CASE STUDY

# How Wyss Center cut data transfer times from 4 hours to just 30 minutes

## Key results

87% less storage required

700% faster dataset transfers (from 4h to 30min)

Seamless collaboration across global teams

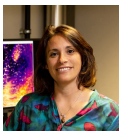
## The Challenge

The Wyss Center's Advanced Lightsheet Imaging Center (ALICe) is one of Europe's leading neuroimaging facilities, serving more than 150 users across multiple institutions. With advanced microscopy systems and cameras such as Teledyne Photometrics' Prime BSI Express, researchers capture highly detailed datasets that generate terabytes of data. Moving a single 2 TB dataset over a 1 Gbit/s connection took more than four hours. Limited storage, rising cloud costs, and fragmented access slowed collaboration and delayed experiments worldwide.

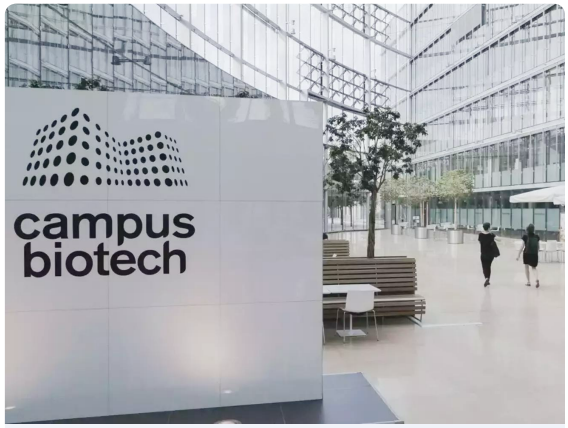
## The Outcome

With Jetraw integrated into the Wyss Center's imaging infrastructure, all data from advanced acquisition systems and cameras such as Teledyne Photometrics' Prime BSI Express is reduced in average by 87% in size and transferred 700% faster, while preserving the highest image quality. A 2 TB dataset now moves in just 30 minutes, enabling seamless global collaboration without workflow changes and accelerating research progress.

> "Transferring large datasets used to be a major bottleneck in our workflow. Jetraw enables us to significantly enhance the impact of our work by facilitating the rapid sharing of large datasets, supporting numerous collaborations worldwide.



— Dr. Laura Batti,
ALICe Facility Manager,
Wyss Center




**WYSS CENTER**

| | |
|---|---|
| Headquarters | Geneva, CH |
| Founded | 2014 |
| Facility users and multi-institutional access | 150+ |

Specialization:
Large tissue 3D scanning, whole brain imaging, human brain imaging, 3D transcriptomics, neuroanatomy of neuronal circuits

**INTERNATIONAL COLLABORATIONS AND PARTNERS**

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## Terabyte-scale imaging created bottlenecks for researchers

High-throughput imaging systems at Wyss generate over 100 TB of data annually. Among them, the Clearscope lightsheet microscope produces particularly demanding datasets, with single experiments often exceeding 2 TB. Transferring such datasets across a 1 Gbit/s connection could take over four hours, while storage limitations, cloud costs, and fragmented access slowed collaborations and delayed experiments.

## Faster data flow, without compromise on Teledyne's high image quality

Jetraw solution has been implemented across all lightsheet systems to support the efficient handling and sharing of large-scale imaging datasets. It compresses raw image data by up to ten times without compromising scientific quality. Acting as middleware between acquisition systems and storage infrastructure, it integrates seamlessly into workflows and enables instant decompression during processing.

On the ClearScope, optimized for high-resolution imaging of large and complex samples such as whole-organ and multi-region acquisitions of cleared human tissues, Jetraw preserves the uncompromised quality of Teledyne Photometrics' Prime BSI Express cameras for downstream visualization and analysis.

## Transfers that once took hours now finish in minutes

The Wyss Center achieved an 8:1 compression ratio, reducing storage needs by 87% and cutting dataset transfer times from four hours to just 30 minutes. Researchers can now share data seven times faster, enabling global teams to collaborate more effectively while reducing infrastructure costs.

