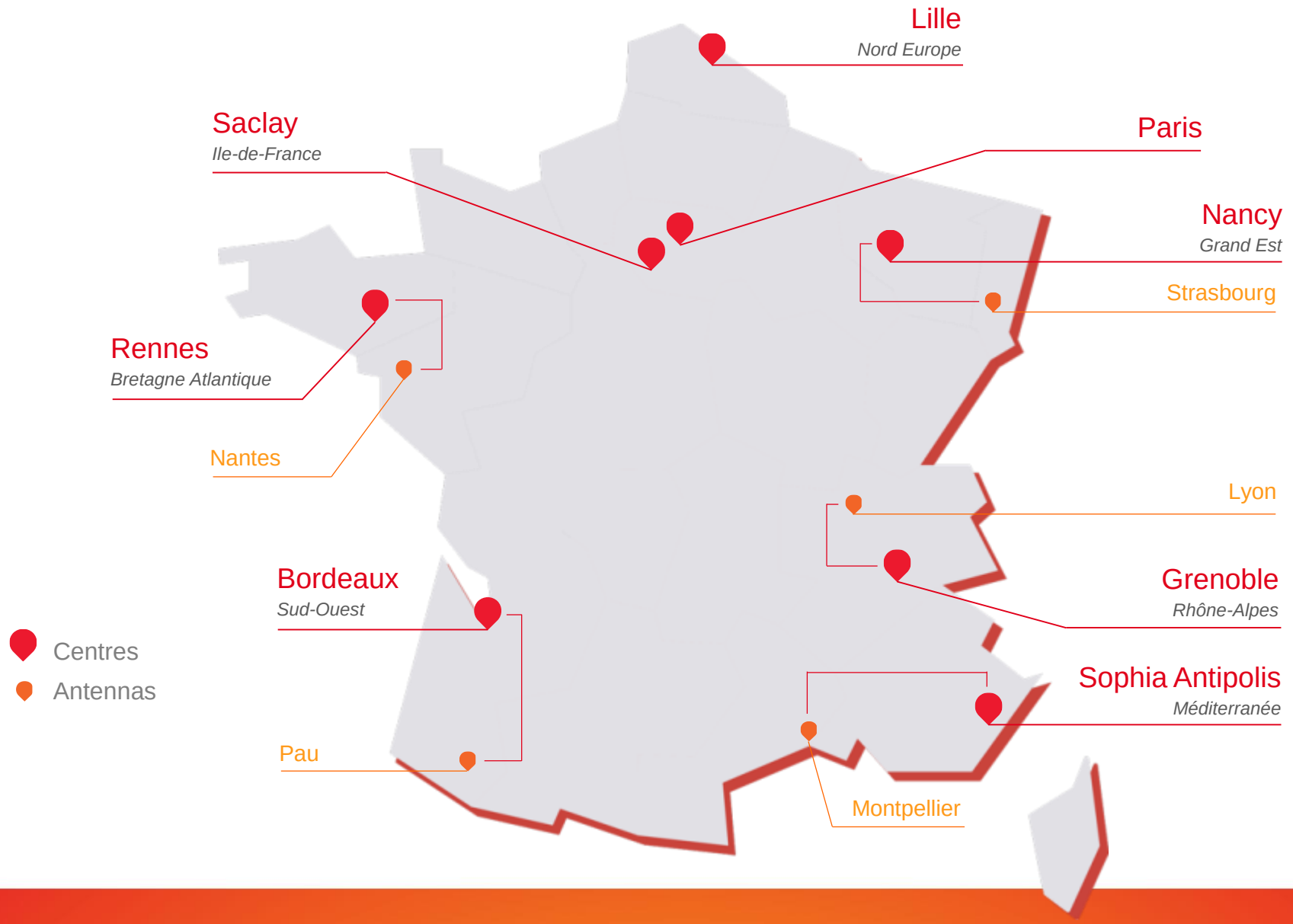
ROBOTICS

PROGRAMMING

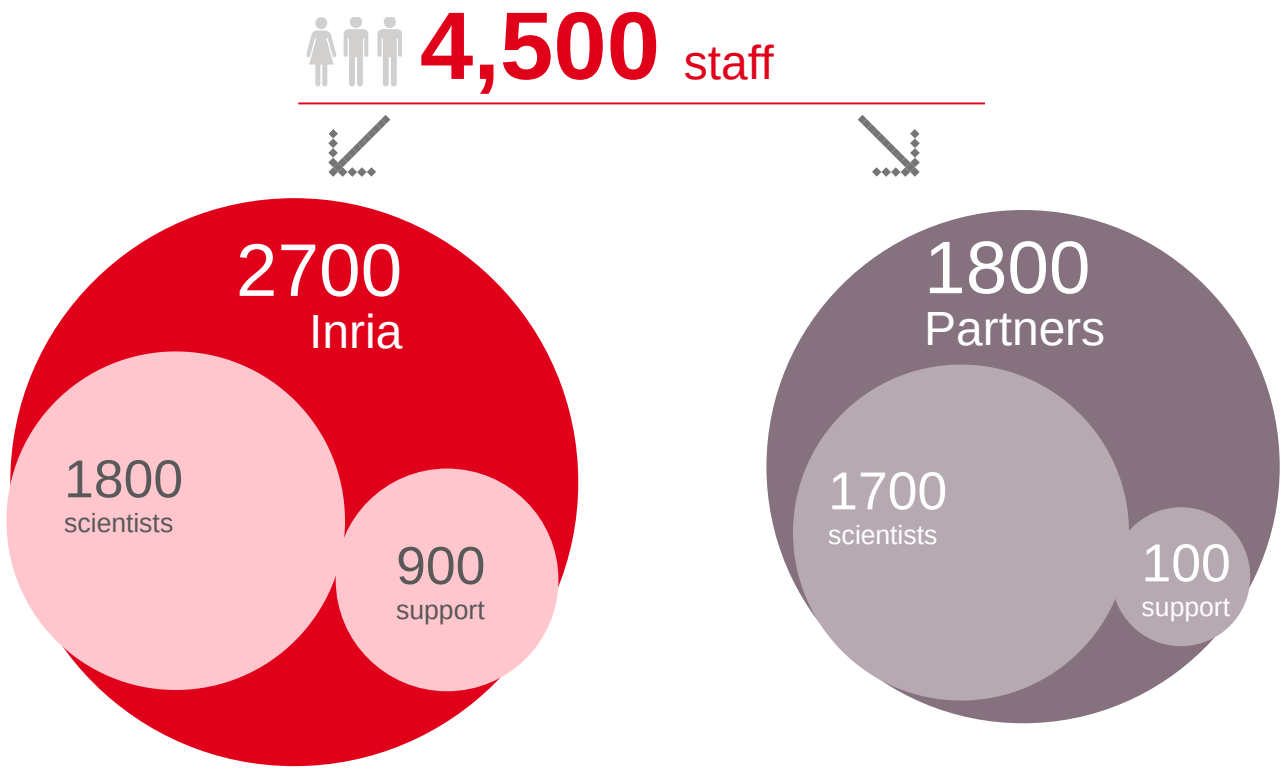
INTERACTIONS,
INTERFACES AND
USAGE

DATA
PROCESSING

Research centres



Inria, it's all about people



The Inria project team

- 20 to 30 people led by a respected **scientist**
- A specific research theme
- Working in contact and collaboration with **industrial and scientific partners** in France and throughout the world
- Financially and scientifically independent
- A strong focus on transfer and impact

170 Inria project teams in 2014

140 in collaboration

AN ORGANISATION **TO COMPLEMENT** THAT OF UNIVERSITIES AND THE CNRS

7

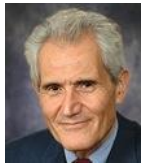
Exceptional researchers

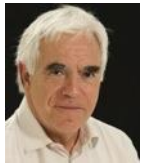
INSTITUT DE FRANCE
Académie des sciences


