



# **Structured Bioimage Analysis Training & Customized Computational Solutions**

**For Graduate Programs,  
Core Facilities, and Research Institutions**

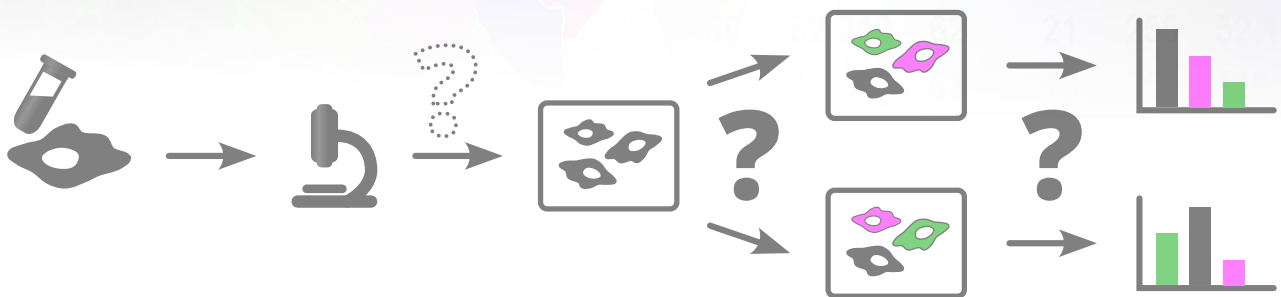
Since 2012, BioVoxxel is supporting academic institutions worldwide in the sustainable transfer of bioimage analysis expertise and the development of robust, reproducible analysis workflows.

# Why Bioimage Analysis Must Be Addressed Institutionally

Digital image data are a central component of modern biological research. At the same time, their correct processing, analysis, and presentation pose structural challenges for many institutions, core facilities and individual researchers.

Typical situations in graduate programs and research institutions include:

- ▶ highly heterogeneous skill levels among PhD students and postdocs
- ▶ person-dependent expertise without long-term continuity
- ▶ high analysis support workload in core facilities
- ▶ inconsistent or non-reproducible analysis workflows
- ▶ uncertainty regarding suitable image processing techniques
- ▶ variability in scientific practices for publication figure preparation
- ▶ non-standardized process automation and documentation



These challenges cannot be sustainably addressed through isolated or informal learning. Bioimage analysis must be understood as an **institutional infrastructure and teaching competence.**

# The BioVoxxel Concept

BioVoxxel follows a modular and scalable approach that integrates seamlessly to existing institutional structures.

## Three core pillars:

1

### Structured Training

Practice-oriented training formats that convey detailed methodological understanding of general concepts and safe application.

2

### Standardization

Uniform workflows, clearly defined best practices, and reproducible analysis approaches.

3

### Automation

Development of efficient, well-documented pipelines for recurring analysis tasks.

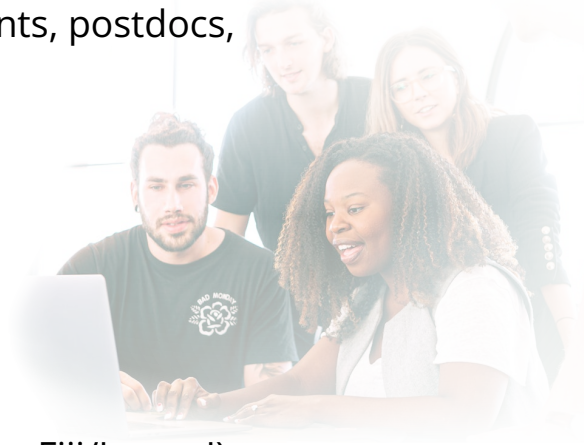
All offerings can be combined and introduced step by step.

# Training Formats

## Live Online Workshops (Group Formats)

Interactive, hands-on workshops for PhD students, postdocs, and research staff:

- ▶ Online, live, and practice-oriented
- ▶ Work with real example datasets
- ▶ Small groups (typically 12–15 participants)
- ▶ Certificate and course materials included
- ▶ Use of established open-source software (e.g., Fiji/ImageJ)



## Online Self-Learning Courses (On-Demand)

As a complement or alternative to live training.

- ▶ Time- and location-independent access
- ▶ Institutional licenses available for groups
- ▶ Particularly suitable for preparation or follow-up
- ▶ Sustainable knowledge retention across cohorts



### Workshop and course topics:

- ▶ Scientific Image Editing and Figure Creation
- ▶ Basic Microscopic Image Processing and Analysis
- ▶ ImageJ Macro Scripting for Automated Image Analysis
- ▶ Applied Machine Learning Tools in Advanced Image Analysis
- ▶ Scientific Illustration

# Service Formats

## Coaching & Consulting

Targeted support for specific challenges:

- ▶ Individual analysis support
- ▶ Optimization of existing workflows
- ▶ Support with scripting and automation
- ▶ 1:1 coaching or pair programming



## Custom Image Analysis & Software Development

Development of tailored solutions for institutional requirements:

- ▶ Image analysis consulting and design support
- ▶ Automated analysis pipeline development
- ▶ Customized ImageJ plugins, macros & scripts
- ▶ Handover, training and documentation

# Typical Use Cases



## New PhD Cohort

Introduction of a shared foundational workshop to align baseline knowledge.



## Sustainable Skill Development

Combination of live training and self-learning courses or 1:1 coaching for long-term knowledge retention.

## Workflow Optimization

Analysis of existing processes and development of new automated pipelines to reduce workload for researchers and core facilities.



## Experience & Credibility

- ▶ BioVoxxel has specialized in scientific image analysis since 2012.
- ▶ Provided image analysis education to over 6,000 researchers via 400+ workshops at 50+ research institutions.
- ▶ Collaboration with universities, graduate schools, research institutions and companies worldwide.
- ▶ Trainer with a PhD in molecular biology, a strong expertise in microscopy, image analysis, and programming, as well as a proven track record in image analysis software development.
- ▶ Focus on reproducible, sustainable solutions rather than short-term individual measures.

## Voices From Participants & Clients

"In my opinion, this course should be mandatory for all PhD students that work with biological image analysis."

"One of the best courses I had in my PhD curriculum. I wish I had done it earlier. It would have saved me so much time."

"We are deeply grateful to Dr. Jan Brocher; without his support, publication of our results would not have been possible at this scale and quality."

# Recommended Entry Point

## Pilot format (proven):

- ▶ One live online workshop with a clearly defined scope, e.g. publication figure creation or basic image analysis
- ▶ Optional supplementation with self-learning courses
- ▶ Low risk and fast, tangible results
- ▶ Low organizational burden due to online format

## Next step:

An informal 20-minute conversation to jointly clarify needs and requirements.

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