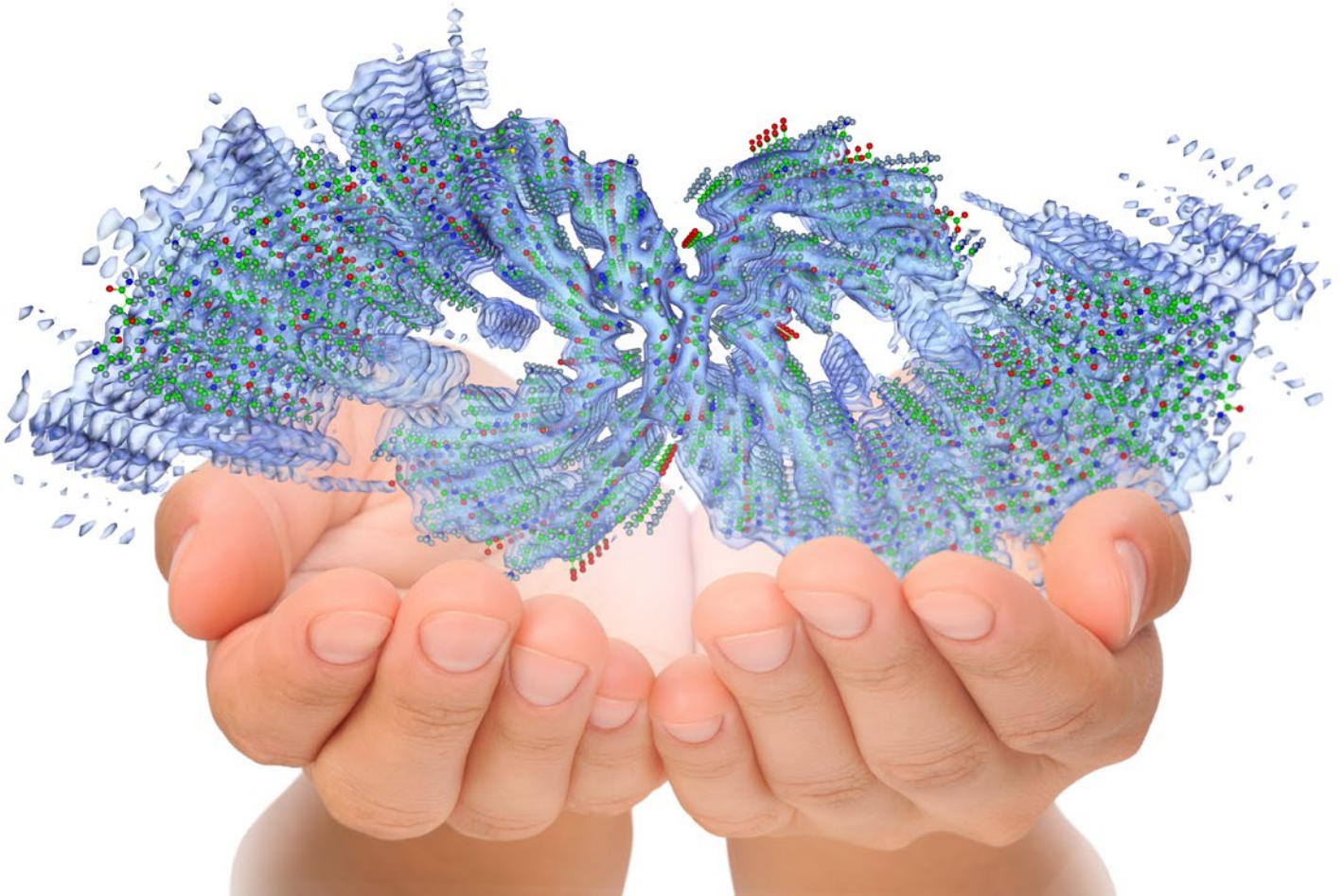


Amira Software for Life & Biomedical Sciences

Universal 2D–5D software for discovery workflows

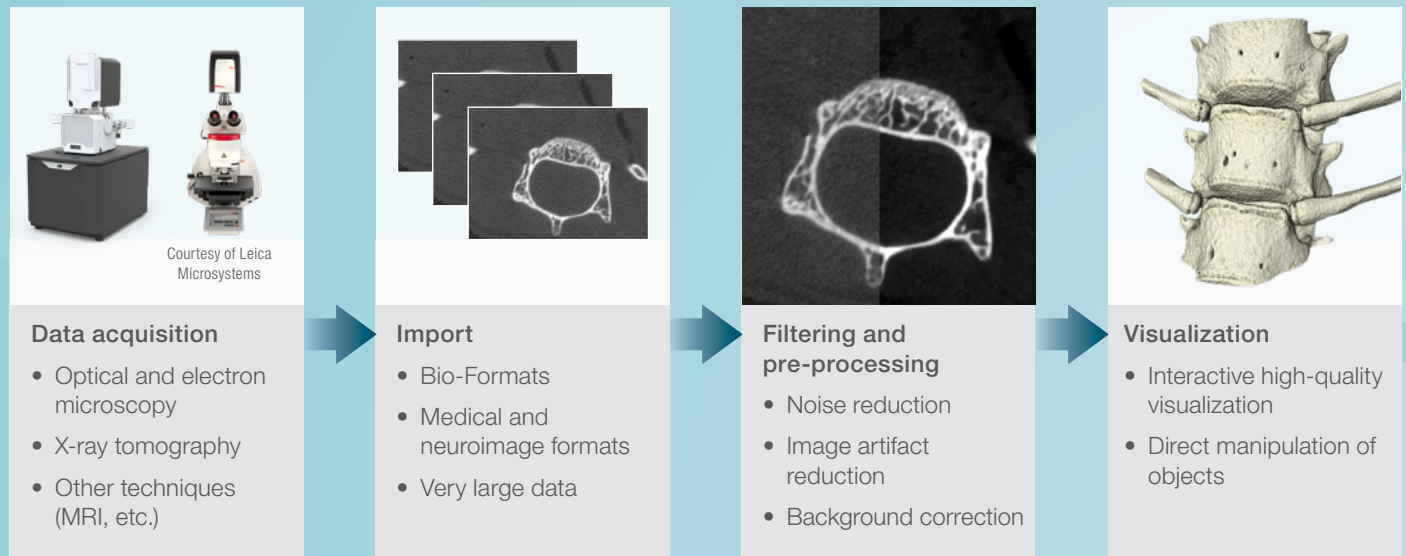
- Structural biology
- Cell biology
- Tissue biology
- Preclinical and clinical research
- Neuroscience and brain research
- Dental research
- Orthopedics and 3D printing



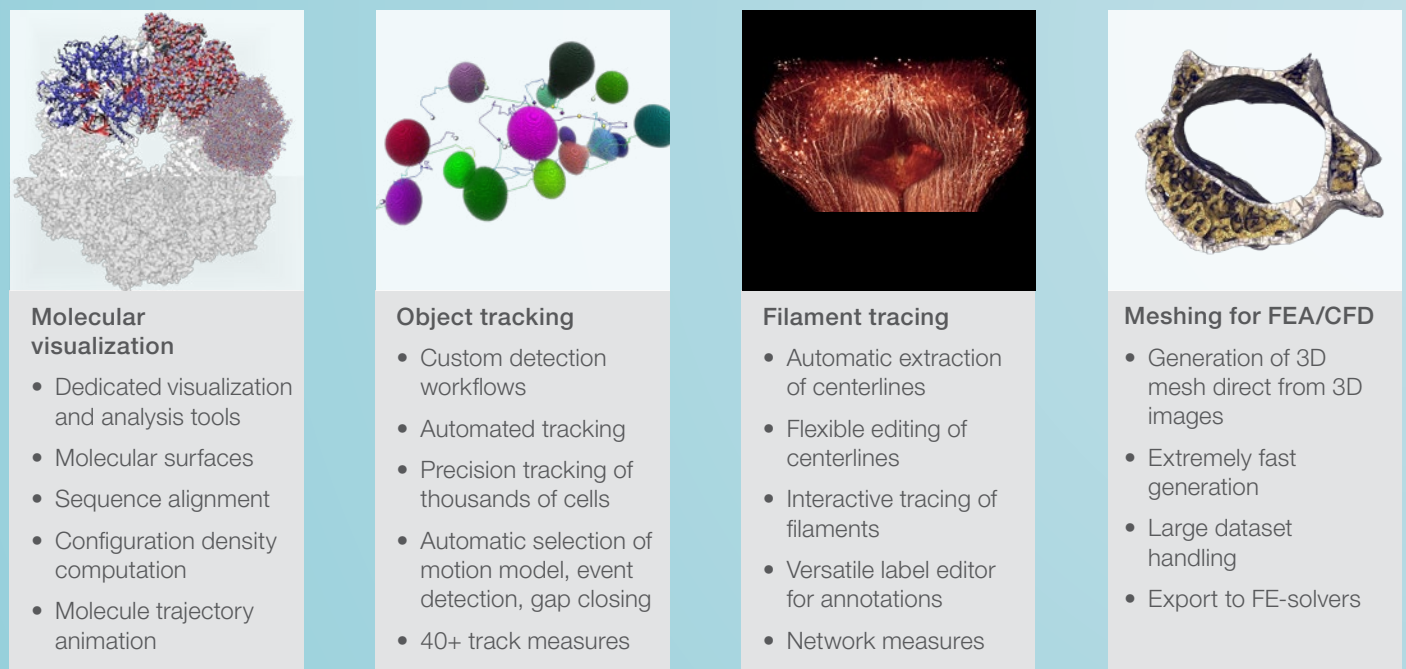
From sample to knowledge

From any 3D image data, including time series and multi-channel, Amira Software delivers a comprehensive range of data visualization, processing and analysis capabilities. Amira Software allows life science and biomedical researchers to gain invaluable insights into their data, at different scales and from any modality.