Serge Abiteboul


Nicholas Ayache


François Baccelli


Alain Bensoussan


Gérard Berry


Olivier Faugeras


Philippe Flajolet *(deceased)*


Gérard Huet


Gilles Kahn *(deceased)*


CNRS medal winners

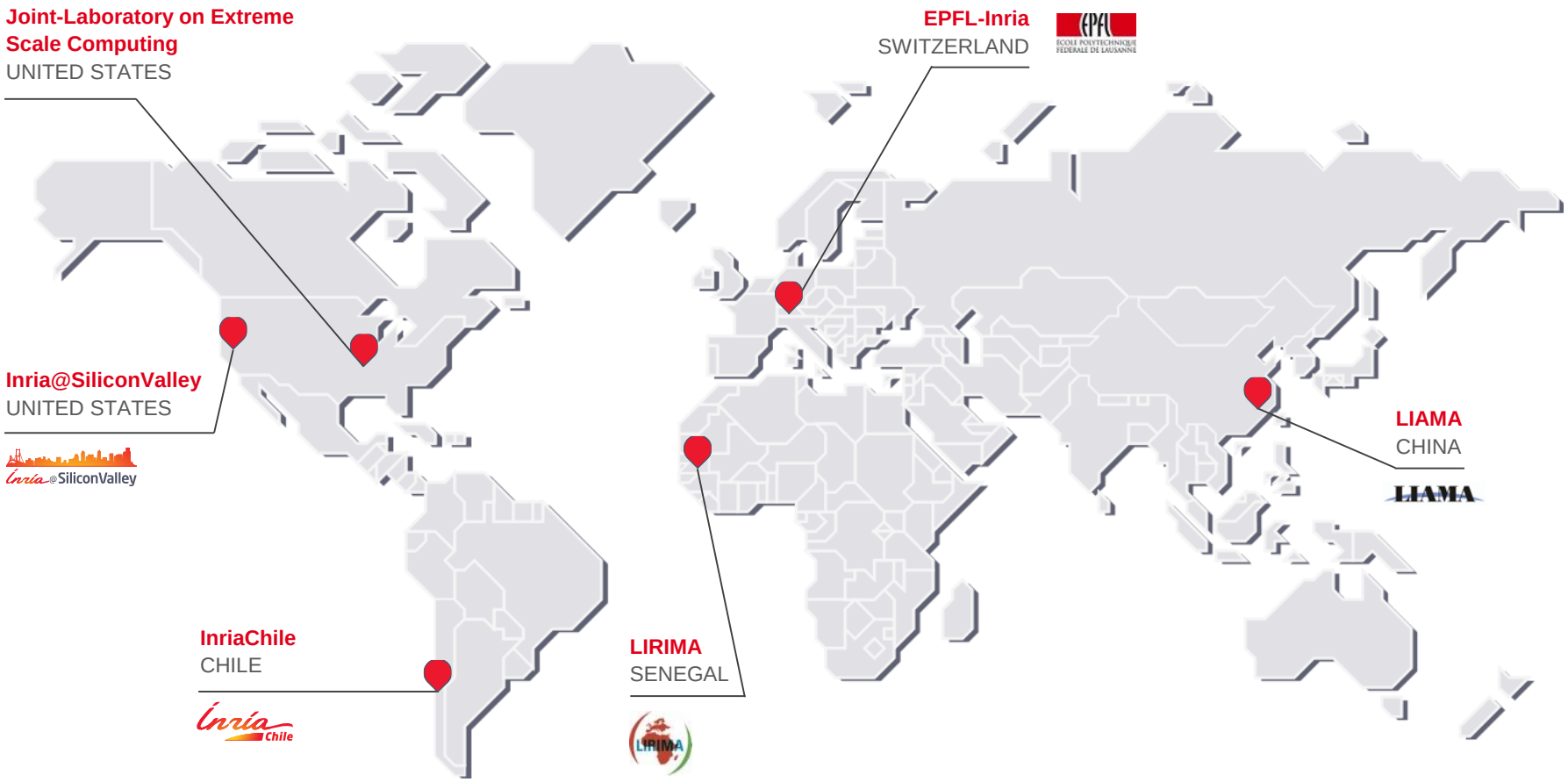

Microsoft prize

IEEE *Fellow*

acm Association for Computing Machinery


38 ERC grant holders since 2007

Inria international Labs



Inria in the world

80 associate teams active in 2015

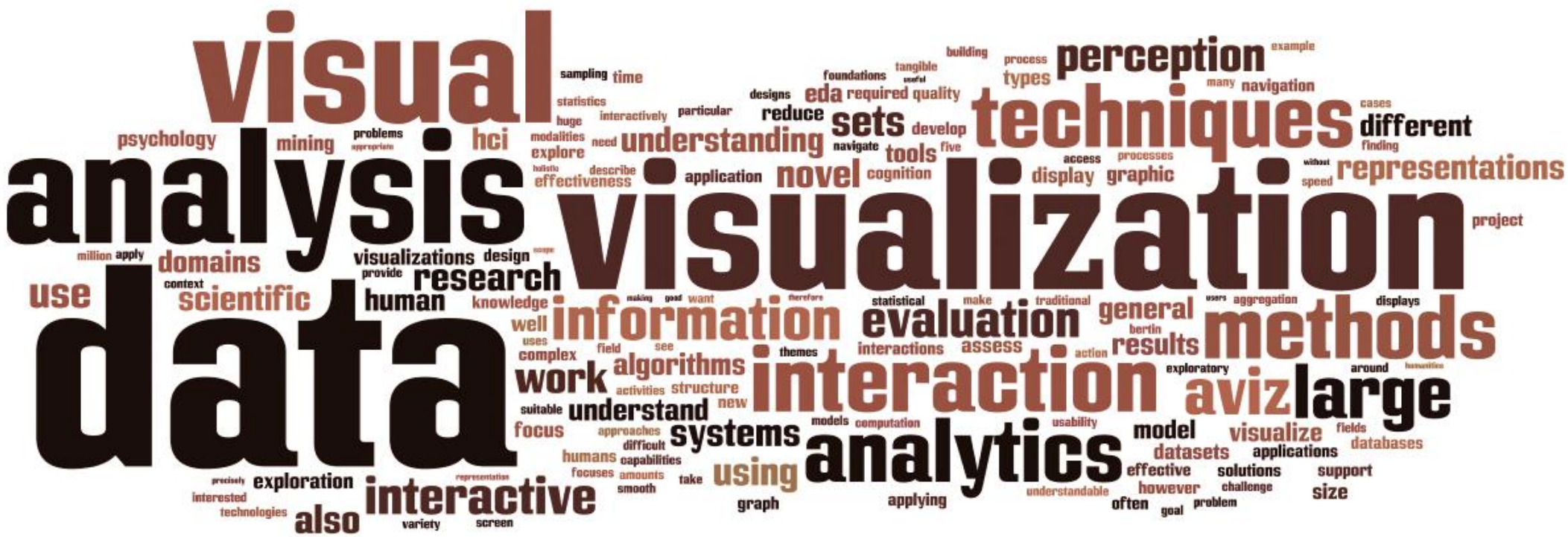
The Aviz Team, 2016

4 permanent researchers (1 team leader)

