# The essential role of images in scientific research.

academic
software

Adobe

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# Introduction

**Images are to research what poetry is to literature:** a unique way of deepening and enriching knowledge. For researchers, observing, understanding yesterday's world and anticipating tomorrow's is a noble and daily mission. But they must also explain, model and represent what they discover, to reveal the hidden treasures of our knowledge.

In this quest, images go beyond words. It shows and interprets reality and scientific truth in a different way, making accessible what humans are able to grasp. Where would we be without photographs of the Moon or of the Earth from the sky, without images of the ocean depths, of early man, or of ancient temples? These visual representations are fundamental to understanding our history, our cultures and our origins.

**Archaeology: drawing the past with precision and creativity**
Working on archaeological sites means offering an image of the past, a key to deciphering the civilisations that came before us. This work requires both impeccable scientific rigour and an ability to interpret elegantly what life was like in the past. The researcher has to rely on precise software and virtual pencils capable of finely tracing the contours of these inhabited places and bearers of traditions.

Today, technology amplifies these possibilities. Using advanced software, they can collect, process and organise data before sharing it with the public. This digital software, such as that in Adobe's Creative Cloud suite, accompanies them every step of the way, from field research to the publication and presentation of their findings.

**In the footsteps of IRAA members**
With the team from the IRAA laboratory, based in Aix-en-Provence and led by Julien Duboulouz, Professor of Roman History (AMU), discover how digital software is transforming research. Follow them to Greek temples and Roman cities to explore the many benefits and uses of the Creative Cloud suite. These complementary performances reveal the subtle art of illustrating, modelling and sharing discoveries that enrich our vision of the past.

# Introducing the researchers

## Alain Badie

Alain Badie is an archaeological architect at the CNRS Institute for Research into Ancient Architecture, based at Aix-Marseille University. He focuses on the study, survey and analysis of ancient monuments, disseminating knowledge of these monuments to the community of archaeologists and specialists in antiquity.

## Stéphanie Delaguette

Stéphanie Delaguette is an archive officer at the CNRS, responsible for processing the laboratory's old archives, which have existed since 1957. She digitises, inventories and processes these archives in order to put them online, using various Adobe software packages to manage large quantities of documents.

## Jean-Jacques Malmary

Jean-Jacques Malmary is a Research Engineer - IR2 CNRS and Heritage Architect, with a doctorate in archaeology, working at the IRAA laboratory. He specialises in the study of Greco-Roman monuments throughout the Mediterranean basin. His work involves reconstructing monuments from ruins and scattered blocks, using digital software to reconstruct and understand the use of monuments.

# Research trajectory

## I. Visiting the site to observe & understand

In this case, Mr Malmary is talking about the Mediterranean basin:
He explores and studies the monuments of sites such as Delos, Delphi, Claros and Glanum in Saint-Rémy de Provence.

His work involves reconstructing monuments from ruins and erratic blocks, using digital software to reconstruct and understand the use of the monuments and the history of the site as a whole. He graphically represents and describes in words what he sees and interprets to restore a context, a building or a city with the authenticity of the period.
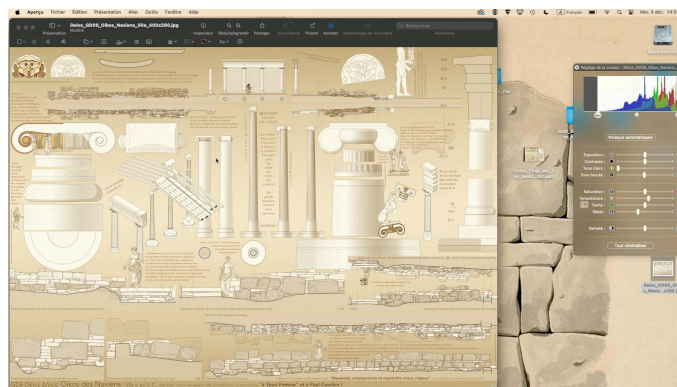
## II. Generate material for research, notes, drawings and photos

The primary objective is to capture as much information and data as possible in the field through sketches and photos.

The images and written transcriptions must also reflect the emotional dimension that researcher Jean-Jacques Malmary is keen to share:
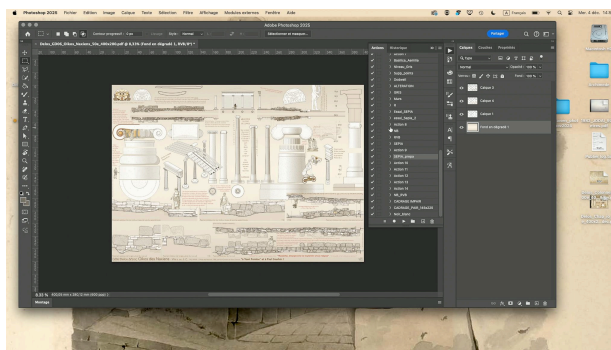


*Alain Badie (IRAA UAR3155 CNRS-AMU).*



*Jean-Jaques Malmary ( IRAA UAR3155 CNRS AMU)*

> **Jean-Jacques Malmary**: 'Our goal is to use Adobe software to find tools that are similar to hand-drawn instruments. The first vector drawing software produced images that were quite cold compared to the ink drawings of our predecessors. Our aim is certainly to depict ancient monuments with rigour and objectivity. But we are also eager to produce elegant drawings before distributing them to the scientific community and the public.'