Digital workflow



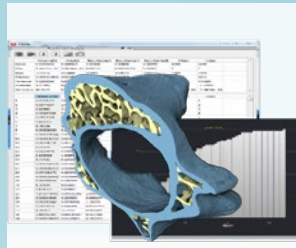
Specialized tools





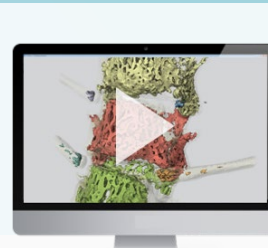
Segmentation

- State-of-the-art automatic segmentation algorithms
- Productive environment for supervised segmentation



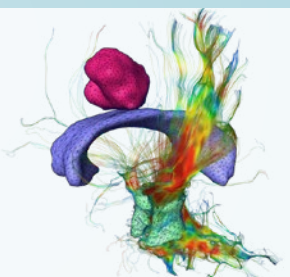
Measurement and analysis

- 200+ measures available
- Custom measures
- Statistics



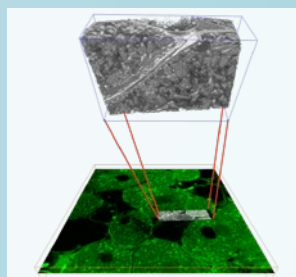
Presentation

- Snapshots and 3D videos
- Advanced presentation scenario
- 3D stereo devices



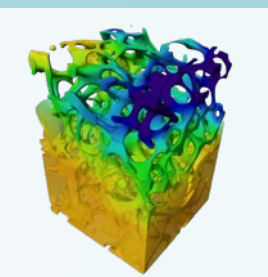
Diffusion tensor imaging

- MRI/DTI gradient imaging and fiber tracking workflow
- Motion artifact minimization
- Visualization options for grayscale images, tensor fields and fiber tracts



3D Registration

- Automatic
- Multimodal
- Multiscale



Biomaterials deformation analysis

- 3D visualization and quantification of deformation induced in biomaterials

Large Data Management

Automation

Customization

Amira Software for life & biomedical sciences

From imaging to understanding mechanisms of life, Amira Software supports entire discovery workflows. Process and visualize data from any imaging modality, at any scale, of any size. Perform routine and advanced analyses from a single, universal software application.

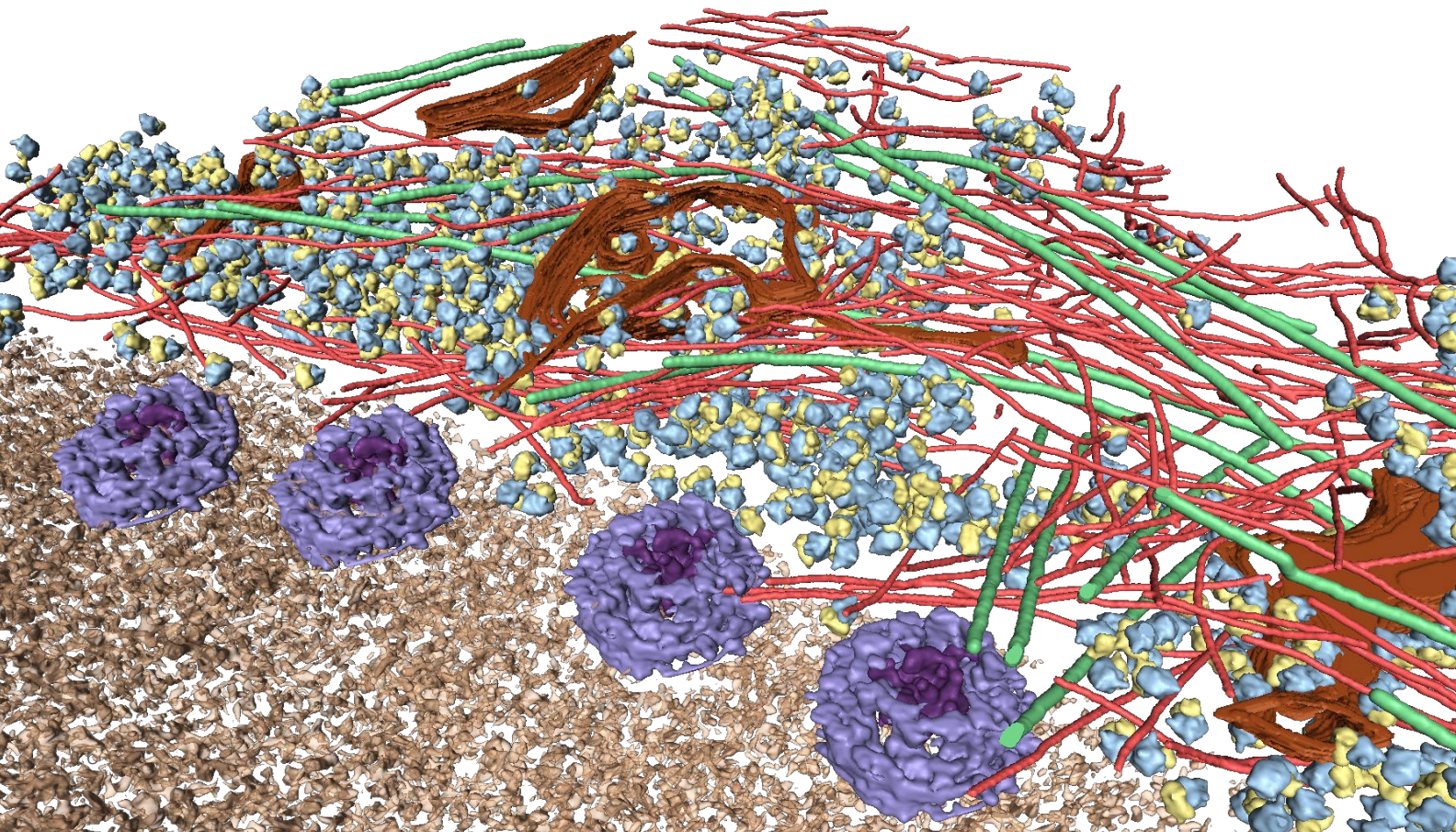
Structural biology

Structural biology researchers are able to obtain cellular structure insights with textbook quality, but they are still challenged by the sheer amount of particles, filaments and microtubules that require manual segmentation with traditional tools. Additionally, and unfortunately, visualization results can still appear fuzzy.

Amira Software reduces the labor effort to a minimum while improving visualization. How is this possible? By employing a fully automated workflow containing fewer parameters for filament and microtubule tracing.

In this workflow, template-matching tools automate filament and microtubule detection, while molecular-matching tools use mature registration algorithms to replace image data with models for improved visualization. As proof of efficacy, all components of the Amira Software structural biology workflow have been successfully applied in several research studies, with results appearing in multiple publications.

Visualization of the nuclear periphery of a HeLa cell revealed by cryo-electron tomography. Data courtesy of Dr. J. Mahamid, Department of Molecular Structural Biology, Max Planck Institute for Biochemistry, Martinsried, Germany.



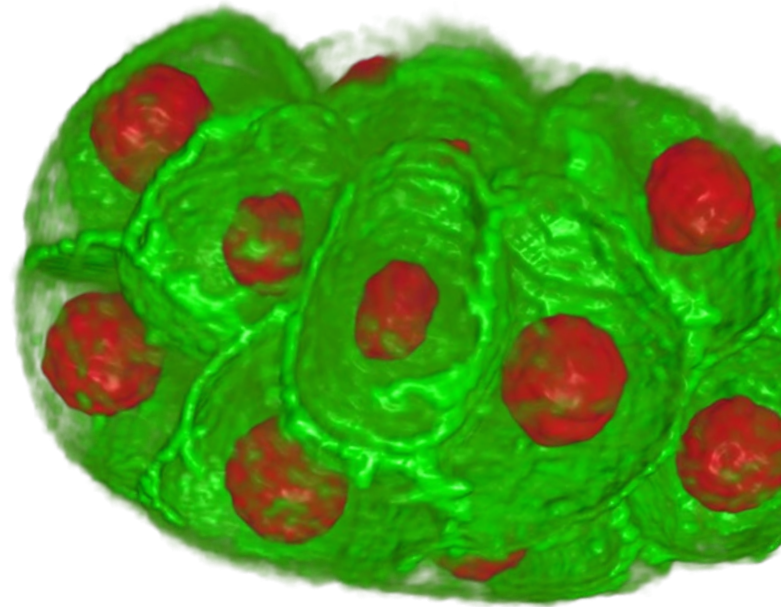
Learn more at thermofisher.com/amira-avizo

Cell biology

Researchers who study dynamic cellular and intracellular processes face the dual challenges of processing dynamically acquired data with hundreds of time steps and imaging thousands of objects to be detected and tracked.

Amira Software for Cell Biology offers a comprehensive toolbox of image processing methods that can be assembled into custom detection workflows. These workflows can then be automated and applied to large time series data. Subsequently, these objects can be tracked using fully automated methods powered by the academic standard, u-track 3D.

In addition, correlative studies can be conducted using inter-modality registration methods that allow freedom in workflow design. And the efficacy of these methods has been proven through an extensive array of applications spanning numerous fields in the life sciences.



C. Elegans cell and its nuclei. Images collected with TLS-SPIM, Liang Gao lab, Stony Brook University.

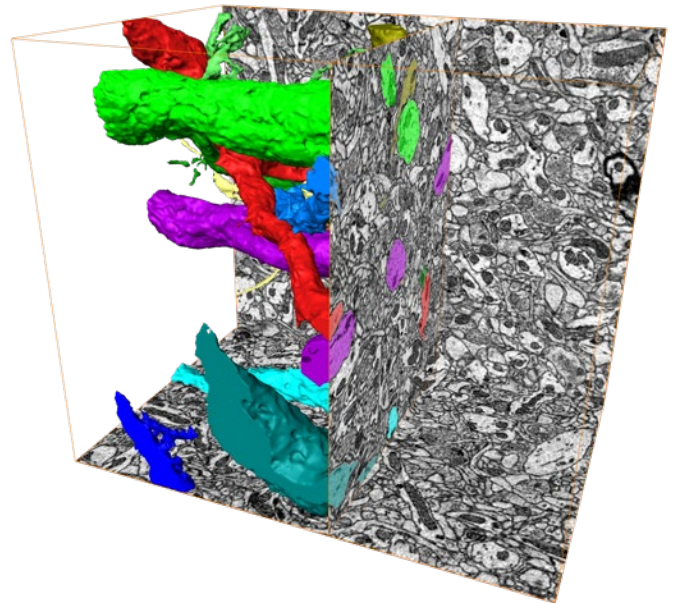
Tissue biology

Researchers who study the 3D architecture of cells and tissue in their natural context often face image data amounts that quickly surpass their system memory. Making matters worse, this data is often acquired over several days, or possibly weeks, without researchers even knowing if the data will prove usable. Then, ultimately, the usable data must be reconstructed into a 3D volume for further analysis.

Presenting a novel solution is the combination of the Thermo Scientific™ VolumeScope™ SEM and Amira Software. This hybrid large data management solution offers on-the-fly image quality monitoring during acquisition.

Additionally, interaction-free image reconstruction using our novel hybrid file format avoids data duplication while retaining the original TIFF data format, providing researchers full flexibility of image format choice.

This solution was developed completely in-house, bringing together the industry-leading VolumeScope SEM team with the image analysis and data handling experts from Amira Software to ensure an ease of use that avoids the majority of common pitfalls of large data handling in EM.



Volume reconstruction of a mouse brain acquired with combination of physical and optical sections in high-vacuum mode. Sample courtesy of P. Laserstein and P. Bastians, Helmstaedter Lab, MPI Brain Research, Germany.