1 engineer

4 PhD students

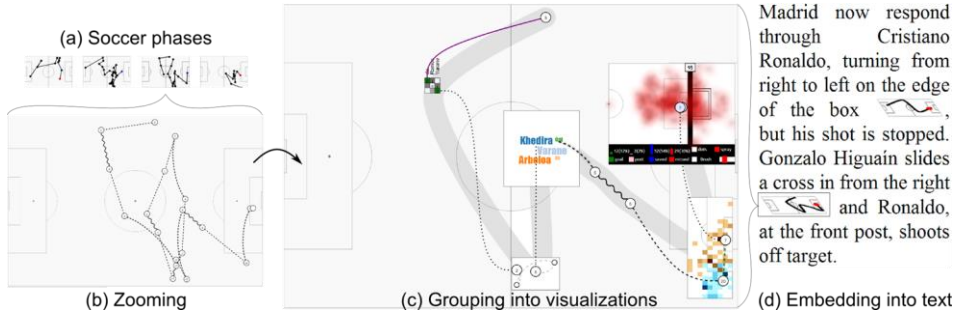
The Aviz Team, 2016

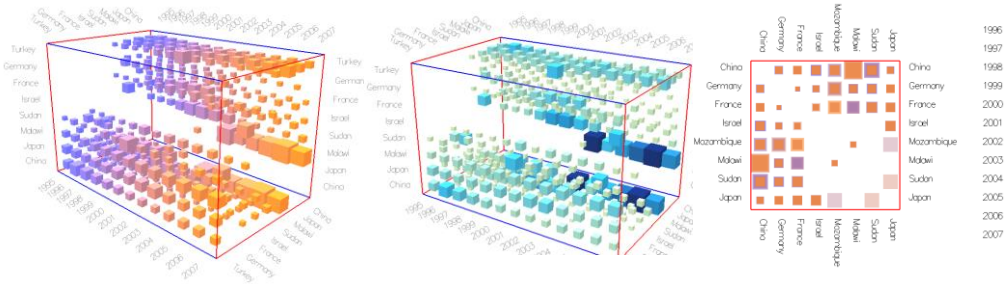


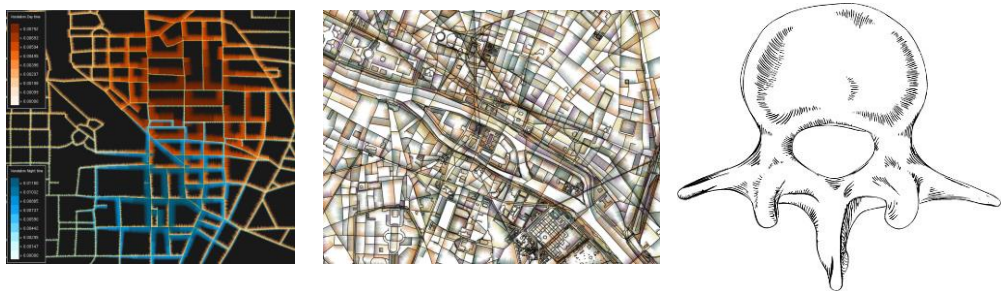
1. Novel Techniques

About 30 novel representations

- Application Domains:
  - Sports analysis, digital humanities, fluid simulations, and biology.
- Networks, Charts, and Tables:
  - Techniques for the design of tabular visualizations and different types of data charts.
- Animation:
  - For transitions and to convey evolutions
- Illustrative Information and Scientific Visualization

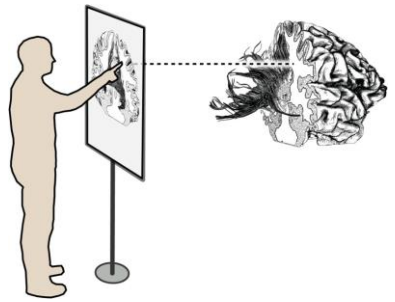


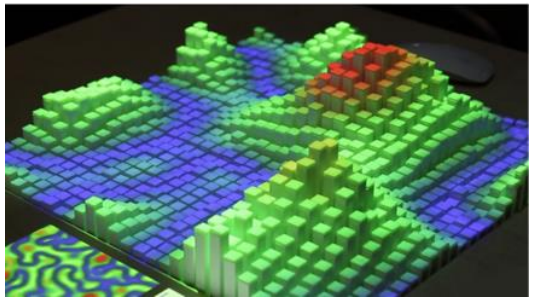


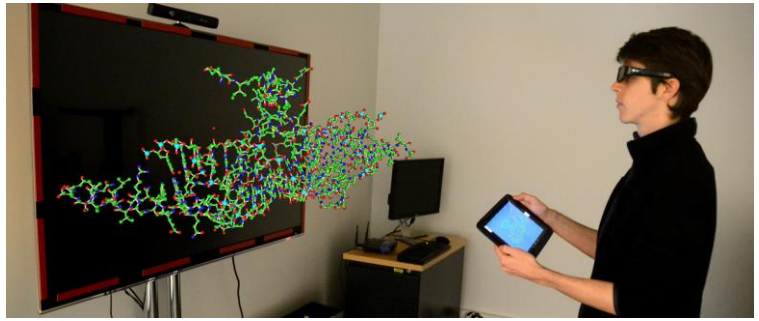


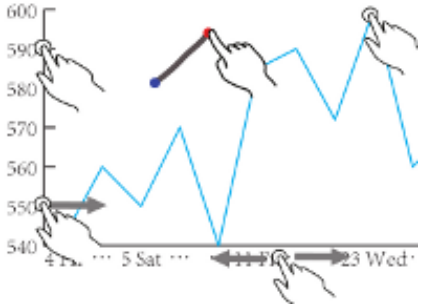
2. New Contexts for Visualization

- Touch
- Physical
- Tangible
- Stereoscopic
- Wearable
- Beyond the Desktop







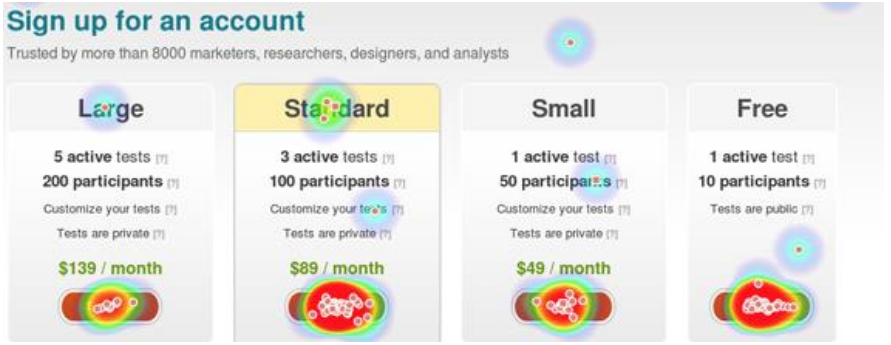


3. Visual Analytics for Big Data

- Progressive Visual Analytics
  - Progressive Visualization
  - Progressive Analytics Algorithm
  - Progressive Queries and Indexing in Databases

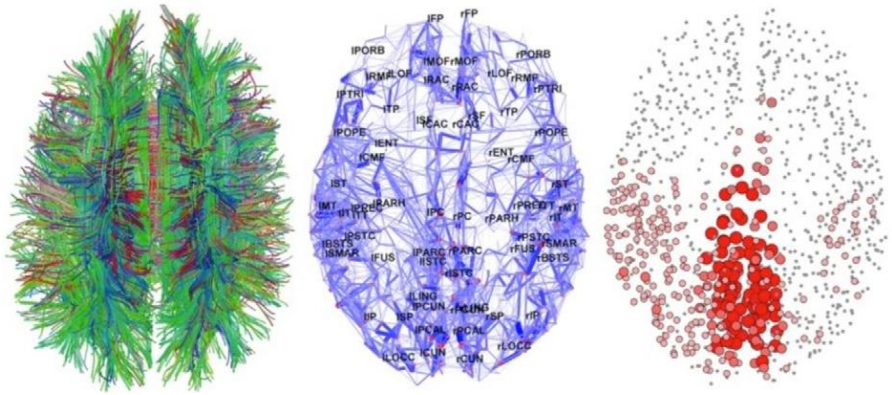
4. Cognition and Decision Making

- Better understanding Touch & Tangible/Physical
- Studying the benefits of active physical
  - Designing active physical visualizations with micro-robots
- Visualization-Supported Decision Making

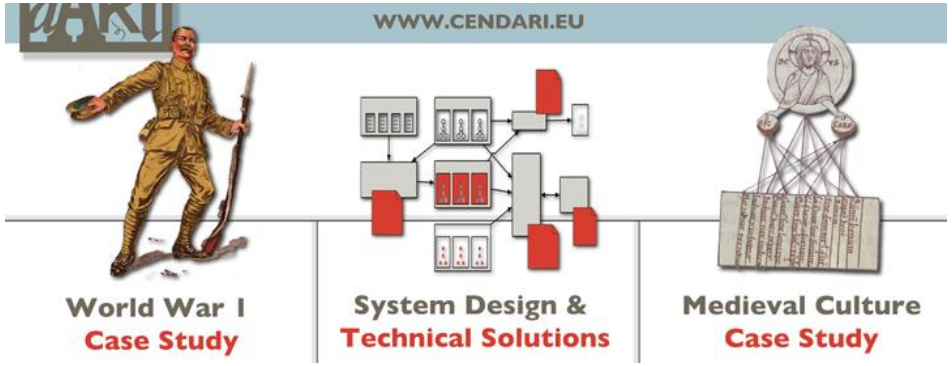


5. Targeted Applications/Domains

- Neurosciences
  - Neurospin, MSR Redmond, Univ. of Washington



- Humanities
  - With European universities within the Cendari project
  - With EHESS



