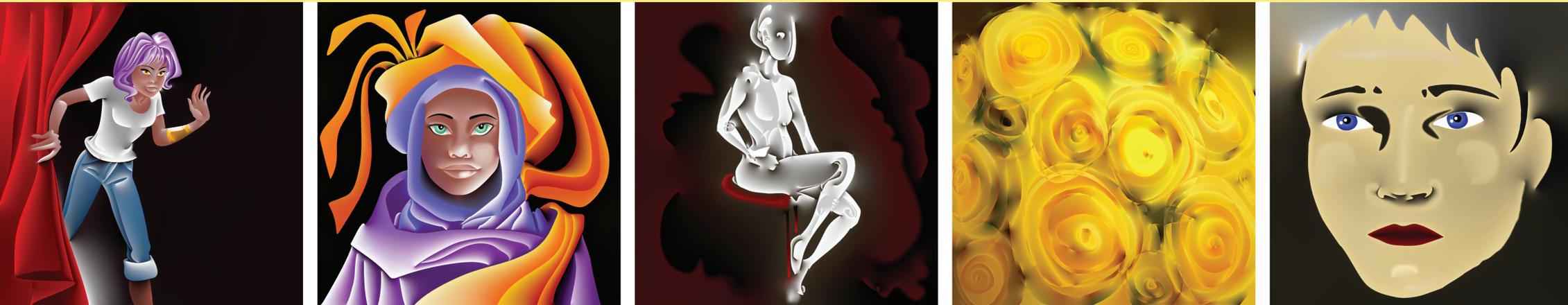


SKETCHING COMPLEX-COLORED VECTOR IMAGES

We present a method to easily create vector images with complex color variations. In our system artists freely draw a vector image, just as if they would sketch it on paper.

Alexandrina Orzan*
Holger Winnemöller
Joëlle Thollot

Adrien Bousseau
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David Salesin



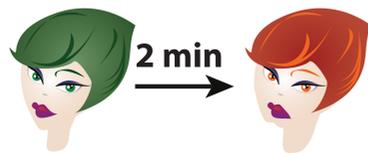
The above images are all realized with our method. The first two images were created by Laurence Boissieux. The artist for the last three is Philippe Chaubaroux. Drawing times, from left to right: 4 hours, 3 hours, 20 minutes, 2 minutes and, for the last one, 40 minutes.

WHY VECTOR IMAGES?

Vector images (created by tools such as Adobe Illustrator or Flash) are a composition of geometrical primitives (like lines, curves and polygons).

This representation is used by creative professionals because:

- The shapes and colors are very easy to change
- The image looks good at any size (be it letter or poster-size)
- The vector images are easily animated (most animated shorts on the web are vectorial)



COLOR VARIATIONS IN REAL-WORLD IMAGERY

Smooth color variations appear in almost all real-world images and are integral to many artistic styles. Shadowed areas, glossy reflections, various material effects, all translate into smooth color transitions when photographed or depicted.



Two examples of color variations: (a) Real photograph of a sunset; (b) "Young girl in a green dress", by T. de Lempicka, oil on canvas.

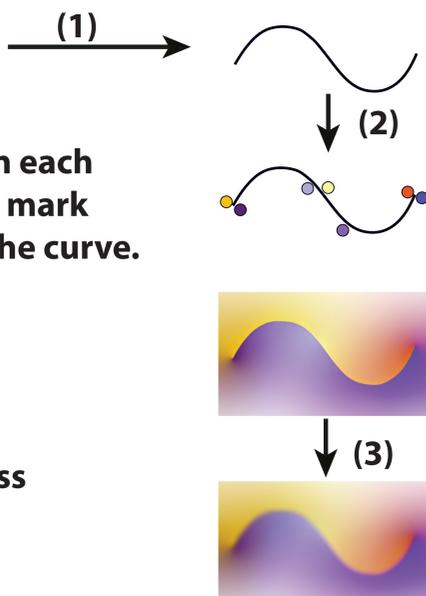
However, up to the current day, it is difficult to represent in vector form such complex color variations.

OUR SOLUTION: A NEW, VECTORIAL CONTROL OF COLOR VARIATION

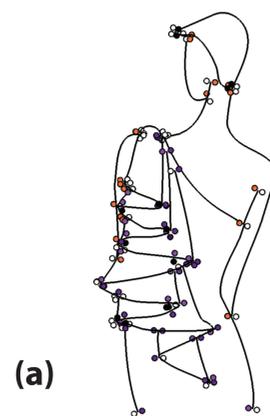
Our representation can depict smooth color transitions of arbitrary complexity.

All one needs to do is:

1. Sketch a curve.
2. Define some colors on each side of the curve and mark their position along the curve.
3. Define how smooth is the color change across the curve.



The system makes smooth transitions inbetween the defined colors.



(a) The curves drawn by the artist, with the colors defined along each curve. (b) The resulting vector drawing (artist: Laurence Boissieux).

See more of our method in our paper:

"Diffusion Curves: A Vector Representation for Smooth-Shaded Images"

and in our video:

<http://artis.imag.fr/Publications/2008/OBWBTS08/>