Neuroscience and brain research

Neuroscientists who study brain functionality are often interested in neuronal connectivity inside the brain and spinal cord. However, to best understand how brain regions are structured and connected, these researchers sometimes must compile atlases of these regions and trace thousands of neurons in 3D image volumes.

To meet this challenge, Amira Software offers neuroscientists a multi-volume infrastructure that allows them to create brain atlases by averaging multiple image volumes. Additionally, Amira Software provides the tools needed to trace neurons in order to determine the connectivity between such regions. Plus, it includes full annotation capabilities. Used in many academic publications, Amira Software has been proving its worth to the neuroscience research community for nearly two decades.

Biomedical researchers who strive to improve their understanding of the human brain are often interested in the connectivity between different brain regions. The only option for observing this connectivity in living subjects, however, is through MRI/DTI gradient imaging and consecutive fiber tracking. Unfortunately, such workflows are often available only in the software that accompanies dedicated medical treatment devices, which are unaffordable for regular research.

Now, Amira Software offers the entire fiber tracking workflow in an independent, affordable, commercially supported research tool.



Volume rendering of cleared spinal cord imaged with 2-photon microscopy. Image is courtesy of Ali Ertürk, Max Planck Institute of Neurobiology.

This comprehensive solution also includes robust image registration tools for motion artifact minimization. It also provides a comprehensive library of visualization options for grayscale images, tensor fields and fiber tracts. Amira Software's robust implementation of well-accepted algorithms has empowered many researchers to move their human brain research forward.

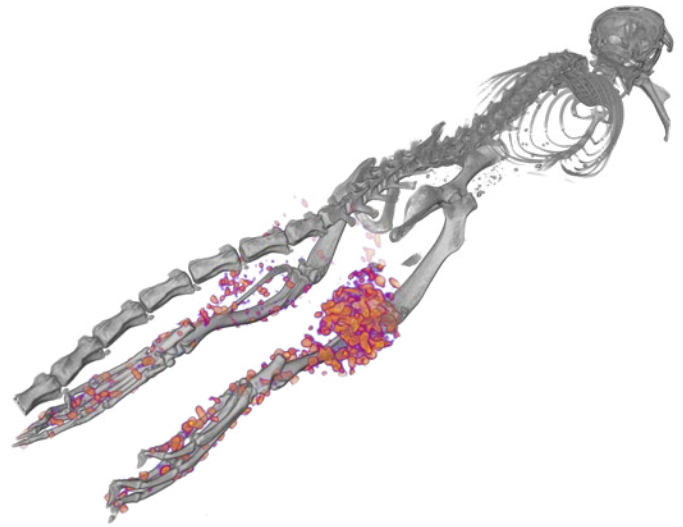
Dedicated to Thermo Scientific TEM, SEM, and DualBeam Systems, as well as Thermo Scientific correlative workflows, Amira Software for Thermo Scientific Systems edition has been developed to fit with Thermo Scientific systems data acquisition and specific workflows.



Preclinical and clinical research imaging

Pharmaceutical researchers performing in vivo drug testing or academic researchers studying animal models of human diseases can choose between numerous imaging modalities to augment their data collection. However, they often struggle with employing various vendor-specific image analysis tools to combine their data in a meaningful way.

Amira Software offers a flexible solution in a unified framework. Its multi-volume infrastructure is designed to perform image registration of as many modalities as desired and also perform correlative analysis at either single time points or longitudinal studies. This mature and highly efficient solution has been used by many researchers in both publications and routine high-throughput analysis work.



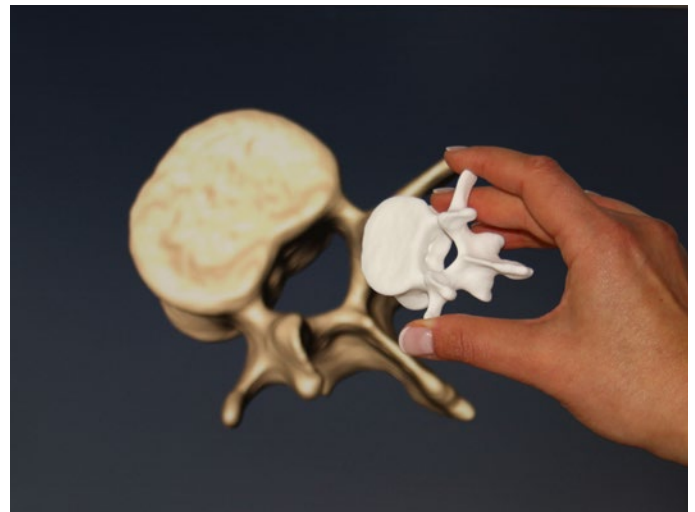
CT/SPECT data co-registration for drug distribution studies. Data courtesy of Dr. Nabil Boutagy of the Yale Translation Research Imaging Center.

Orthopedics, dentistry and 3D printing

Bioengineers have always wanted to be able to study a 3D life-size physical model of their structure of interest. This is particularly true when studying bones and bone types and their physical properties. However, segmentation, especially separation of bones into individual bones and bone types, can be excruciatingly time consuming, considering the many bones in the bodies of vertebrates.

Amira Software offers a solution to assist this manual, labor-intensive segmentation task with semi-automated, and in some cases, fully-automated, workflows.

Amira Software even includes workflows that have been created to enable automated segmentation of cortical versus trabecular bone. This segmentation framework comes with a solid pedigree, having been grown for nearly two decades, with continuous improvements. Additionally, Amira Software has proven its capabilities in many studies, including life-size 3D printing of physical models of various structures of interest.



3D print of vertebrae. Data courtesy of National Synchrotron Radiation Research Center, Taiwan.

Key features

Import and process image data

- Handle any modality, at any scale, of any size:
 - Bio-Formats
 - Bitmap formats
 - Microscopy: electron and optical
 - Medical and neuroimage formats
 - Molecular formats
 - Other acquisition devices (MRI, radiography, etc.)
 - Finite element modeling, geometric modeling, CAD
- Support for multi-data/multi-view, multi-channel, time series, very large data
- Scaling, calibration, conversion, re-sampling
- Image enhancement, comprehensive filtering and convolution, Fourier frequency transforms
- Artifact reduction algorithms
- Advanced multi-mode 2D/3D automatic registration
- Image stack alignment, arithmetic, correlation, fusion

Visualize and explore

- Interactive high-quality volume and multichannel visualization
- Orthogonal, oblique, cylindrical and curved slicing
- Contouring and iso-surface extraction
- Maximum Intensity or other types of projections
- Vector and tensor visualization
- Objects and tracks
- Molecular visualization

Segment

- Thresholding and auto-segmentation, object separation, automatic labeling
- Region growing, snakes, interpolation, wrapping, smoothing
- Morphological processing, including watershed and basins
- Machine Learning-based segmentation
- Automatic tracing of individual fibers and filaments
- Skeletonization and filament network extraction
- Interactive tools for generation or editing of segmentation and spatial graphs
- 3D surface reconstruction
- Grid generation for FEA/CFD

Analyze and quantify

- Intuitive recipe creation, customization, automated replay
- Built-in measurements, including counts, volumes, areas, perimeters, aspect ratios and orientations
- User-defined measures
- Results viewer with spreadsheet tool and charting
- Automatic individual feature measurements, 3D localization and spreadsheet selection
- Automated statistics, distribution graphs
- Feature filtering using any measurement criterion
- Data registration, deformation, comparison and measurements

Present

- Animation and video generation
- Advanced key frame and object animation
- Mix images, geometric models, measurements and simulations
- Annotations, measures legends, histograms and curve plots
- Export spreadsheets, 3D models, high-quality images
- Active and passive 3D stereo vision
- Single and tiled screen display
- Immersive environment

Access ecosystems

- Python scripting API
- Custom C++ modules development
- MATLAB™ bridge

Professional services

We offer a comprehensive set of professional services. From training to consulting or custom development, our professional services experts are dedicated to helping you maximize your productivity with Amira Software.

Training

Our custom training is designed to provide you with immediate and practical skills while keeping your specific goals in sight. We can help you quickly and effectively master all of Amira Software's capabilities through focused training.

Various courses can be arranged, with typical durations ranging from one to three days. We can customize our training to best fit your needs. The training can be arranged on-site at your location or may also be delivered at one of our facilities.

Consulting

Our experts will help you get the best out of the constant innovations introduced in Amira Software so you can benefit from them in your daily work.

We are your partner in creating solutions using Amira Software. Custom-made consulting sessions can be performed at your facilities or remotely, depending on your needs. Our consultants can help you analyze your specific tasks and workflows and leverage your knowledge and specific expertise to get them implemented in Amira Software.

Custom development

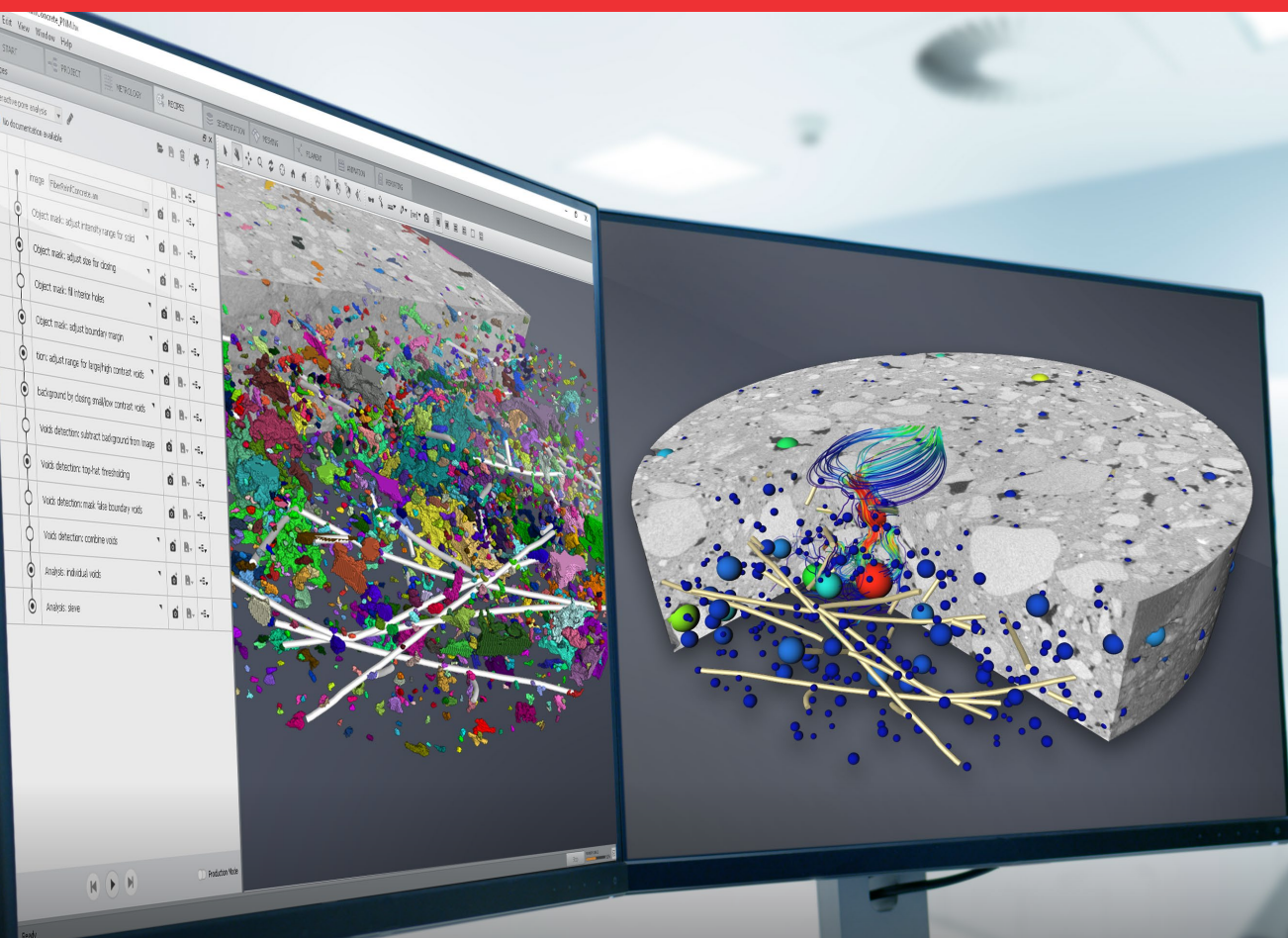
With 30 years of experience in 3D and image processing and hundreds of projects delivered to small and large organizations, we can provide you with a solution tailored to fit your specific needs.