Collaborations

- Leading industries and universities
  - Microsoft Research, Google, IBM
  - University of Calgary, NYU, Univ. of Konstanz,
    UBC, Purdue, TU Eindhoven, Univ. of Maryland
- Smaller companies
  - TKM, Data-Publica
- Other INRIA Project-Teams
  - IN-SITU, Mint, Oak, TAO
- French Organizations
  - CEA, IRT-SystemX, EHESS

Fablab

machines we have

```
Fablab Digiscope owns 8 machines you might like to use for your experiments.
```

1 – EPILOG LASER-CUTTER MINI 24" (40 watts)

2 – KNK MAXX AIR VINYL-CUTTER

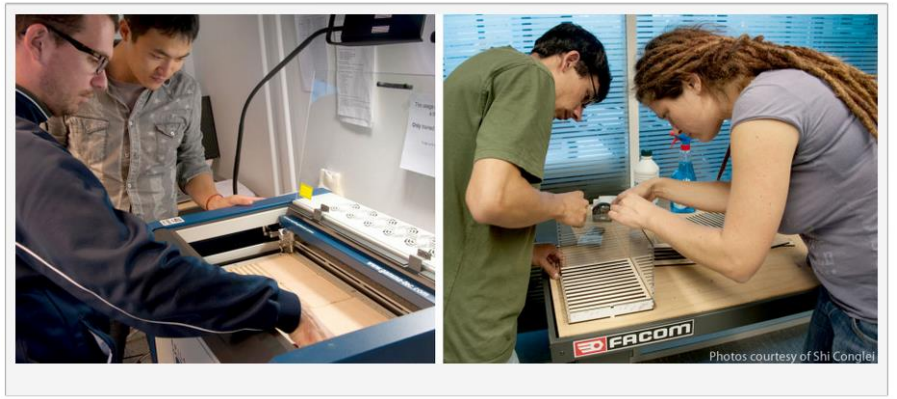
3 – 3D PRINTER REPLICATOR 2

4 – ROLAND MODELA MDX40A MILLING-MACHINE

5 – DREMEL

6 – PFAFF SEWING-EMBROIDERY MACHINE

7 – 3D PRINTERS ULTIMAKER2 (x2)



Wilder

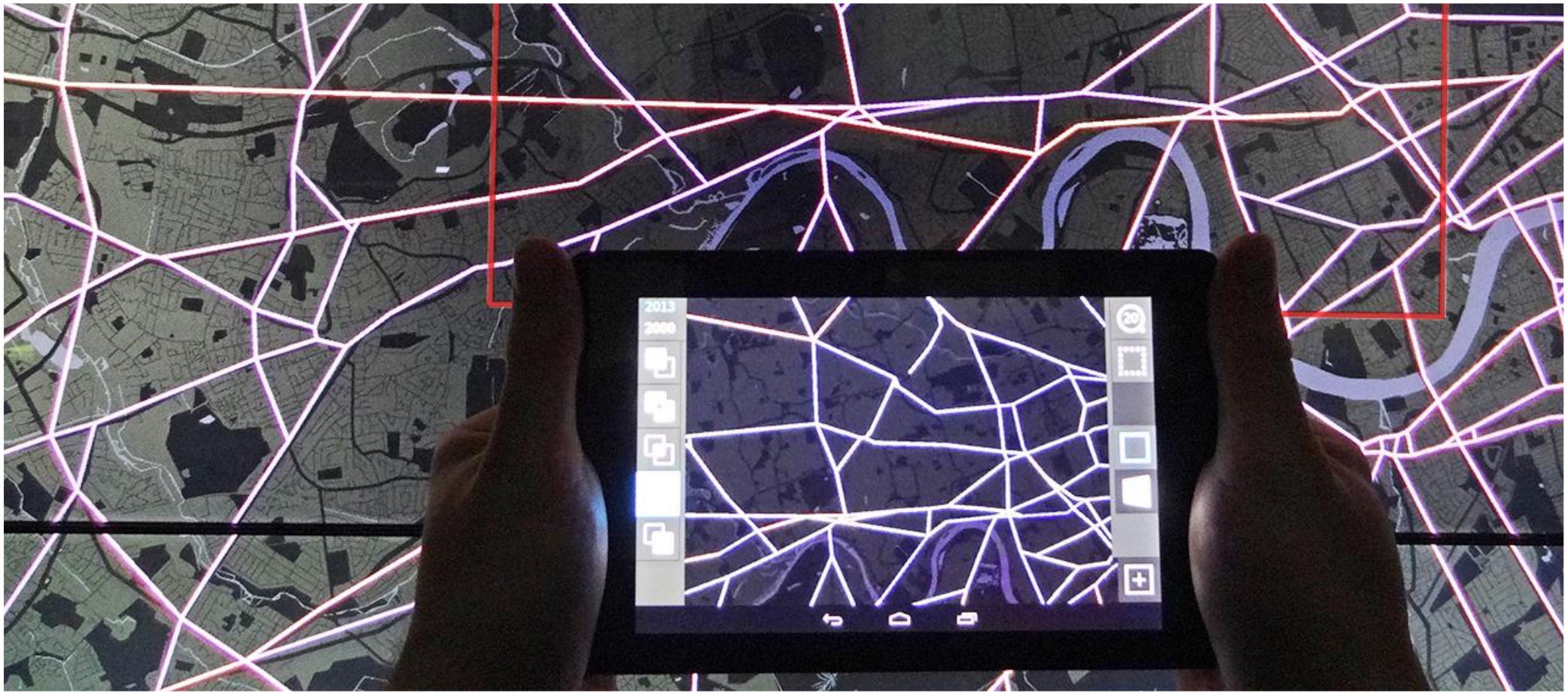
Internship Topics

Examples

Perception of Data Visualizations Across Devices

(Petra Isenberg)

contact petra.isenberg@inria.fr



Inria informatics mathematics

Aviz Visual Analytics Project

Perception of Data Visualizations Across Devices

(Petra Isenberg)

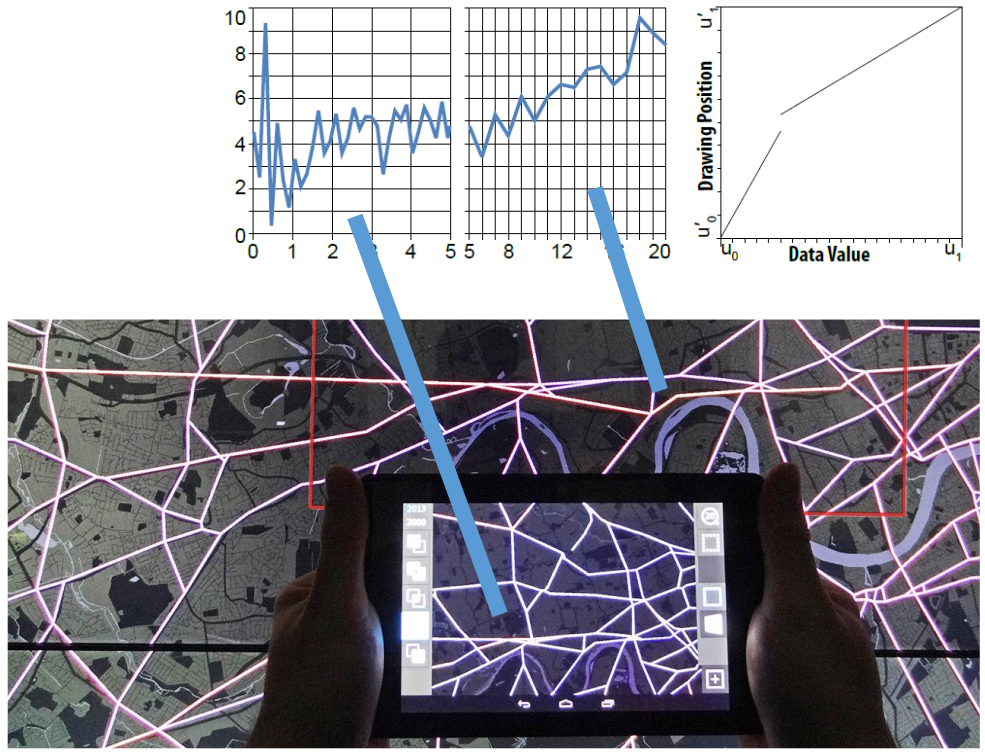
topic areas:

