



SMARTER SOLUTIONS

Bioinformatics, Biostatistics and Chemometrics

DA  SOL

DATA ANALYSIS SOLUTIONS

Advanced multivariate Bioinformatics, Biostatistics
and Chemometrics

SMARTER SOLUTIONS

There is an ample supply of valuable, complex data. – But do you make the most of it?

Smart, advanced data analysis is the key for harvesting the full potential of your data!



YOUR BEST INVESTMENT

Technology, measurements as well as samples are often very costly.

With technical means even small improvements in data quality require considerable efforts and investments. Rigorous study design or a tailored data analysis algorithm on the other hand can have a much bigger impact and bring about a quantum leap in result quality, ensuring that you earn the best return of your *whole* investment!

THE FALLACY OF CHEAP SOLUTIONS

Anybody can convert some incomprehensible raw data into another set of arbitrary numbers, i.e. produce a result of some sort.

But with little or no sign of evidence, these blindly produced results can be totally misleading and can render costly and perfectly fine experimental data worthless, leading any subsequent efforts astray. Crucial is not the ability to procure *some* results – but to ensure *reliable* results. Advanced data analysis requires substantial expertise and insight!

A CHAIN IS NO STRONGER THAN ITS WEAKEST LINK

Data analysis is usually integrated into a complex overall project - where it is generally true that the least performing part will crucially determine the overall performance.

Thus, the full potential of the overall project can only be realized by considering the big picture – what is behind the data and how the various project parts influence it. Only this allows focusing the effort where it will be most effective.

GIGO: GARBAGE IN - GARBAGE OUT

Any analysis can only be as good as the data it reflects!

Even the most sophisticated methods can only extract correct and valid information if it is properly represented in the data. Study design and quality control critically determine if this is the case. Implicitly or explicitly samples are selected to represent the desired information. They will completely determine the signal evaluated by any analysis algorithm. If not considered carefully, unwanted, misleading differences between samples or poor quality measurements can lead any subsequent analysis astray. Moreover – mistakes in the study design can usually not be corrected after the costly measurements have been performed.

FOR THOSE WHO KNOW HOW TO HAMMER, EVERYTHING LOOKS LIKE A NAIL

Every project is different. – There are always specific key aspects which make all the difference.

These can e.g. be within study design, quality control, preprocessing, handling of subgroups or the analysis algorithm itself. Only a careful problem analysis and an effective, tailored approach will harvest the full potential of your data.



MAKE THE MOST OF YOUR DATA!

PROJECTS

Medical Diagnostics, Drug Development,
PAT, Instrumental Analysis, R&D



You care about the science.

We support you in conducting your experiments most efficiently and provide you with the most comprehensive and reliable results from your data.

Based on your specific needs, Data Analysis Solutions can deliver all aspects of multivariate bioinformatics, biostatistics and chemometrics and thus support your projects from start to finish:

- **Study design**
- **Tailored quality control and data pre-processing**
- **Data Mining**
- **Statistical Analyses**
- **Classification**
- **Quantitative predictions (Regression)**
- **Data fusion**
- **Validation/regulatory approval**

SOLUTIONS

Tailored Algorithms
and Workflows



You have invested into novel measurement technology and approaches.

We make sure you get the most out of your data.

Effective data analysis is often a critical step for realizing the full potential of today's complex measurement systems. – Take advantage of their true performance by using an optimal, tailored approach! We analyze your specific task in-depth and suggest a smart, innovative solution surpassing your expectations.

- **Optimized workflows and SOPs**
- **Custom algorithms as part of your software**
- **Front-end, user-friendly software**
- **Literature methods**
- **Matlab programming**

CONSULTING

Your Expert in multivariate Bioinformatics,
Biostatistics and Chemometrics



You want to improve the value of your data.

We leverage your expertise and support you in realizing your most challenging ideas.

Get the big picture for:

- *Improvement of in-house workflows and procedures*
- *Identification and removal of critical bottlenecks*
- *Method and software selection*
- *Expert reports*
- *Independent assessment of third-party results*
- *Coaching*
- *Recruitment*

TRAINING

More than Textbook Knowledge –
Data Analysis Made Easy!



You want a seamless understanding and workable knowledge for making the most of your data.

We deliver proven expertise and effective education at your desired level.

From standard methods to latest research – our training is based on extensive experience from industrial practice as well as numerous courses provided internationally:

- *Study design for Omics- and Biomarker studies*
- *QbD/PAT: Whole process analysis*
- *Chemometrics*
- *Support Vector Machines*
- *Data Fusion*
- *Robust Data Analysis*
- *Pattern recognition*
- *Microarray analysis*

Courses typically range between half a day and three days. They are available in English and German.

EXAMPLES OF PREVIOUS PROJECTS

- **Whole process analysis for a blockbuster drug**
- **Fully automatic QC and analysis algorithm for a companion diagnostic device**
- **Prognostic microarray test for colorectal cancer using formalin-fixed paraffin-embedded tissue (FFPE)**
- **Quality control system for microarray measurements from FFPE samples**
- **Comprehensive microarray leukemia diagnostics**
- **First ante-mortem test for BSE based on infrared spectroscopy of serum**
- **Autonomous, microcontroller based image processing for a proteomics point-of-care device**
- **Polymer recognition system for a recycling pilot plant**

REFERENCES

"I have had the pleasure of working with Dr. von Frese on several projects, and can recommend him highly for his analytical skills and careful, thoughtful approach to problems."

David M. Rocke, Distinguished Professor of Biostatistics,
University of California, Davis, USA

"Dr. von Frese is a very knowledgeable and skilful expert in data-analysis and is especially concerned with understanding of the background of the data... I admire his ability to find creative solutions in the problems we discussed."

Prof. R.P.W Duin, Technical University of Delft,
The Netherlands

"An accomplished scientist who made an enormous contribution to the Bioinformatics at Almac Diagnostics as well as the company as a whole."

Vitali Proutski, Bioinformatics Manager,
Almac Diagnostics, UK

"With his great capacity for interdisciplinary understanding Dr. von Frese is able to contribute immensely to an entire project not just by skilful and innovative data analysis, but also by substantial contributions to a better study design and improved data quality. I always enjoy the seamless and effective communication and collaboration with him."

Prof. Axel Niendorf, Institute for Diagnostic
Histopathology and Cytology, Hamburg, Germany

COMPANY

Expertise in advanced Bioinformatics, Biostatistics and Chemometrics.



Data Analysis Solutions DA-SOL GmbH is a services and consulting company operating from the Munich area/

Germany. It is based on more than 14 years of expertise of its founder Dr. Jürgen von Frese in the area of multivariate bioinformatics, biostatistics and chemometrics as applied to industrial problems. He is proficient in a wide range of advanced data analysis methods as well as application areas and has developed numerous innovative algorithms.

PROFESSIONAL EXPERIENCE

1998 - 2004

Team leader Bioinformatics and Chemometrics at a technology transfer institute for chemical and biochemical sensor research, Münster/Germany.

2004 - 2006

Associate Professor in the chemometrics group of Prof. Rasmus Bro, Copenhagen/Denmark.

2006 - 2008

Principal Scientist Bioinformatics at Almac Diagnostics, Craigavon/UK.

2009

Founding of DA-SOL.

CONTACT

You have questions?

You want to discuss how we could be of help for your specific tasks?

We look forward to hearing from you!



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