We have the ability to customize and expand our software solutions at various levels, including, but not limited to:

- Building simple push-button solutions from entire workflows
- Integrating specific workflows
- Implementing our solutions into an existing process
- Creating support for custom file formats

Find out more at thermofisher.com/amira-avizo

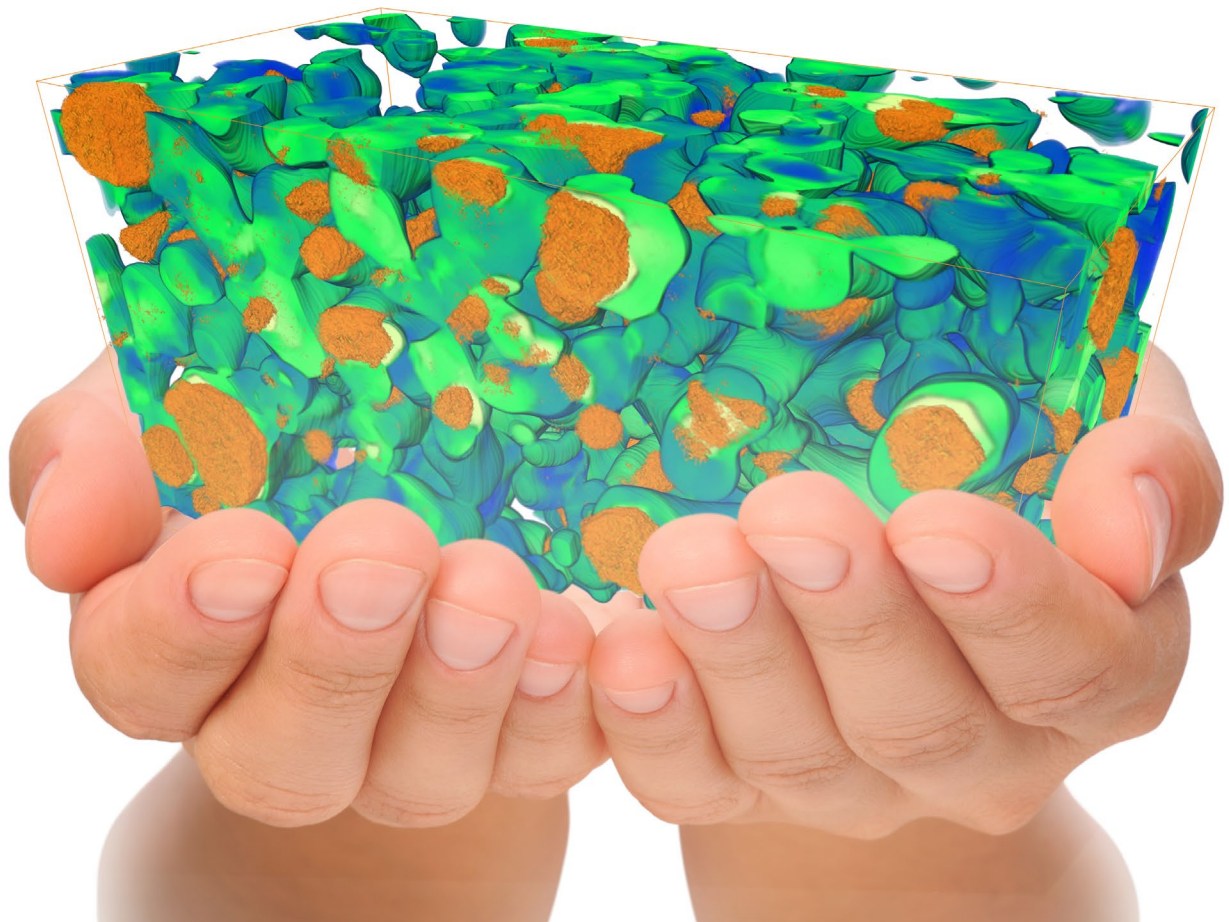
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Avizo Software for Materials Research

Materials characterization and quality control

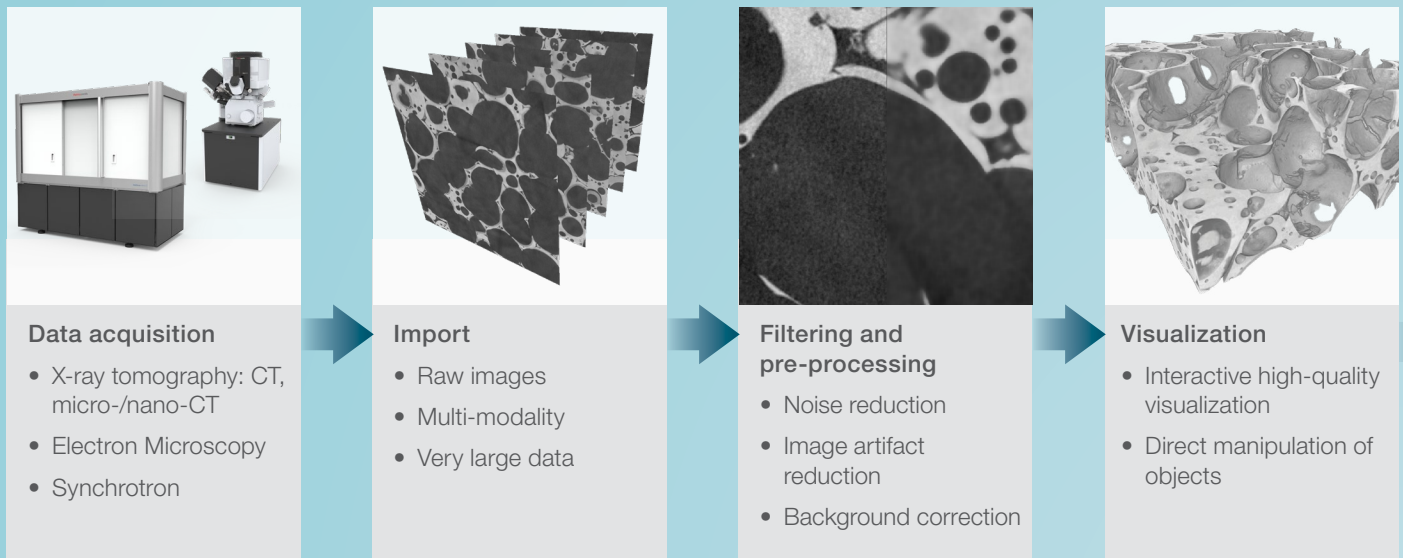
- Ceramics, glasses and porous media
- Metals, alloys and powders
- Composites, polymers and fibrous materials
- Biomaterials
- Batteries
- Additive manufacturing
- Semiconductors
- Food and agriculture



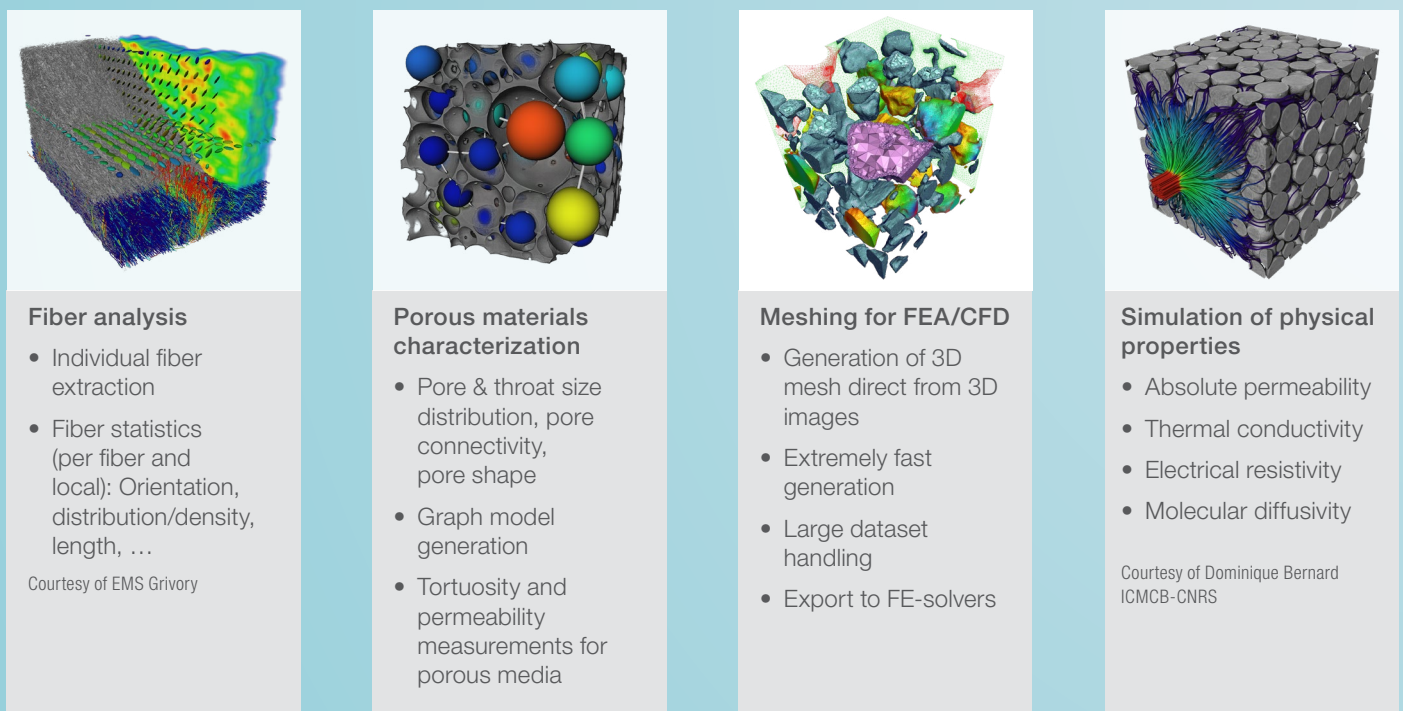
From sample to knowledge

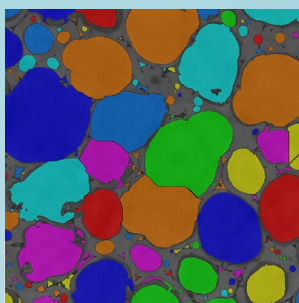
From straightforward visualization and measurement to advanced image processing, quantification, analysis and reporting, Avizo Software provides a comprehensive, multimodality digital lab for advanced 2D/3D materials characterization and quality control.