- data charts
- perception

goals:

- design, run, and analyse a user study

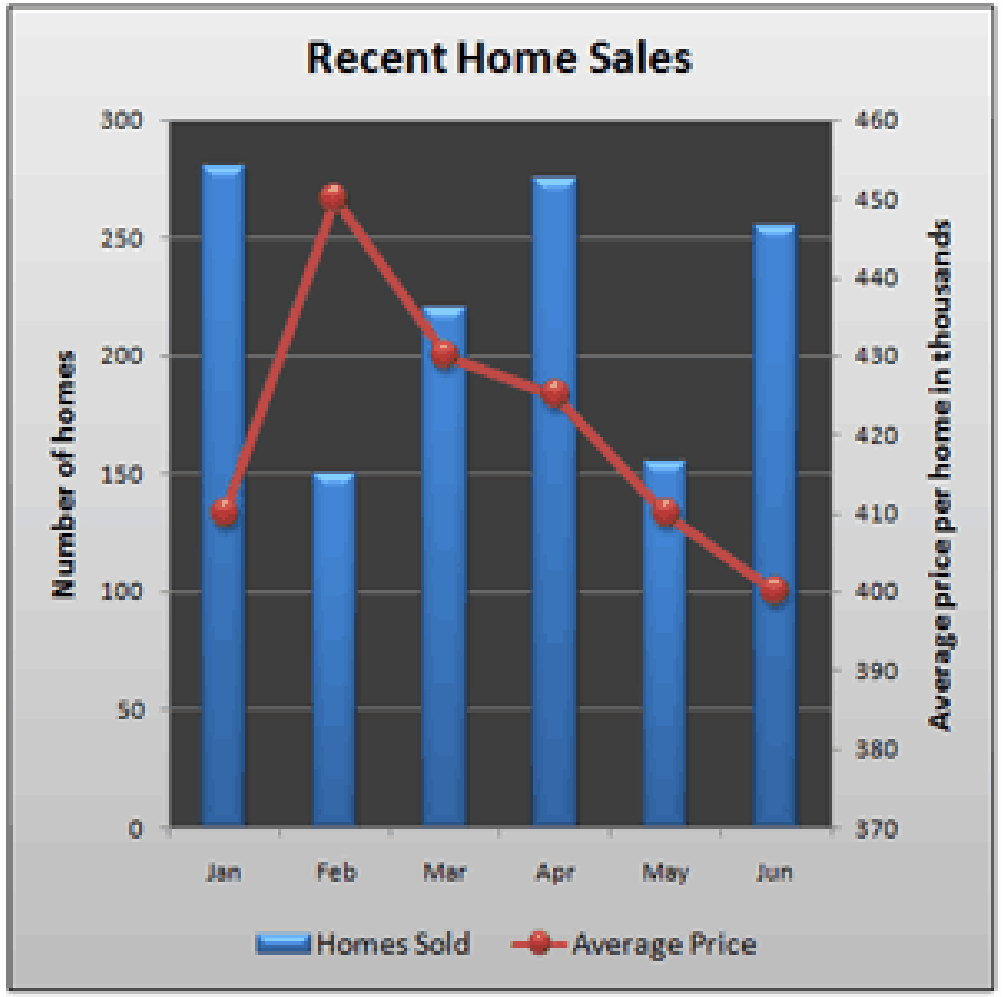
contact petra.isenberg@inria.fr

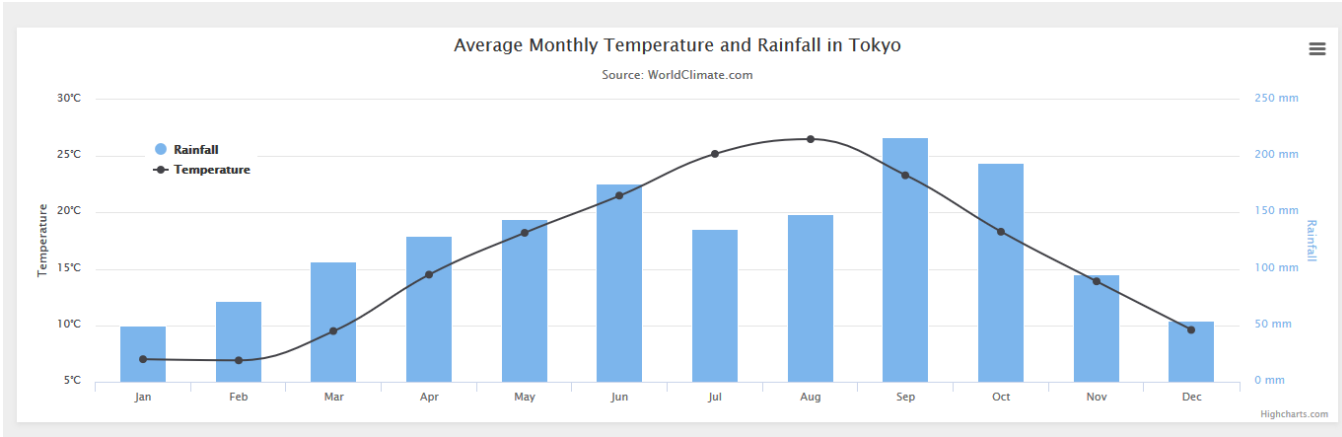


Understanding Dual-Axis Charts

(Petra Isenberg)

contact petra.isenberg@inria.fr





perceptual edge

Dual-Scaled Axes in Graphs

Are They Ever the Best Solution?

Stephen Few, Perceptual Edge

Visual Business Intelligence Newsletter

March 2008

In 2004, when I wrote the book *Show Me the Numbers*, and even more recently when I wrote *Information Dashboard Design*, I considered graphs with two quantitative scales on a single axis (either X or Y) a viable option. *Show Me the Numbers* originally included a solution to a graph design problem that displayed two quantitative scales on the Y-axis—one that measured quarterly revenue in U.S. dollars and another that

informatics mathematics Inria

Aviz Visual Analytics Project

Understanding Dual-Axis Charts

(Petra Isenberg)

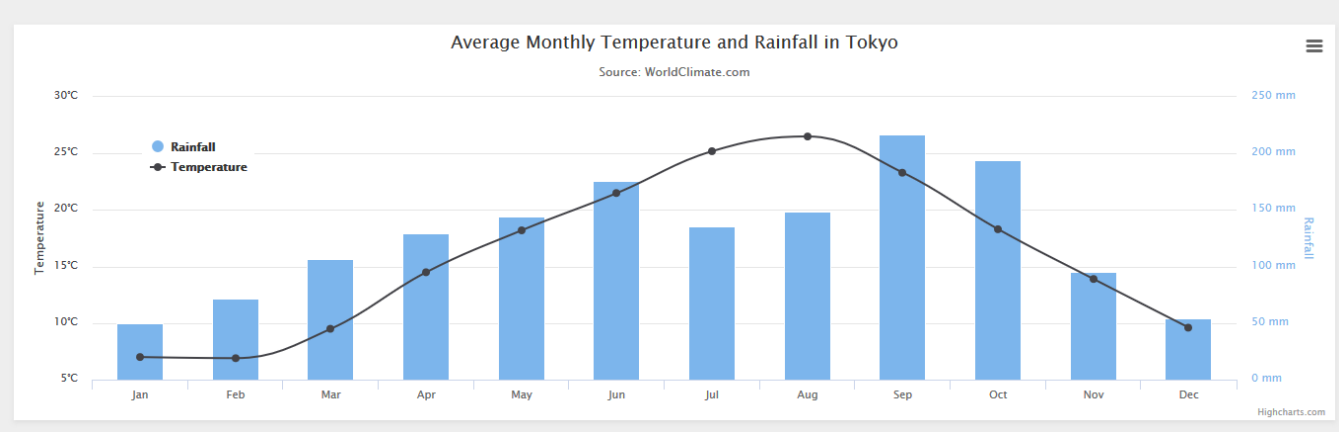
contact petra.isenberg@inria.fr

topic areas:

- data charts
- perception

goals:

