Denis ELSIG

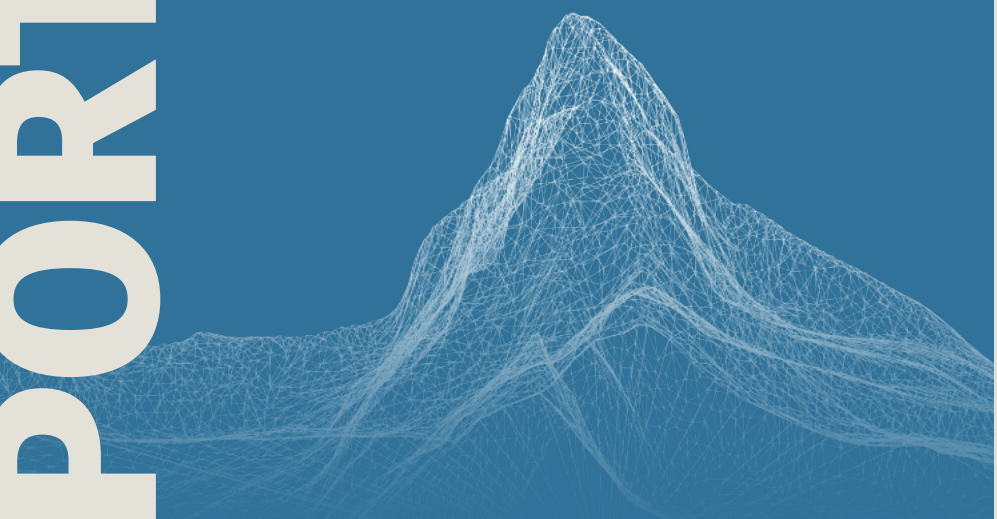
Software Engineering

Data Science

Corporate Publishing

PORTFOLIO

data ◆ model ◆ regression ◆ standard deviation ◆ neural network ◆ gpu ◆ dashboard ◆ tendancy ◆ normalization ◆ interactive plot ◆ missing data ◆ preparation ◆ correlation ◆ ggplot ◆ prediction ◆ perseverance ◆ choropleth ◆ text mining ◆ bayes ◆ observation ◆ machine learning ◆ statistics ◆ technical ◆ knowledge ◆ scipy ◆ computer science ◆ software engineering ◆ reproducible research ◆ open source ◆ gis ◆ web site ◆ r ◆ unit test ◆ gui ◆ public health ◆ python ◆ c/c++ ◆ .net ◆ c# ◆ linux ◆ privacy ◆ tidyverse ◆ engineering ◆ latex ◆ trading ◆ passion ◆ kpi ◆ agile ◆ hyper parameter ◆ big data ◆ cross platform ◆ scrum ◆ data preparation ◆ training set ◆ confidence interval ◆ no pie chart ◆ sponsors ◆ consulting ◆ database ◆ performance ◆ standards ◆ jazz



Selection **2021**

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Hello, I’m Denis !

Very nice to meet you.

Got data ? Documents to publish ?

FIRST OF ALL...

I will listen to your needs. Carefully.

I understand that your project is unique. Small or big, its success is essential.

Then I will ask you some questions. Maybe a lot.

A project has many ways to fail, no matter how simple it may be. Your needs must be thoroughly and quickly grasped. Sometimes, needs are difficult to express. Sometimes other solutions exist. We’ll find out what is best suited for your particular case.

Eventually, I will tell you what I can do. Or not. Honestly.

Sometimes, solutions are dead simple. Sometimes they are not. I’m good at what I’m doing, but I won’t pretend to be able to do what I’m not able to.

STRAIGHT TO THE POINT

The usual stuff. Condensed.

Denis Elsig, 45+ y.o.
Master of Science in Engineering
Bachelor in Computer Science, Business Systems
French, English
Email : info@synaptec.ch

WHY I MIGHT BE THE RIGHT PERSON FOR YOUR NEXT PROJECT.