Digital workflow



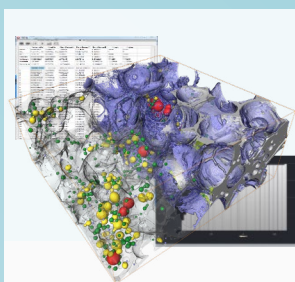
Specialized tools





Segmentation

- Automatic and supervised segmentation algorithms



Measurement and analysis

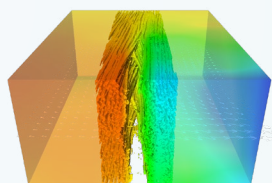
- 200+ measures available
- Custom measures
- Statistics



Courtesy of Zellwerk GmbH

Presentation

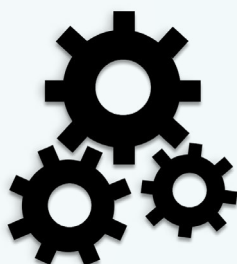
- Snapshots and 3D videos
- Advanced presentation scenario
- 3D stereo devices



Materials deformation analysis

- 3D internal displacement and strain measurements

Courtesy of L. Laiarinandrasana & T. Morgeneyer (Centre des Matériaux Mines ParisTech), and L. Helfen (European Synchrotron Radiation Facility; Karlsruhe Institute of Technology)



Recipe for automatic analysis

- Design and perform advanced data analysis scenario as an automated high-level workflow
- Increase productivity while keeping full power and flexibility of comprehensive data analysis toolset



Amira-Avizo Python

- Access to hundreds of scientific algorithms from the Python eco-system
- Ultra-efficient memory management
- Fully compliant with Python scripting conventions

Large Data Management

Automation

Customization

Avizo Software for materials research

Avizo Software provides a reliable, fully automatable solution for both research and industrial entities, allowing them to innovate faster, reduce time to market, and produce more reliable and better performing materials.

Ceramics, glasses and porous media

Characterization of porous material depends on the size, distribution, and shape of pores and possibly the channels connecting them. For other materials, such as ceramic or glass, understanding the distribution of the different particle types is of utmost importance for estimating performance of the material. Porosity, tortuosity and permeability are some of the important parameters that help characterize the material.

Avizo Software provides an advanced workflow for pore network characterization and particles analysis, including quantification of pores or particles in the material, their volume distribution, shape and distance, as well as computation of material physical properties such as porosity, tortuosity or permeability.

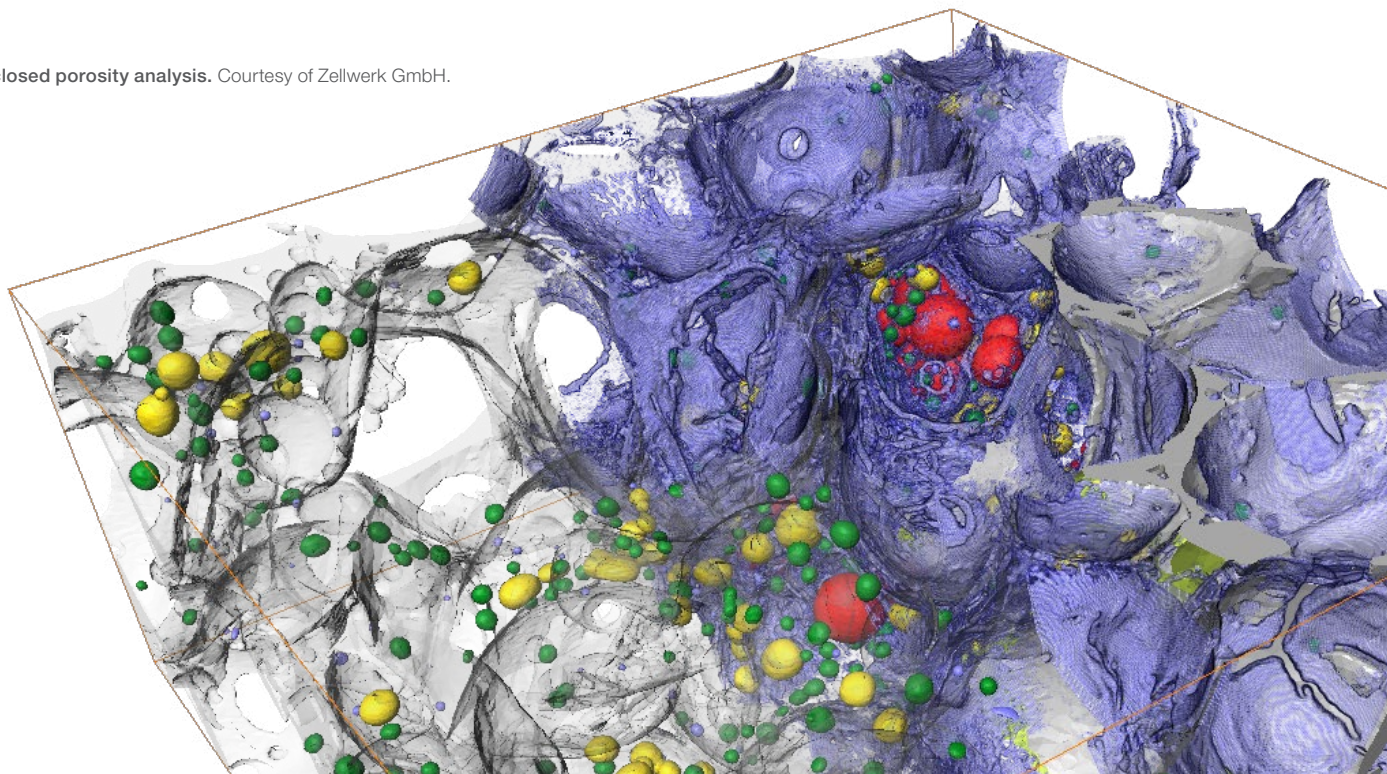
Metals, alloys and powders

Transportation, energy production, machinery, building materials and consumer products require development of metals that are lighter, stronger and more durable. New manufacturing techniques such as additive manufacturing require the development of new types of metal powders.

Avizo Software helps expose the structure-property relationship in metals and alloys. It enables you to fully understand the properties of steel and alloys, in order to quantify their structure and composition, as well as possible defects such as unwanted inclusions. Its advanced set of quantification capabilities allows you to measure the quality of metal powder used for additive manufacturing or to quantify grains distribution, just to name two examples. Sphericity and size distribution of each grain can be measured to assess quality and better understand properties.

Avizo Software's multi-modality support allows for the fusion of data coming from different EM detectors. It can merge, for example, SEM backscattered images with EDS or EBSD images of the sample, providing an even more efficient workflow from data to knowledge. Its multi-resolution support facilitates a powerful correlative workflow, from discovering areas of interest at the macro level to analyzing the sample at the nanoscale.

Open and closed porosity analysis. Courtesy of Zellwerk GmbH.

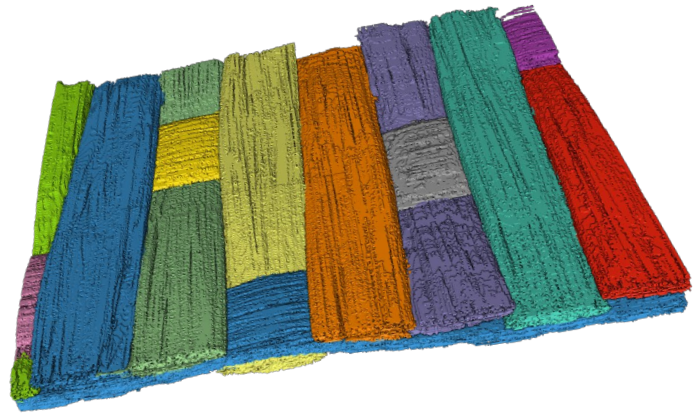


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Composites, polymers and fibrous materials

Composite materials are making their way into many different application areas, ranging from aerospace to automotive and construction. Their properties improve stiffness and strength and allow for design of lightweight components at a reasonable cost.

Avizo Software allows for analysis of the fibers that reinforce composite materials, computing length, orientation and density. It also detects matrix defects such as voids or foreign debris, cracking or delamination, and richness or dryness. Avizo Software can analyze pore networks for the latest micro- and/or nano-porous composites, allowing researchers to gain a better understanding of the material properties and perform improved quality control on industrial parts made of composite material. Analysis of deformations of the material under physical constraints allows also for damage prediction of deficiencies.

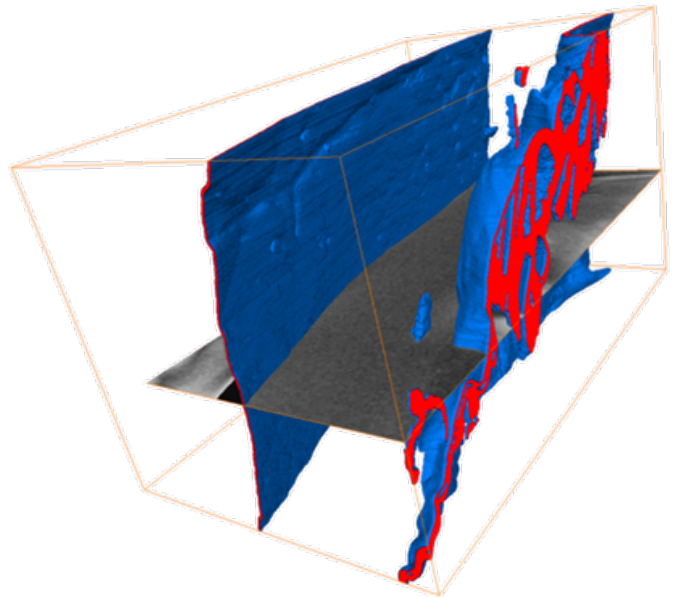


Evolution of damage during fatigue of woven composites.