The processing carried out with Adobe software, in particular Illustrator and Photoshop, makes it possible to add an artistic dimension and a touch of finesse to illustrations, making the results more engaging and visually pleasing. In a context where scientific communication is becoming increasingly essential, Adobe Creative Cloud software offers the opportunity to combine precision and elegance in the transmission of ideas through images.



*Jean-Jaques Malmary ( IRAA UAR3155 CNRS AMU)*

<u>Laboratory work</u>

Jean-Jacques Malmary describes his use of Adobe Creative Cloud as a means of managing, organising and processing his research data, rather than analysing it. He emphasises the use of Bridge and Camera Raw for these functions. Jean-Jacques Malmary stresses the importance of intuitive software ergonomics, enabling users to concentrate on their work without being hindered by complex interfaces.

## I.  Organisation and management of data

*Jean-Jacques Malmary: 'We use Bridge and Camera Raw extensively to organise and classify the many photographs and scans of documents that I use in my research. We use metadata to organise the files 'sensibly'.'*

A practical note from archivist Stéphanie Delaguette, who uses Bridge to enable her to batch rename files, documents and images. A highly effective tool, in her opinion.
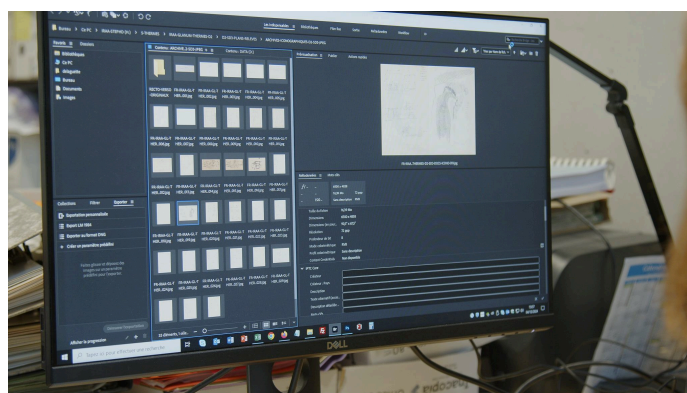


*Stéphanie Delaguette (IRAA UAR3155 CNRS-AMU)*

## II.  Processing images and finalising drawings

**Illustrator** is essential for processing digital photographs, allowing contrasts to be enhanced, details to be brought out and elements to be precisely cropped. The use of layers in **Photoshop** and **Illustrator** facilitates collaboration between researchers, enabling different versions of an image or drawing to be modified and compared.

*Jean-Jacques Malmary: 'Photoshop is the 'last antechamber' for my drawings, the tool that allows me to finalise and refine my creations. I use it to rework drawings from vector graphics software, giving them a more 'old-fashioned' look and improving their visual quality. I also use Photoshop to process series of images in a uniform way using 'actions', creating specific effects, such as a 19th-century drawing look. Among the Photoshop tools that I particularly like are 'add noise', to imitate the irregularities of a pencil or watercolour drawing, and 'oil paint', to reproduce the effect of the full and loose pen strokes of the of the old draughtsmen.'*

To optimise the documentation of his research work, Jean-Jacques Malmary can also easily share his files with colleagues to obtain feedback or collaborate in real time. He can, for example, invite other users to comment on or modify his documents directly in the application. They could also bring together all their assets (colours, text styles, images) in a single library accessible from all **Adobe Creative Cloud** applications. This would enable efficient management and rapid access to the resources needed for all the lab's work. But Jean-Jacques is aware that he still has a lot to explore, and admits that he should probably explore the possibilities offered by **Adobe Creative Cloud** for these functions.

Alain Badie uses **Adobe Illustrator** to replace older ink drawing software, creating line drawings in black and white, as well as coloured plans to highlight specific elements of the buildings.

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***Alain Badie**: 'Adobe Illustrator can be used to clean up the minutes (note-taking) that we still do by hand. We use it to replace the Rotring, an Indian ink pen.'*

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## Presenting the results for publication

The researchers use **InDesign** to prepare their public presentations, because it allows them to create elegant and professional layouts. However, they have not yet explored all the features of Creative Cloud software, particularly those that allow them to add animations.

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***Jean-Jacques Malmary**: '…I think there's probably some software on Adobe CC that will allow you to make animations showing step by step the gestures involved in making an artefact. One of my trainees, Aïda Filali Ansary, an architect, has produced a series of very interesting drawings along these lines, based on the chaîne opératoire method introduced by André Leroi-Gourhan.'*

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***Interviewer**: 'The ideal Adobe Creative Cloud tool for this would be Adobe Express. We'll show you how to cover your animated presentation results in the next white paper' ;-)*

# Conclusion

> *'Digitalisation reinforces the finesse of the human hand'*

**Interested in Adobe CC?**

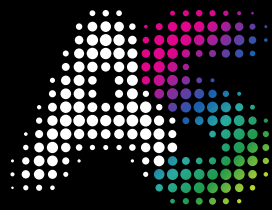Contact us here: https://academicsoftware.com/en-gb/contact-sales

# Sources

**ALAIN BADIE** - research engineer at the IRAA (UAR3155 CNRS-AMU), archaeological architect.

**STÉPHANIE DELAGUETTE** - In charge of the scientific archives at the IRAA (UAR3155 CNRS-AMU) CorIST - InSHS

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