Double profile : business and engineering.

My experience in business system development for institutions guarantees my understanding of:

- the importance of project management, budgetization, good communication, various KPIs, political decision processes, confidentiality, and team work;
- the business needs, the required user experience, as well as the need to express them in a way that implementation is straightforward;
- without adequate communication, no project can be realized.

Dissemination of knowledge.

As a former lecturer at the Western University of Applied Sciences in Switzerland, I acquired the adequate skills to communicate complex topics in science and engineering.

Are you in ?

Read on to discover what you can get from me.

DATA SCIENCE

Got numbers ? Data ?

Let's make them **talk**. The hard way!

... or how to turn your data into information.

How ?

Using data science and project management best practices.

Approach ?

- Precisely define the project perimeter (features, resources, timeframe).
- Clearly define the question you want an answer for.
- Explicitly identify the target audience.
- Communicate. As much as possible.

Required steps ?

Data preparation, involving cleaning, normalization, dealing with missing data, and so on...

What kind of analysis ?

- Descriptive analysis (summaries, tendancies, variability, regressions...)
- Exploratory analysis (finding relationships and connections, correlations, ...)
- Inferential analysis (population estimation based on samples, modelling, ...)
- Predictive analysis (based on historical data, modelling...)
- Machine learning / AI (can be used for prediction, sentiment analysis...)

Possible outcomes ?

- Reports (full-fledged PDFs, ready for publication).
- Dashboards (static or interactive).
- Online documents (reproducible research, interactive, with plots, and ability for the user to export the data or the plots).
- Data processing automation.
- Recommendations (points for future improvements, ie data governance).

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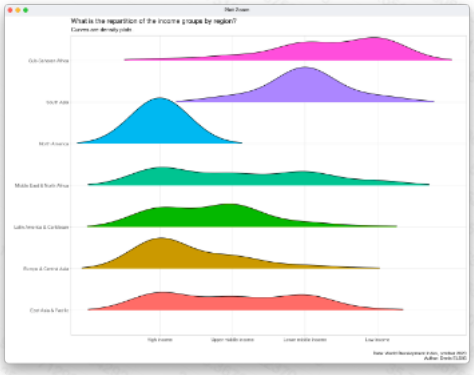
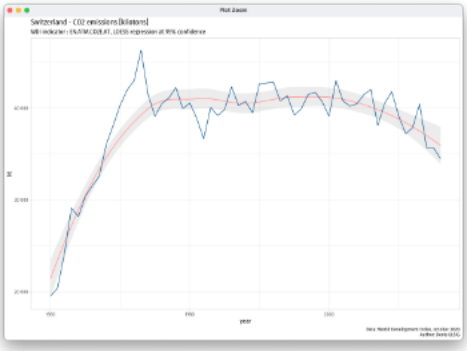
How to communicate complex data precisely and appropriately ?

DATA VISUALIZATION

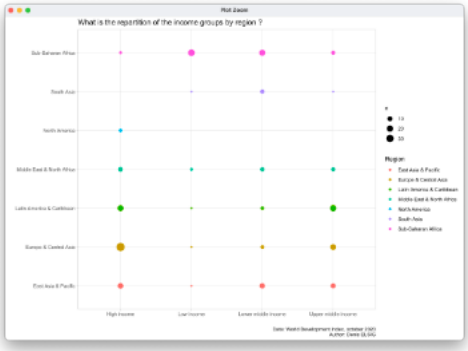
Time series. Rich plot showing financial data augmented with moving averages and signals. It is the result of a simple MACROSS simulation where the vertical bars indicate when to buy or sell a stock. This plot also highlight the need to tune the strategy.



Ridges plot. Instead of using a bar plot, this ridges plot shows the density of categories allowing an immediate and clear visual comparison. The data comes from the World Bank and contains the income level for each country. The data is aggregated by region.