Biomaterials

Recent progress in manufacturing and characterization of biomaterials has led to innovative development in tissue engineering and scaffold techniques.

Avizo Software can be used to characterize such highly porous media, while also quantifying pore distribution and size as well as high interconnectivity of the porous network. From there, mechanical strength and effective surface for cell attachment can be determined. Furthermore, Avizo Software can be used to validate experiments by generating Finite Element Analysis models and collaborating with FEA solvers, as well as performing deformation analysis from a material sample subjected to physical constraints.



Innovative interconnected porous biomaterial for tissue engineering.
Courtesy of Prof. A. Largeteau and Dr. Mythili Prakasam, Institute of Condensed Matter Chemistry in Bordeaux and University of Bordeaux, France.

Batteries

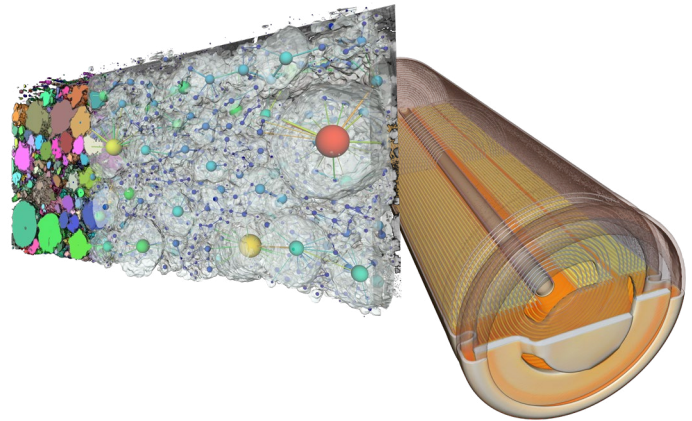
Battery and Solid Oxide Fuel Cell (SOFC) manufacturers need to refine their manufacturing process and increase product lifespan. They also need to reduce the weight and size of their energy storage devices as well as increase charge capacity while lowering production costs, ensuring safety and making the product healthier for the environment.

Thanks to advanced image processing and segmentation techniques, Avizo Software makes it possible to extract key quantitative parameters of the microstructure and macrostructure of the involved materials. At the macro level, Avizo Software can be used to assess the quality of the manufacturing process, looking into packaging, checking solder points, and detecting possible leakage or porosity and delamination. It can also examine the aging process, looking into foil, cathode and anode morphological changes or core leakage. At the microscopic level, Avizo Software allows for the estimation of the tortuosity and permeability of the porosity structure of electrode and separator; thus, effective transport parameters can be further used in the electrochemical performance simulation. Quantification of triple phase boundary (TPB), phase distribution and connectivity further allows for characterization of the cell's performance.

Additive manufacturing

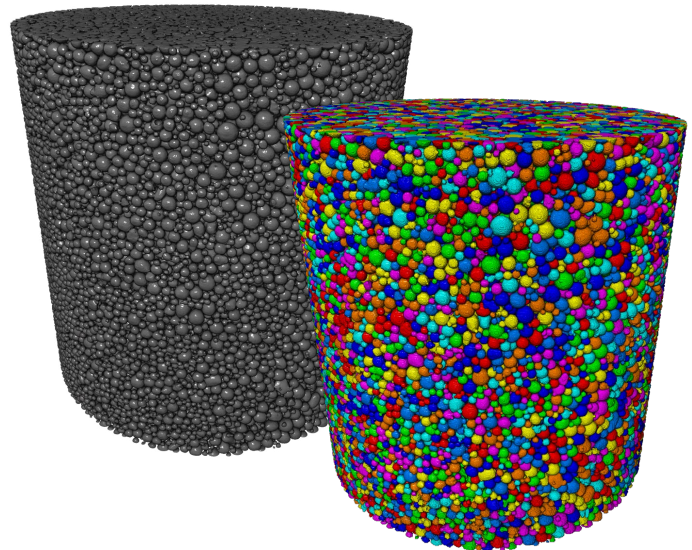
Additive manufacturing has emerged as a very promising manufacturing technique, allowing advanced design of complex industrial parts that used to require numerous sub-parts to be assembled together in the past and allowing for production of lighter and stronger innovative parts. Quality of the powder is essential to integrity of the part, and defect analysis is necessary for final quality check of a material sample or a produced part.

Avizo Software offers a complete range of tools from pre to post printing quality control of industrial parts. Powder can be analyzed within Avizo Software to provide information such as shape and volume distribution, but also detection of pores or inclusions in the grain that can lead to important defect in the final part. Advanced automated defect detection can be applied on a sample or the final part to look for pores such as gas bubbles, inter-layers cracks, or lack of powder fusion for instance.



Battery Cathode. Active material connectivity analysis.
Data acquisition: Thermo Scientific Helios™ PFIB DualBeam™.

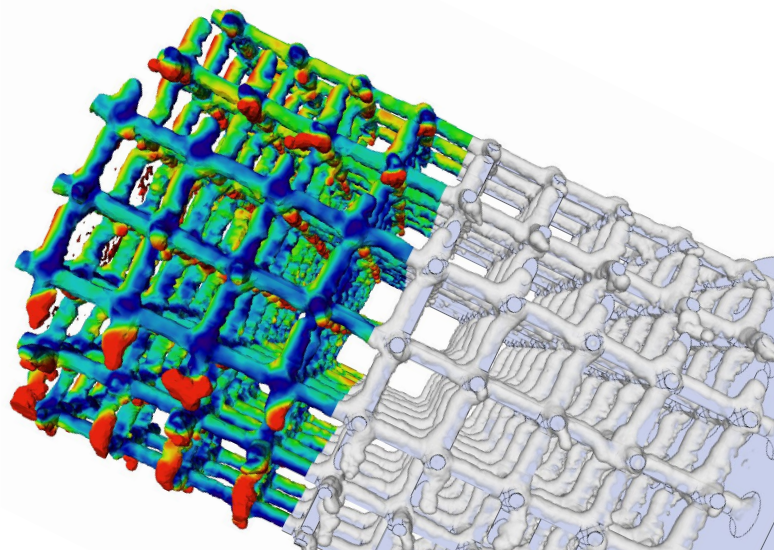
Li-ion cylindrical cell. Inspection of battery's structure.
Courtesy of Paul Shearing's group, University College London. Data acquisition: Thermo Scientific HeliScan™ microCT.



Ti64 powder analysis - Grain separation, porosity and sphericity analysis.
Data acquisition: Thermo Scientific HeliScan microCT.

Additively manufactured scaffold inspection. A common issue in 3D printing is porosity in the printed parts and deviation from the ideal shape as defined by the CAD file.

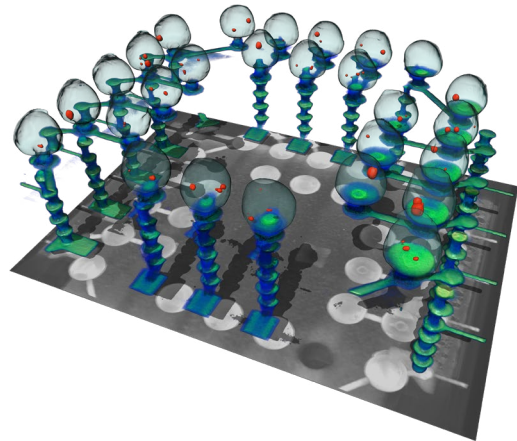
A 3D printed scaffold was scanned with a Thermo Scientific HeliScan microCT and analyzed with Avizo Software to find the segment with the highest amount of porosity, for further study with a PlasmaFIB instrument. Thickness of the segments was also monitored and compared to the CAD file.



Semiconductors

Semiconductor device manufacturers and designers routinely push the boundaries of physics. Defect detection and failure analysis, performance and process evaluation, and materials characterization are key to successful commercialization of new electronic device.

Avizo Software's advanced 3D visualization and image processing tools allow for fast detection of defects such as issues linked to voids in the solder balls of a Ball Grid Array (BGA).

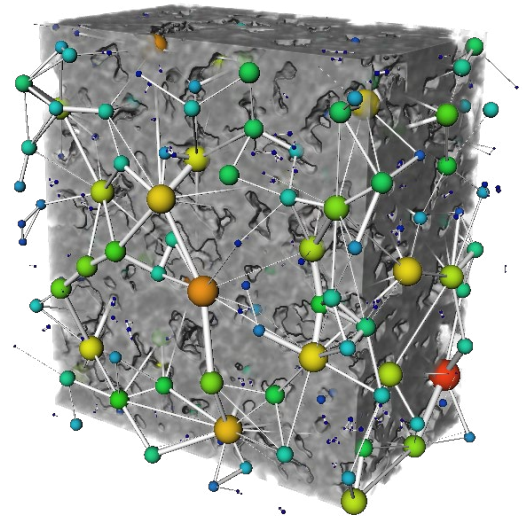


Segmentation of voids inside solder balls of a BGA - Ball Grid Array.

Food and agriculture

3D imaging techniques, such as X-ray micro-computed tomography (micro-CT), scanning electron microscopy (SEM), and magnetic resonance imaging (MRI), provide insights into food structure and how it changes in various situations, including processing operations.

Avizo Software's comprehensive food and seeds analysis toolset makes it easy to perform microstructural characterization and better understand the relation of microstructure to properties needed in food engineering, chemistry, microbiology and safety.



Analysis of bubbles in ice cream.
Courtesy of Irstea.

Dedicated to Thermo Scientific TEM, SEM, FIB, DualBeam, and microCT systems, as well as Thermo Scientific correlative workflows, Avizo Software for Thermo Scientific Systems edition has been developed to fit with Thermo Scientific systems data acquisition and specific workflows.