- design, run, and analyse a user study
- derive design guidelines



Supporting Personal Finances with Embedded Visualizations

(Petra Isenberg)

contact petra.isenberg@inria.fr

informatics mathematics

Aviz Visual Analytics Project

Supporting Personal Finances with Embedded Visualizations

(Petra Isenberg)

contact petra.isenberg@inria.fr

topic areas:

- data charts
- Personal visualization

goals:

- design and implement a personal embedded financial vis
- test it with real users

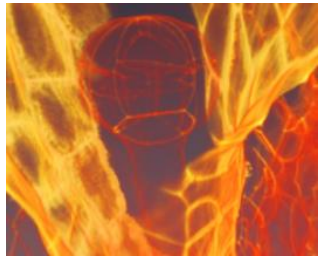
Cell Lineage from Static Images of Plant Embryos

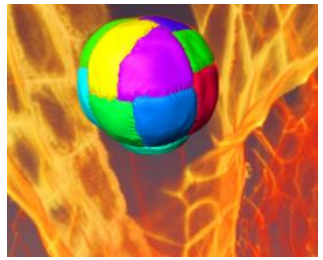
(Tobias Isenberg, w/ A. Trubuil, INRA/MaIAGE)

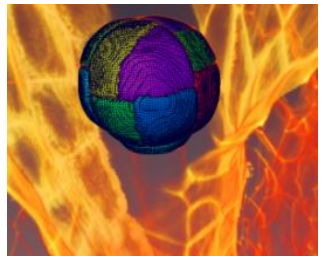
- plant biology
- 3D interaction

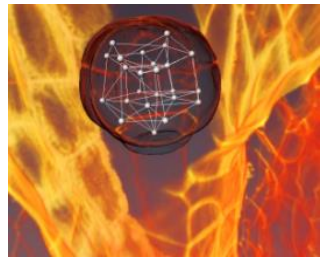
goals:

- interactive support for the classification of cell inheritance

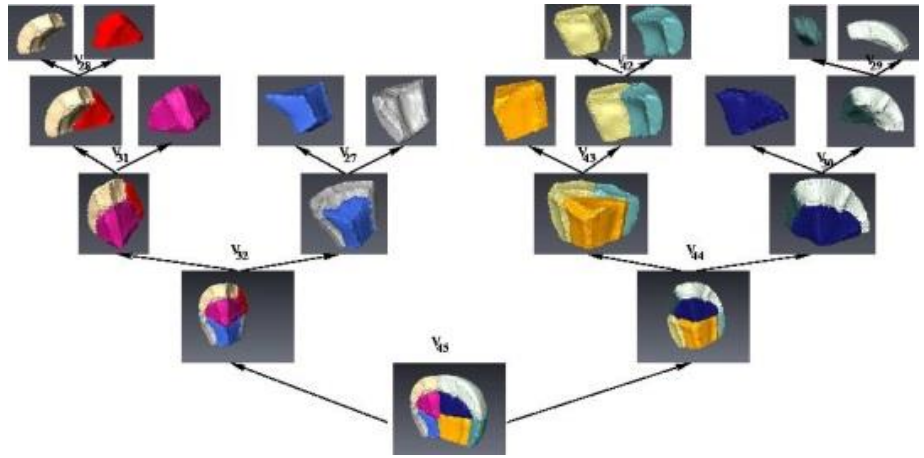








- support for researchers at INRA to investigate plant development
- implementation of prototype

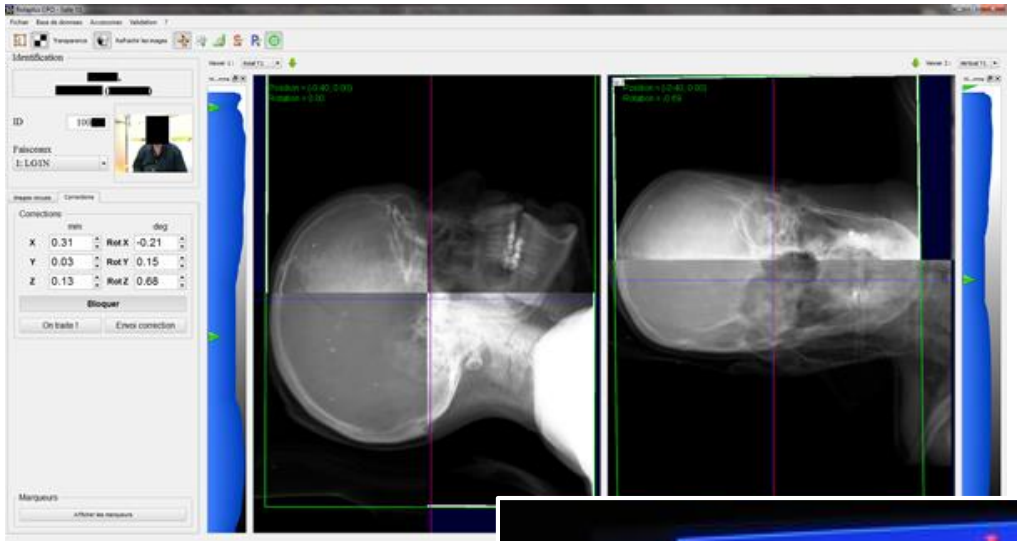


Inria informatics mathematics

Aviz Visual Analytics Project

Interactive 3D Data Registration for Proton Therapy w/ Touch Interfaces (Tobias Isenberg w/ Michel Auger, Institut Curie)

- proton therapy
- 3D interaction
- touch-based input



goals:

- speed improvement of patient placement interaction
- use of touch-based interfaces for 3D visualization
- investigation of touch trade-offs

informatics mathematics

Aviz Visual Analytics Project

Interactive Illustrative Map Visualization

(Tobias Isenberg)

- map data (+ historic maps)
- illustrative visualization
- Web-based implementation based on live OSM data

goals:

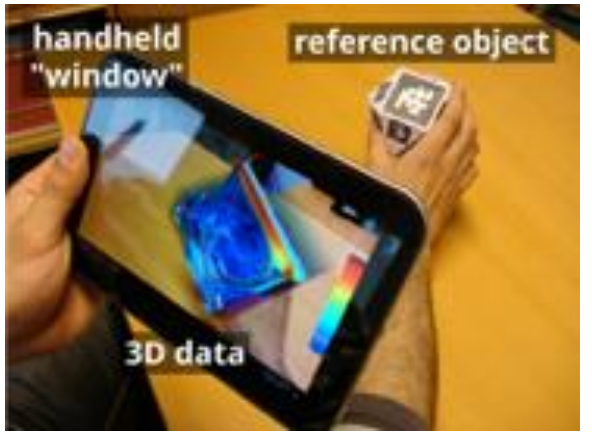
- advanced element stylization
- advanced interaction elements
- investigation of scale levels
- different (historic) map styles?

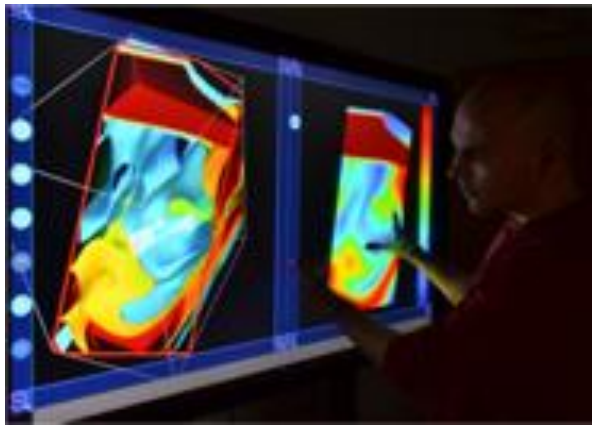
Tangible Interaction for 3D Flow Data Visualization

(Lonni Basançon and Tobias Isenberg)

- tangible interaction
- scientific visualization

- goals:
  - C/C++ implementation
  - development of new devices
  - investigation of interaction techniques
  - integration of these techniques into an existing framework
  - evaluation