Historical data, with a **regression** and a **confidence interval** to establish and forecast a trend.



A different way to show repartition by categories, allowing a visual comparison.

Interactive dashboards are powerful because they summarize data, and update the plots while responding to interactions from the users. Perfect for monitoring KPIs. They are small applications, usually web-based, created to answer specific and recurring questions.

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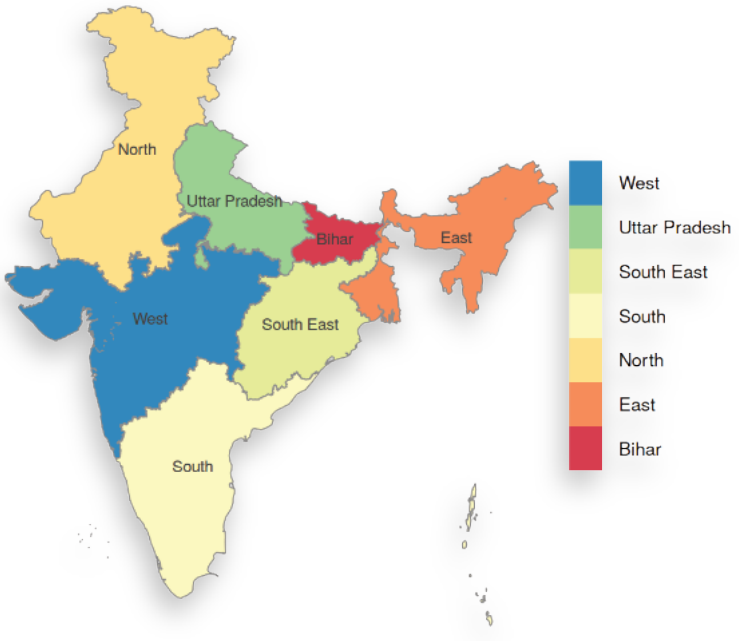
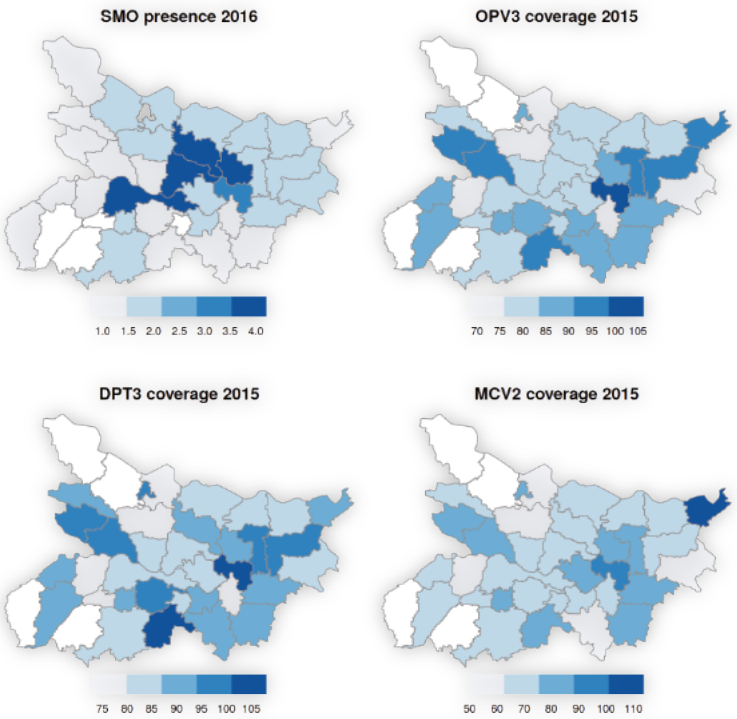
GEOGRAPHIC INFORMATION SYSTEM (GIS)

Simple map visualization

This is a simple geographical map showing the main administrative regions of India. From a data scientist perspective, it's special kind of plot.