## Global collaborations advance without infrastructure limits

Before Jetraw, transferring data across teams and systems was slow, costly, and unreliable. Today, datasets transfer smoothly between local storage systems, NAS, and cloud environments, with compressed files directly accessible in analysis tools. Improved data handling capacity allows Wyss Center to broaden access to its facility, strengthen international collaborations, and support new large-scale neuroscience projects at the forefront of research.

TELEDYNE
Teledyne Photometrics


**PRIME BSI EXPRESS SCMOS CAMERA**
Powering the Wyss Centre's MBF Bioscience's ClearScope instrument

**EXTREME THROUGHPUT**
Up to 399 megapixels/s and a 18.8 mm FOV

**HIGH SENSITIVITY**
95% QE with back-illuminated sCMOS sensor

**HIGH RESOLUTION**
Small pixels for crisp detail across the imaging plane

**SUPERIOR BACKGROUND QUALITY**
Advanced noise reduction ensures clean image

Learn more

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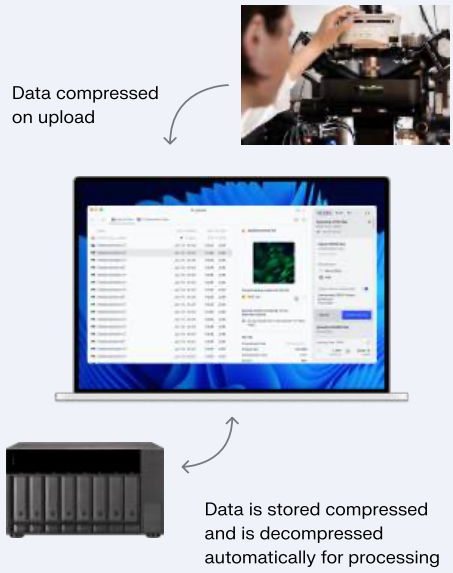
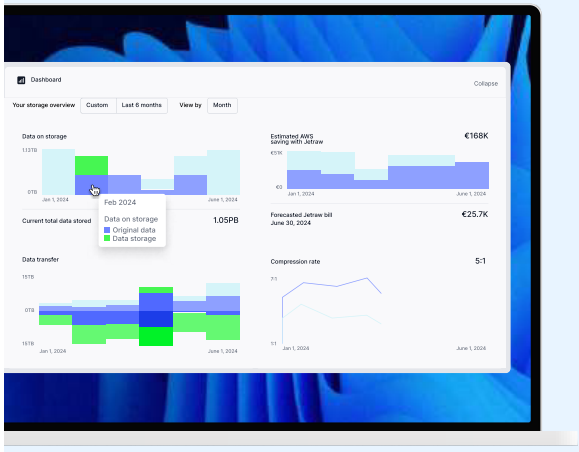
## About Jetraw – Built to manage large image data

Jetraw is an image data management solution that sits between your microscopes and your storage systems.

- Streamlines the entire workflow: from acquisition to storage
- Accelerates data transfers and sharing by an average factor of 7
- Reduces storage requirements by an average factor of 7
- Preserves raw image quality in a compliant and secure way

> Looking ahead, efficient data compression and management on systems like the ClearScope will be essential for high-throughput applications such as large-scale organoid imaging. By cutting storage demands and accelerating data transfer, Jetraw enables scalable workflows and unlocks screening strategies that were previously not feasible.
>
> — Dr. Laura Batti,
> ALICe Facility Manager,
> Wyss Center




**Experience faster transfers and fewer bottlenecks. All without changing how you work.**

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## Collaborations and Partners:

TELEDYNE Teledyne Photometrics · pco. · Viventis Microscopy · HAMAMATSU PHOTON IS OUR BUSINESS · UNITED NATIONS GLOBAL MARKETPLACE · UNIVERSITY OF ALBERTA · University of Pittsburgh · TECHNISCHE UNIVERSITÄT DRESDEN · ETH zürich · Wyss Center · EPFL · IMP · sanofi · HUBRECHT INSTITUTE · AI for Health ITU-WHO Focus Group · emva · QUAREP-LiMi

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