Testing Visualizations in a Browser

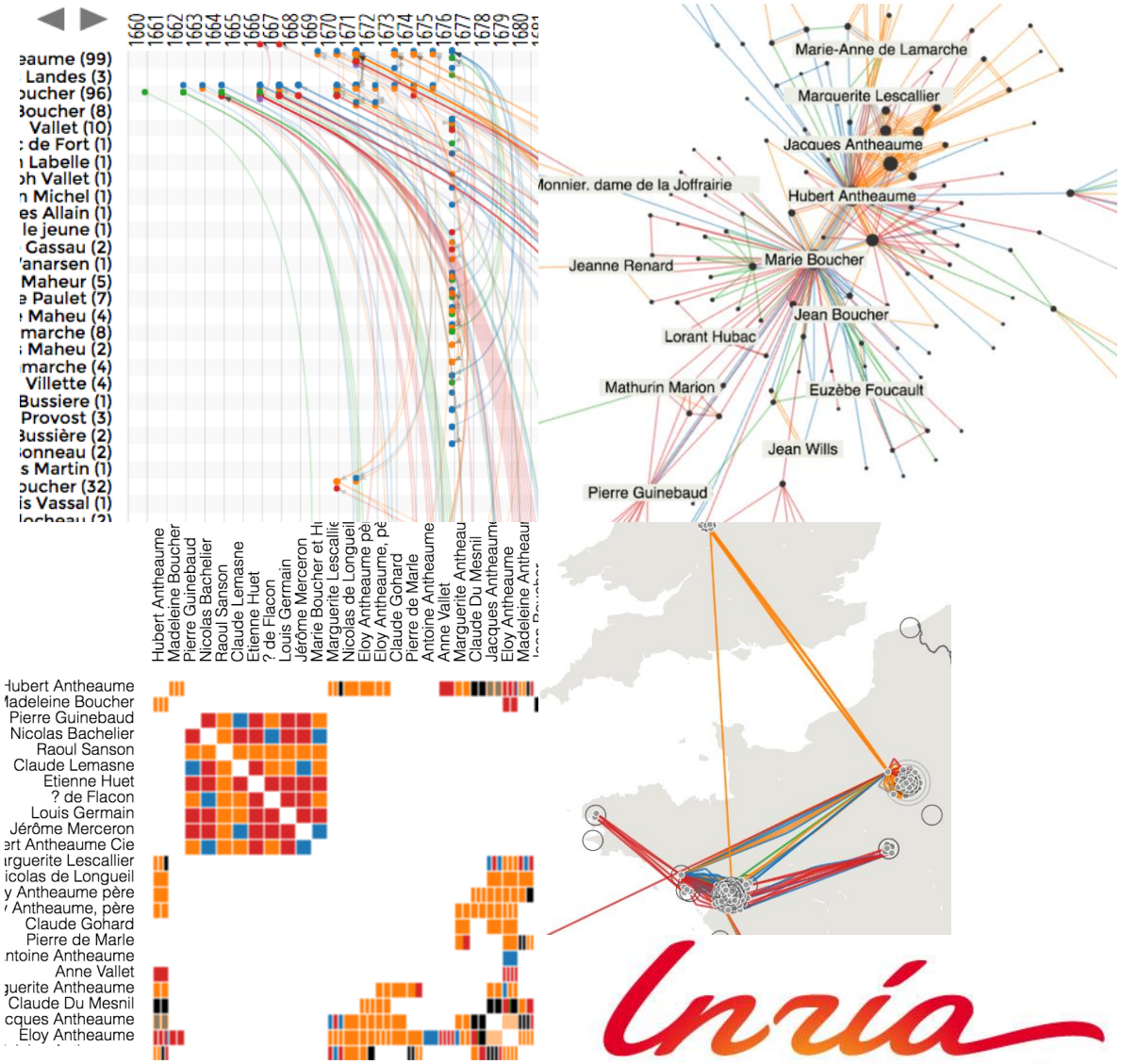
Advisor: Jean-Daniel Fekete, www.aviz.fr/~fekete

Visualizations are popular on the Web

- Developing them is hard
- Automatic testing is currently impossible to do with graphics and interaction

Goals of the internship:

- Explore solutions to test visualizations automatically
- Implement a set of tests, and
- Apply them to a Web site we develop with Microsoft Research and Univ. of Edinburgh



Aviz
Visual Analytics Project

Inria
INVENTEURS DU MONDE NUMÉRIQUE

Testing Visualizations

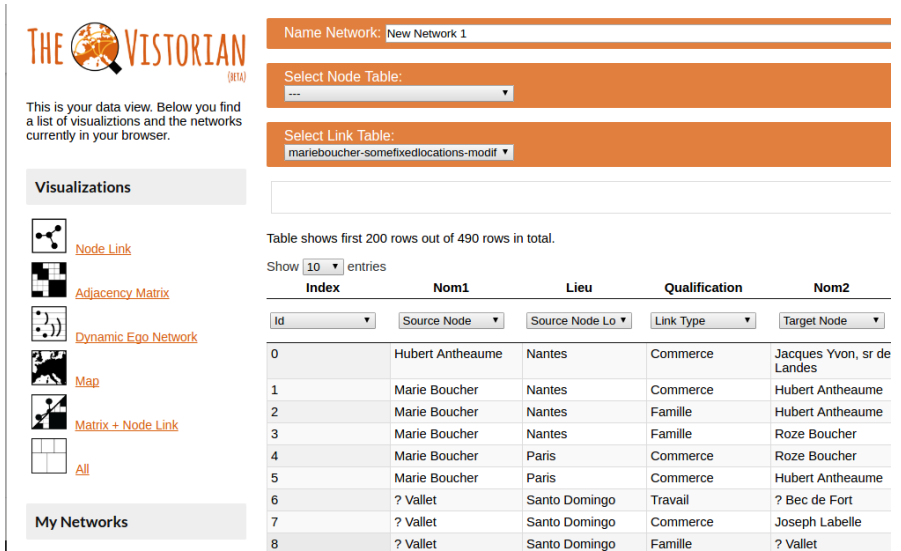
```
require("science");
require("../reorder.v1");

var vows = require("vows"),
    assert = require("assert");

var suite = vows.describe("reorder.graph");

suite.addBatch({
    "graph": {
                "simple": function() {
                    var nodes = [{id: 0}, {id: 1}, {id: 2}],
                        links = [{source: 0, target: 1}, {source:1, target: 2}];
                    var graph = reorder.graph(nodes, links)
                                .init();
                    assert.equal(graph.nodes().length, 3);
                    assert.equal(graph.links().length, 2);
                    assert.deepEqual(graph.edges(0), [links[0]]);
                    assert.deepEqual(graph.neighbors(0), [nodes[1]]);
                    assert.deepEqual(graph.neighbors(1), [nodes[0], nodes[2]]);
                    assert.deepEqual(graph.neighbors(2), [nodes[1]]);
                }
    }
});
```

- What to test here?
  - Presence of widgets and graphics?
  - Setting values?
- Use [nightwatch.js]