Multiple facets

Here is a focus on the Bihar region, still in India. The plot contains 4 distinct maps, each with a more precise administrative level, showing where health personel is located and 3 vaccines coverage. This is a powerful plot allowing to quickly grasp an overview of a complex situation regarding more than 100'000'000 inhabitants. The data shown here comes from the World Health Organization.

« Don’t force it... get a bigger hammer. »

Arthur Bloch

ENGINEERING TOOLSET

OPEN SOURCE IS THE KEY FOR SUSTAINABLE DEVELOPMENT

///// Data science

R and **Rstudio** are my tools of choice for everything related to data science, with the latest and greatest from the **Tidyverse**.

Heavy computational tasks are accelerated using **parallelization** techniques. **C/C++** is also used when maximum performance is critical.

///// Machine learning - AI

Python and **SciPy** form the basic toolset with **PyCharm**.

Keras is my favorite to build neural networks.

When the data is large, **GPU computing** is leveraged.

///// Desktop applications, special tasks

C# and **Avalonia** are used to program cross-platform applications with **Rider**.

Sometimes, an intermediate language like C# provides much better performance for special cases.

///// Other platforms

MacOS and **Linux** as operating systems.

PostgreSQL as database server.

GitHub for source code management.

Hugo for static websites.

CORPORATE PUBLISHING

Got documents to publish ?

I can help to create **efficient** page layouts!

... matching your publication standards.

From raw texts to publication-ready documents

Clean page layouts and clear presentation of graphical charts, conforming to the full publication guidelines of your organization.

Infographics

Efficient communication requires clear and synoptic visuals.

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LANGUAGES : NO BARRIER

All UN official languages

Support for the 6 languages : Arabic, Chinese, English, French, Russian and Spanish.

I speak **English**, **French**, and a little bit of German.

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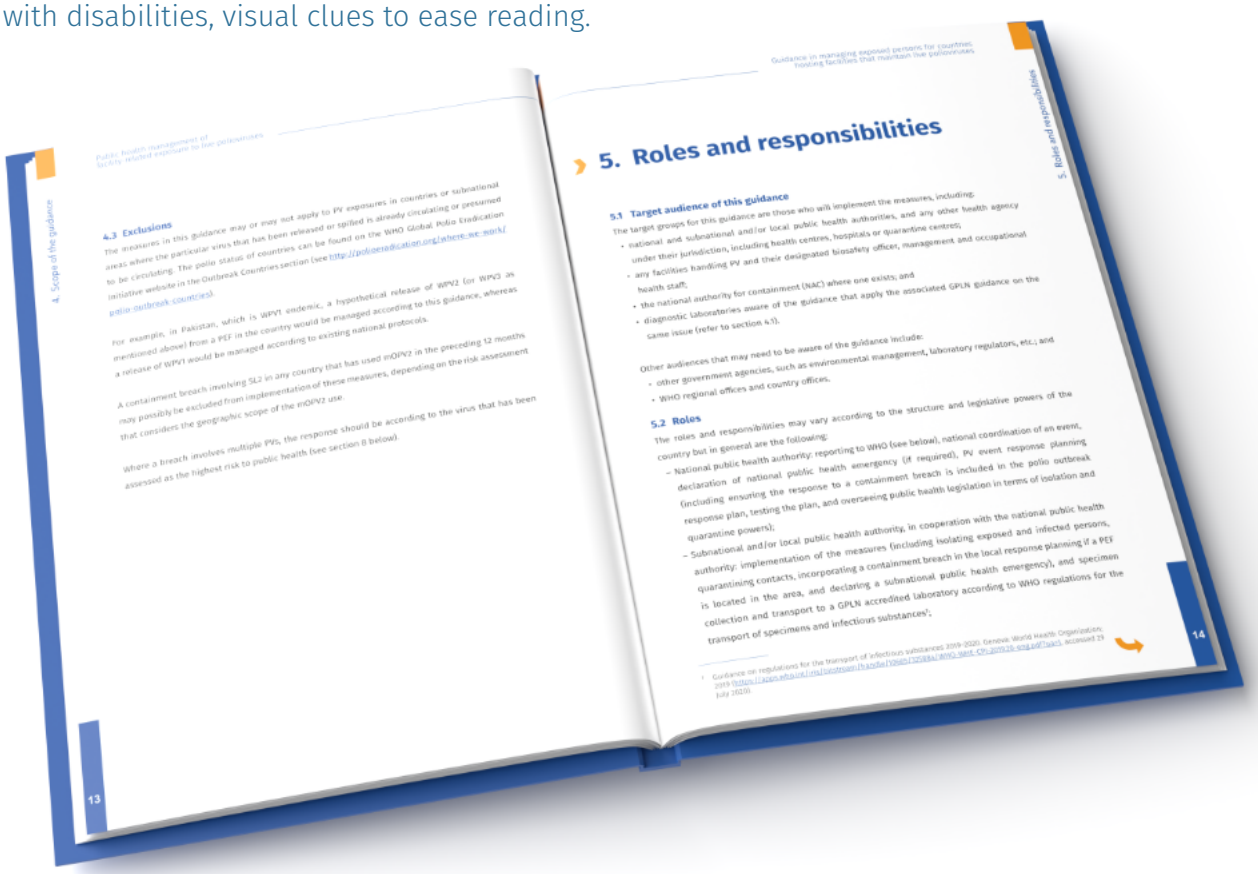
REFERENCE DOCUMENTATION