Key features

Import and process image data

- Handle any modality, at any scale, of any size:
 - X-ray tomography: CT, micro-/nano-CT
 - Electron Microscopy
 - Synchrotron
- Support for multi-data/multi-view, multi-channel, time series, very large data
- Scaling, calibration, conversion, re-sampling
- Image enhancement, comprehensive filtering and convolution, Fourier frequency transforms
- Artifact reduction algorithms
- Advanced multi-mode 2D/3D automatic registration
- Image stack alignment, arithmetic, correlation, fusion

Visualize and explore

- Interactive high-quality volume
- Orthogonal, oblique, cylindrical and curved slicing
- Contouring and iso-surface extraction
- Maximum Intensity or other types of projections
- Vector and tensor visualization

Segment

- Thresholding and auto-segmentation, object separation, automatic labeling
- Region growing, snakes, interpolation, wrapping, smoothing
- Morphological processing, including watershed and basins
- Machine Learning-based segmentation
- Automatic tracing of individual fibers
- Skeletonization
- 3D surface reconstruction
- Grid generation for FEA/CFD

Analyze and quantify

- Intuitive recipe creation, customization, automated replay
- Built-in measurements, including counts, volumes, areas, perimeters, aspect ratios and orientations
- User-defined measures
- Results viewer with spreadsheet tool and charting
- Automatic individual feature measurements, 3D localization and spreadsheet selection
- Automated statistics, distribution graphs
- Feature filtering using any measurement criterion
- Data registration, deformation, comparison and measurements
- Porosity detection and measurement
- Fiber analysis
- Pre-processing for structural and flow simulations
- Import of CAD models for actual/nominal comparison

Present

- Animation and video generation
- Advanced key frame and object animation
- Mix images, geometric models, measurements and simulations
- Annotations, measures legends, histograms and curve plots
- Export spreadsheets, 3D models, high-quality images

Simulate

Image-to-simulation workflows:

- 3D image-based meshing for Finite Element and CFD
- Porosity/pore connectivity analysis and skeletonization for Pore Network Modeling
- Direct 3D image-based simulation: absolute permeability, molecular diffusivity, electrical resistivity, and thermal conductivity computation

Access ecosystems

- Python scripting API
- Custom C++ modules development
- MATLAB™ bridge

Professional services

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Training

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Custom development

With 30 years of experience in 3D and image processing and hundreds of projects delivered to small and large organizations, we can provide you with a solution tailored to fit your specific needs.

We have the ability to customize and expand our software solutions at various levels, including, but not limited to:

- Building simple push-button solutions from entire workflows
- Integrating specific workflows
- Implementing our solutions into an existing process
- Creating support for custom file formats

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S C I E N T I F I C



Athena Software for Core Imaging Facilities

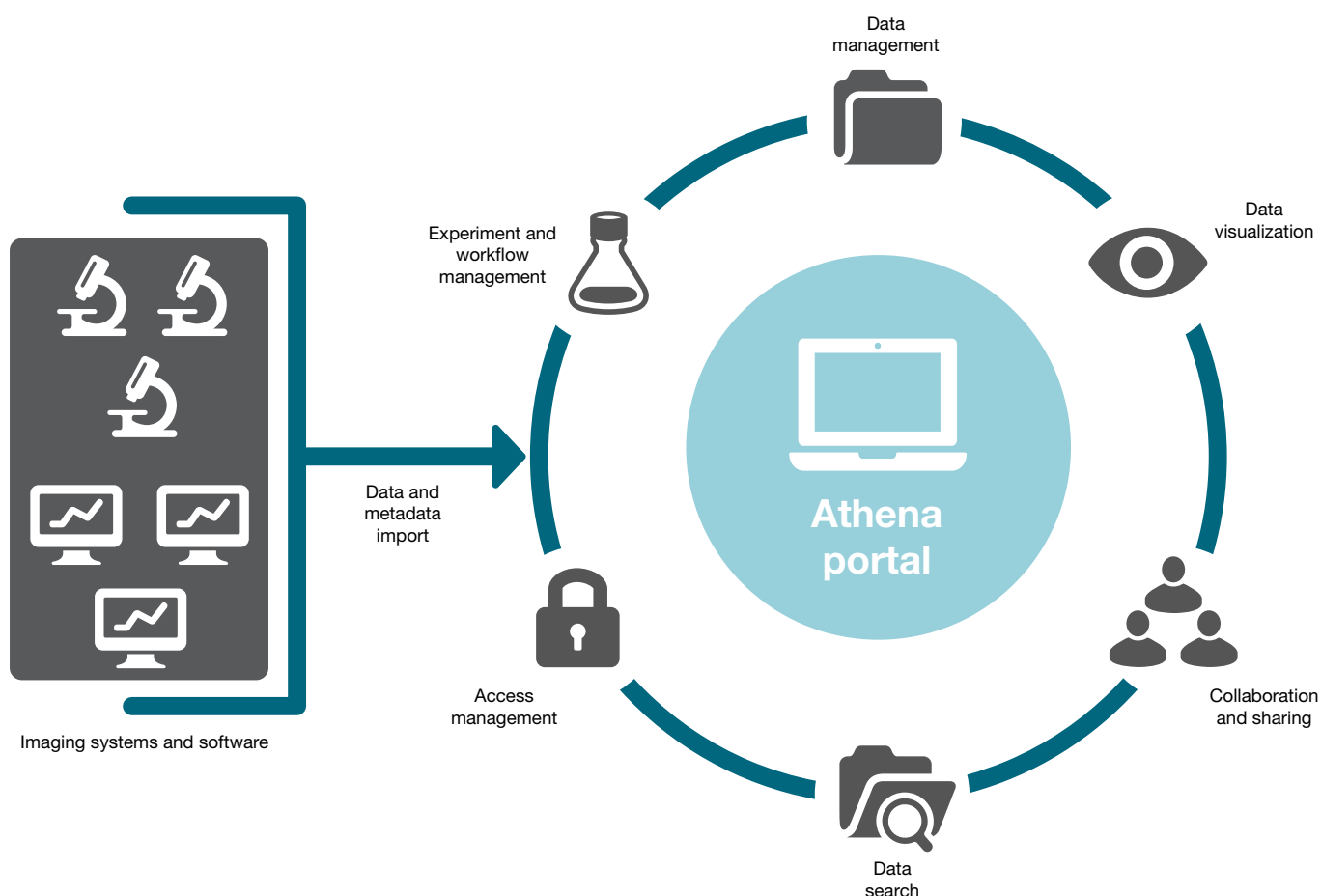
Imaging Data Management Platform

Ensure traceability of images, data, metadata and experimental workflows through an intuitive and collaborative web interface

Managing and sharing experiments, workflows, data, and metadata has proved to be one of today's most crucial issues in scientific research. The development of research infrastructures, also known as "core imaging facilities," has allowed large numbers of researchers to gain access to cutting-edge technologies and advanced imaging expertise. Every day, multitudes of different types of instruments and software, in various locations, produce significant amounts of scientific data, all of which needs to be shared among collaborators. More importantly, we are trending towards the traceability and accessibility of data, knowledge, and expertise. An exponential number of government agencies require data to be findable, accessible, interoperable, and reusable (FAIR principles) and that digital data management plans be drawn up.

Thermo Scientific™ Athena Software is a premium imaging data management platform that allows core imaging facilities dedicated to materials science research to simplify their scientific imaging workflows. With Athena Software, it is possible to manage, view, and share images, data, metadata, and experimental workflow results from a single platform.

Athena Software provides a comprehensive solution to ensure traceability, improve collaboration, simplify imaging data management, and secure and manage data access.



Data and Metadata Import

Athena Software makes it possible to collect data and metadata recorded by an instrument, originating from processing software, or added directly by a user. Any type of file can be imported into Athena (images, PDFs, Office documents, etc.).

Data and metadata can be imported in two ways:

- Manual import by direct upload from the Athena web interface
- Automatic import* into a step in a workflow from any imaging system or software

* Automatic import is defined in advance by the user via a configurable import service. The data acquired by an instrument or exported from a piece of software will then be automatically imported to the selected Athena Software location.

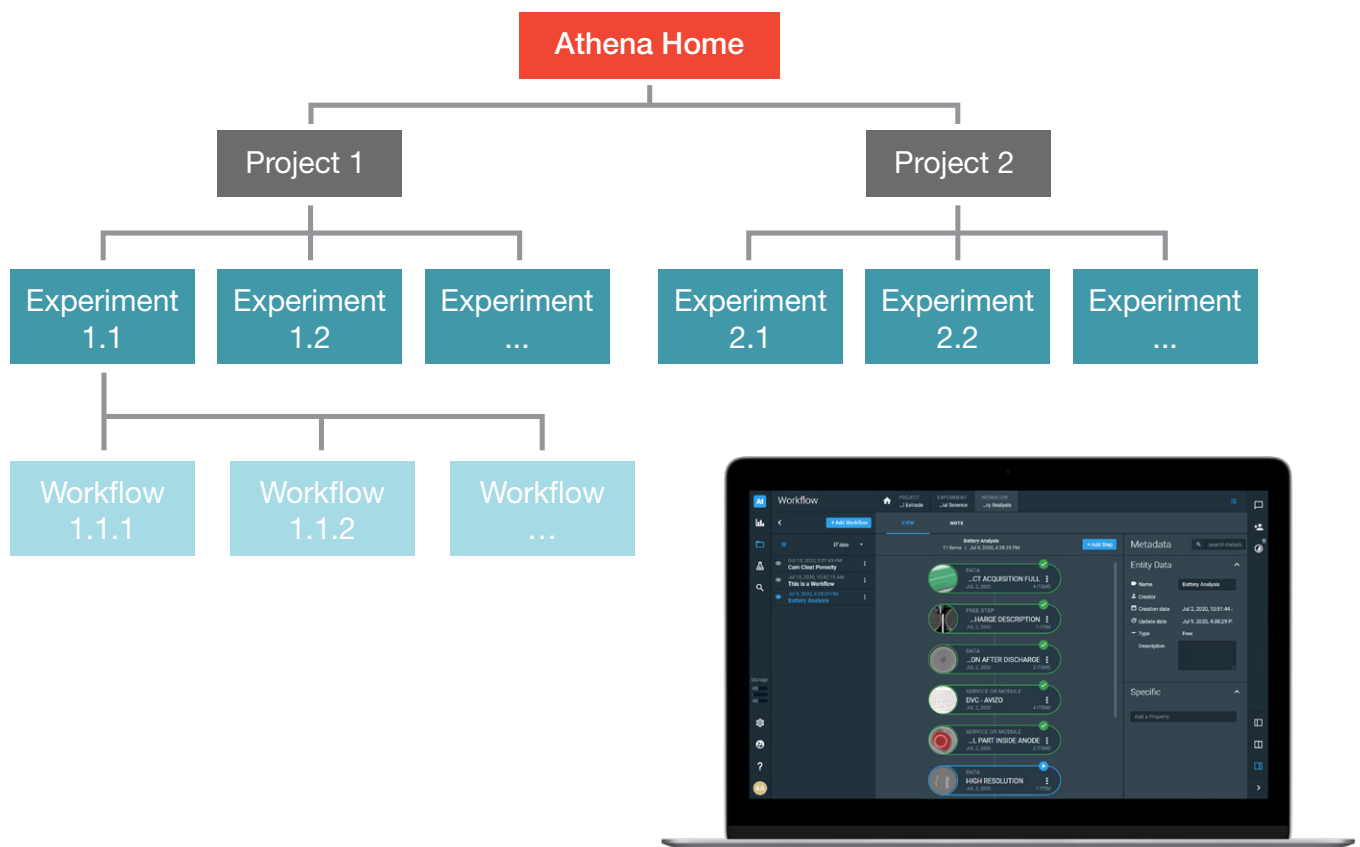
Once imported, the data can be easily deleted, downloaded, exported, or archived directly from the Athena web interface.