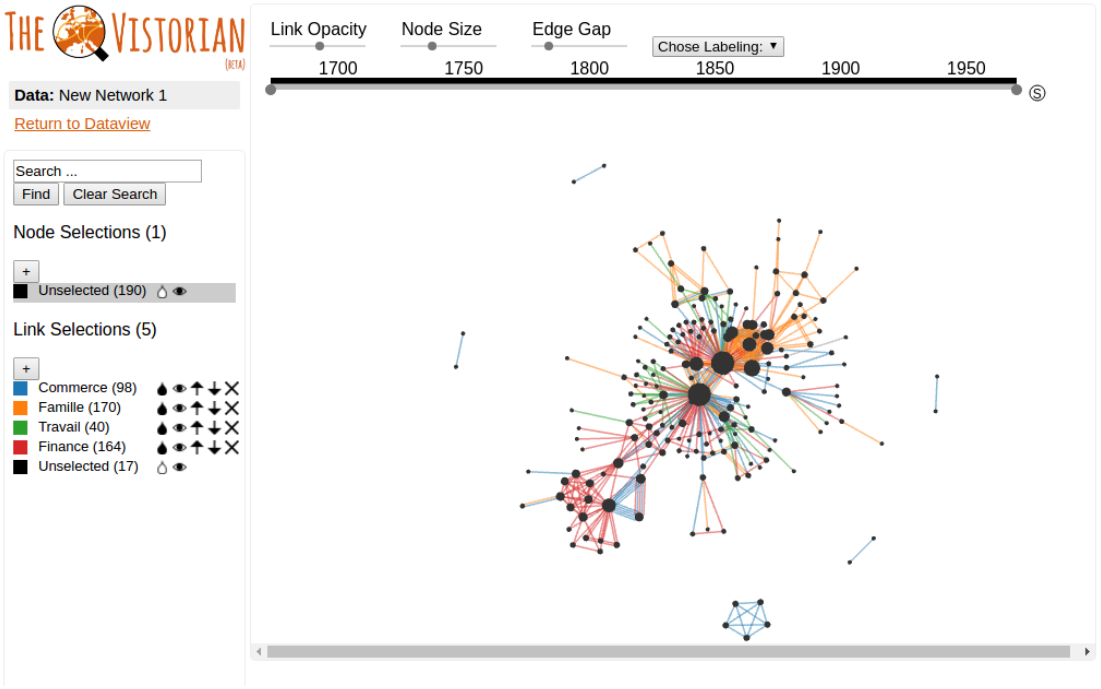


Aviz
Visual Analytics Project

Example test for Google request

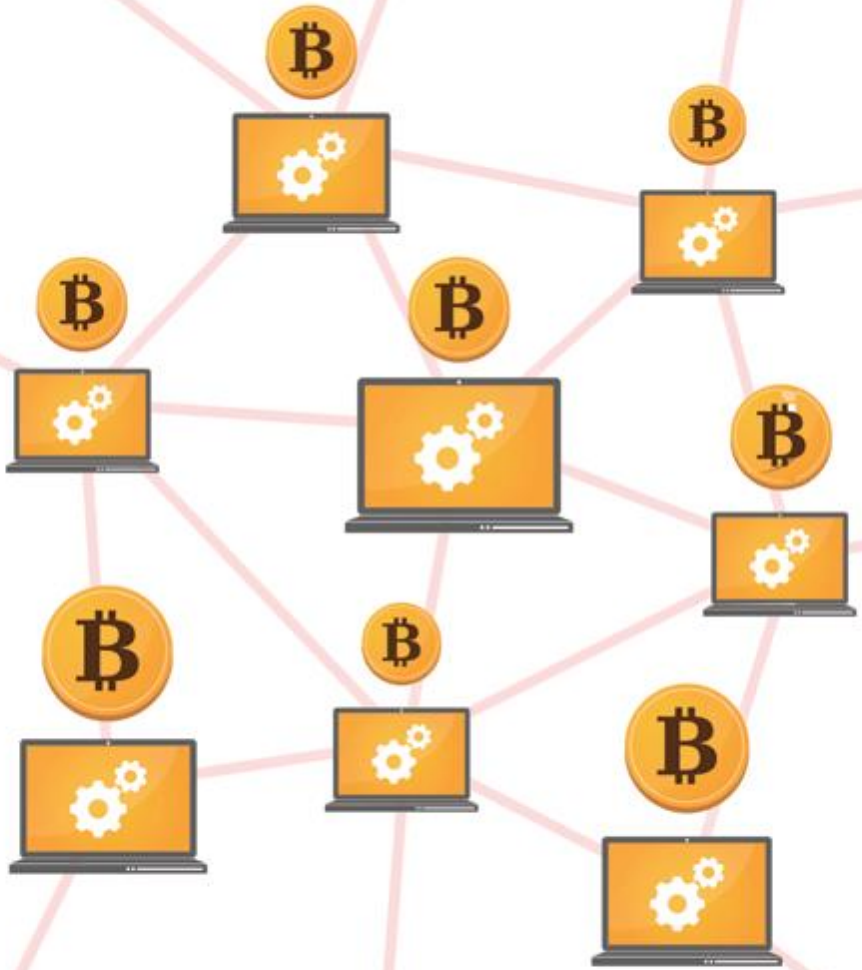
```
module.exports = {
  'Demo test Google' :
  function (client) {
  client
   .url('http://www.google.com')
   .waitForElementVisible('body', 1000)
   .assert.title('Google')
   .assert.visible('input[type=text]')
   .setValue('input[type=text]',
             'rembrandt van rijn')
   .waitForElementVisible('button[name=btnG]', 1000)
   .click('button[name=btnG]')
   .pause(1000)
   .assert.containsText('ol#rso li:first-child',
                        'Rembrandt - Wikipedia')
   .end();
 }};
```

- How to test hover, selection, drag, zoom?



Visual Analytics of Bitcoin Transactions

(Christoph Kinkeldey and Petra Isenberg)

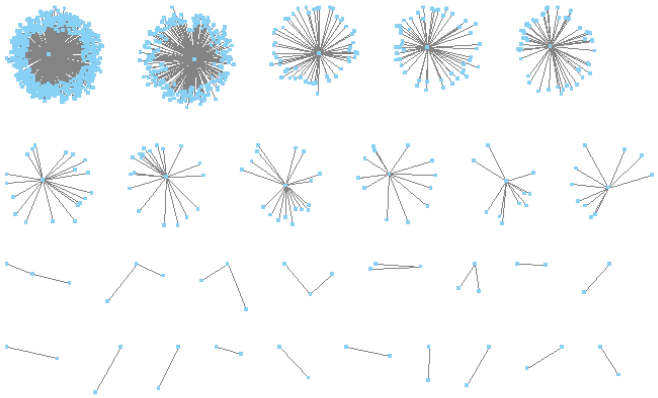


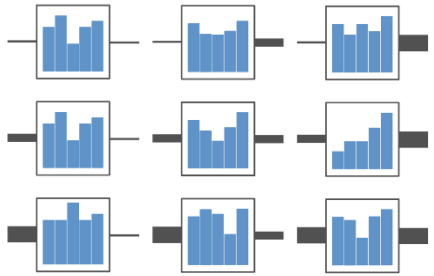
contact petra.isenberg@inria.fr

- Bitcoin:
  - Digital cryptocurrency
  - P2P, no banks or states involved
  - Still many open questions regarding its use

Visual Analytics of Bitcoin Transactions

(Christoph Kinkeldey and Petra Isenberg)



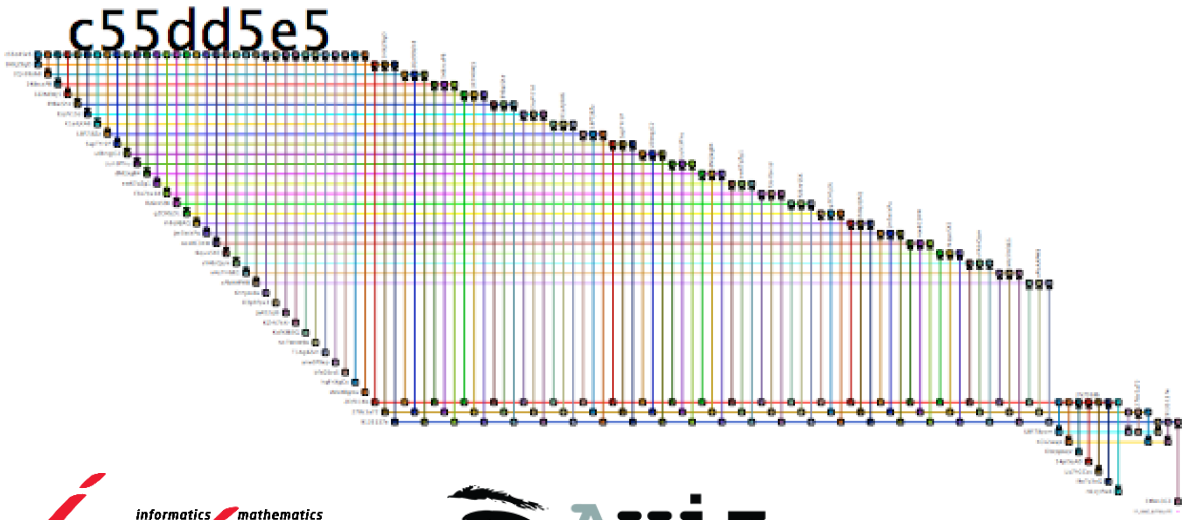


contact petra.isenberg@inria.fr

- topic areas:
  - financial data visualization
  - visual analytics
  - large data vis

goals:

- build a graph visualization tool to understand Bitcoin



informatics mathematics

Aviz Visual Analytics Project