Professional look

Classical and modern designs that blend with your existing library.

Clean typography

Modern fonts, special care for letter and line spacing favoring people with disabilities, visual clues to ease reading.



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Be dynamic with **automation** !

Flexible generation of hundreds

of personalized and periodical reports

in no time from complex data.

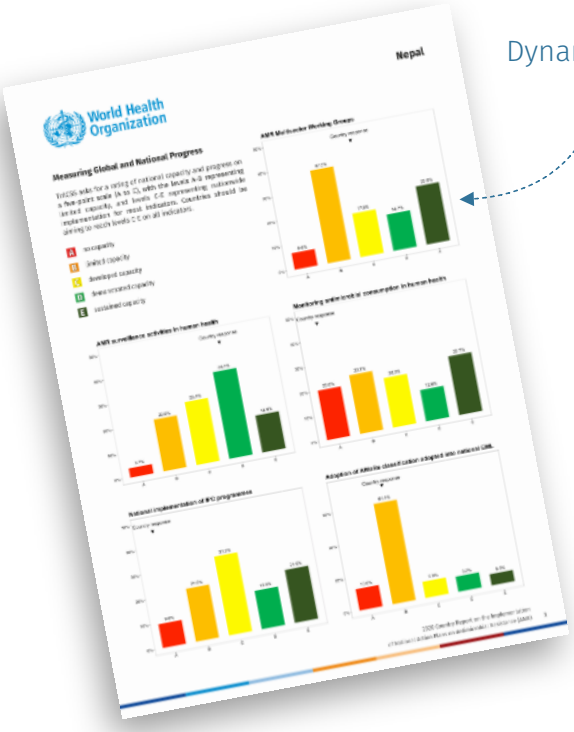
TECHNICAL REPORTS

Dynamic images.

Dynamic tables.

Dynamic rich fields.

Dynamic plots.



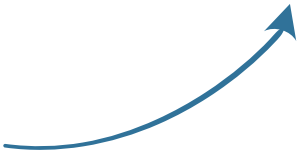
Dynamic text.

- Data can been programmatically structured, cleaned and augmented with other sources.
- Unlimited plots can be automatically generated.
- Unlimited bitmap and vector images can be programatically processed.
- Deliverable documents in publication ready quality !

Thank you for your time, I appreciate it.

So... Got data ? Documents to publish ?

Drop me a line !



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Discover more !