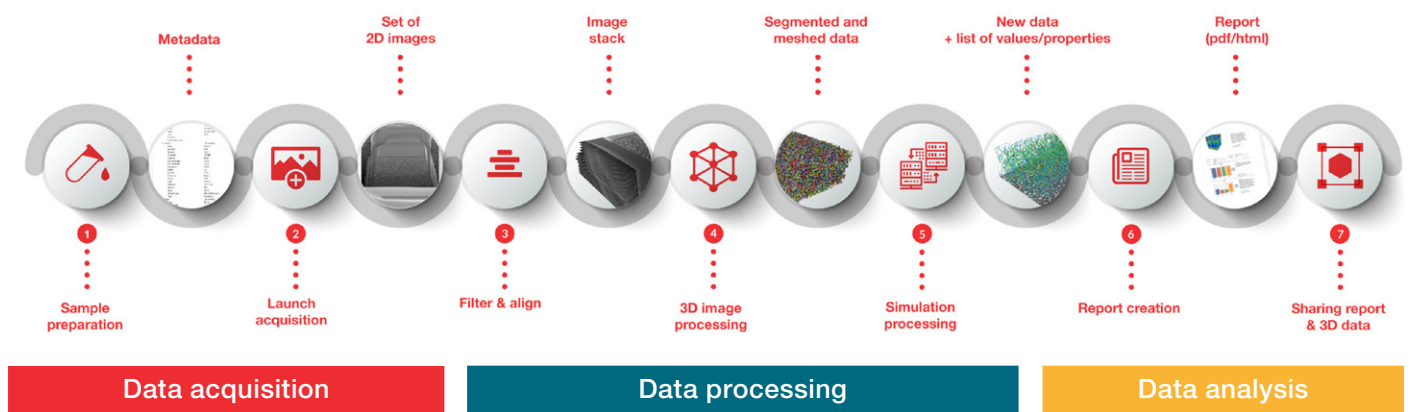
Experiment and Workflow Management

Designed for the digitization of projects, experiments, and workflows, Athena Software significantly increases productivity and traceability through:

- Organization of all recorded data using a logical and intuitive structure
- Fully editable structure
- Status updates of each step in the workflow

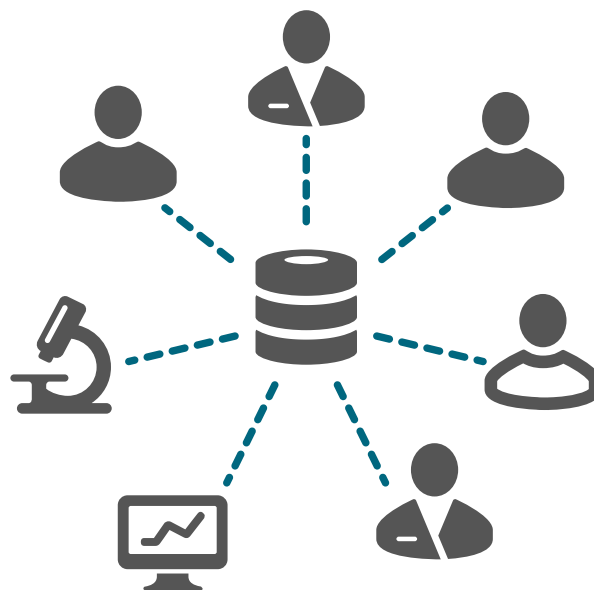


Workflow example



Data Management

The amount of research data generated is swelling to a point where conventional data management systems struggle to keep pace. Athena Software allows users to explore and share large data without duplicating it. Data are stored in a central location and are accessible from everywhere using a simple web browser. In order to free up space on hot storage when needed, it is possible to archive data to cold storage directly from the web interface. Data export and download are also available.

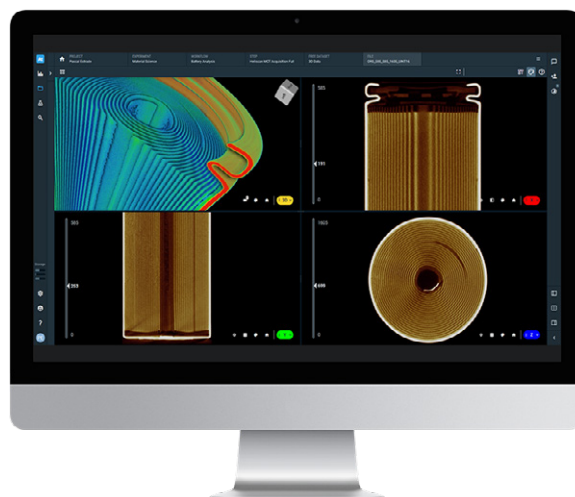


Data Visualization

Athena Software offers advanced capabilities for viewing images, data, and metadata remotely and in real time. A large proportion of the 2D and 3D formats used in materials science research can be automatically displayed in high-performance, dedicated viewers directly from the Athena web interface.

The user is able to view very large data sets from a web browser without the need for dedicated hardware and without the need to download a tool or plug-in. To ensure confidentiality, the data remain on the secure remote server.

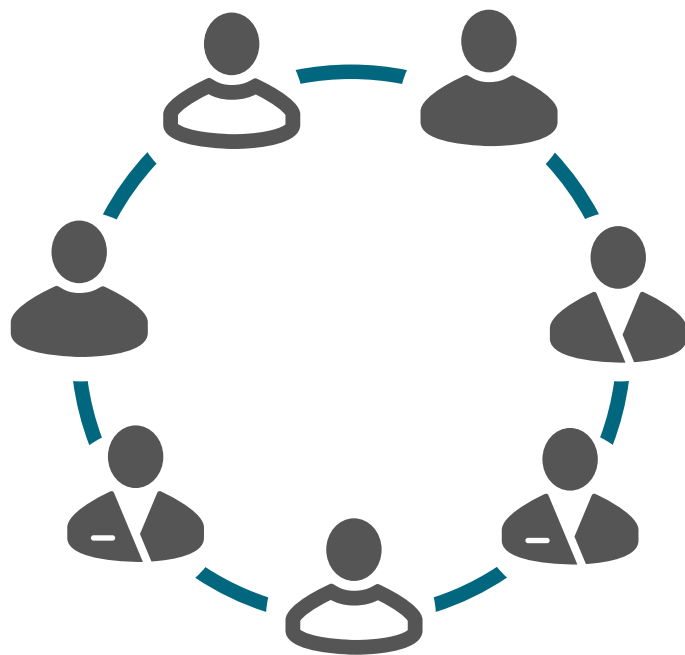
It is also possible to view PDF files directly in Athena Software, making it easier to read information and reports required for research projects. Adding, editing, and viewing metadata is made easier via the highly intuitive and ergonomic interface of the Athena portal.



Collaboration and Sharing

From the preparation of samples to publication, sharing methodologies and knowledge between researchers is essential for optimizing research projects. Athena Software provides a set of tools that facilitate interaction between the different users.

For example, Athena Software makes it possible to instantly and remotely share any type of data from a portal. The presence of 2D and 3D viewers allows users to simultaneously visualize very large data from anywhere. Advanced notes can be created at each step in the workflow, making it easier to compile reports and share specific information and expertise. Tools for adding and editing annotations to images are also available. Additionally, its instant messaging capabilities allow collaborators to have discussions in real time.



Data Search

An integrated search engine allows any user to easily find the information they need when they need it. The searches can be carried out by name, metadata and note. Filters are also available for refining search criteria.



Access Management

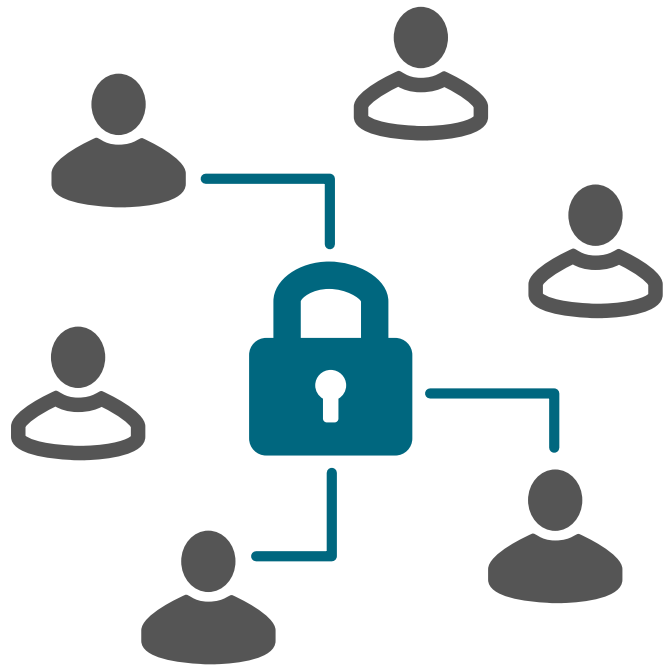
With Athena Software, information is secured and centralized, and it can be accessed by multiple users with different roles and different permission parameters.

Users can confidently share and access projects, experiments, workflows, data, and metadata anywhere in the world, 24/7.

To simplify user administration and authentication, Athena Software supports LDAP, allowing users to connect to existing user directories.

Administration and user profiles:

- **Administrator:** Platform and user manager
- **Users:**
 - **Owner:** Owners can create projects, experiments, workflows, and use all the functions of the platform. Owners can also delete entities, add or remove users, and modify permissions.
 - **Collaborator:** Collaborators can create experiments, workflows, and use most of the functions of the platform. Unlike Owners, Collaborators cannot delete entities, add or remove users, or modify permissions.
 - **Viewer:** Viewers can view data, metadata, notes, and annotations inside an experiment. Viewers can also converse with other users via instant messaging.



Service and Technical Support

Our Service and Technical support team is ready to implement and optimize our solutions to allow you to get the most out of your investment in imaging data management.

Deployment

We ensure seamless integration of Athena Software into your own on-premises environment, allowing you to optimize your infrastructure investments.

Training

Our experts are dedicated to helping you shorten your learning curve and be your most productive with Athena Software.

Support

Our worldwide customer support team is ready to assist you and answer all your questions about Athena Software—any time you need it.

Find out more at thermofisher.com/athena

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