Multi-scale Image Harmonization
(Supplementary Material)

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1   Compositing

This document contains high–resolution versions of the results in the SIGGRAPH 2010 paper, Multi-scale Image Harmonization. We first show the results for harmonizing and compositing images. For each result, we show the source image, the target image that it is composited into, the cloning result, the result obtained using seamless cloning and finally the results obtained using our proposed method. The red strokes on the source images indicate the region being composited, and the green strokes on the target images indicate the region that we match the source images to. For the last two compositing examples in this document – 'Ferrari' and 'Hydrant' – we also show the alpha mattes and seamless boundary strokes used to set up the mixed boundary constraints to our system.
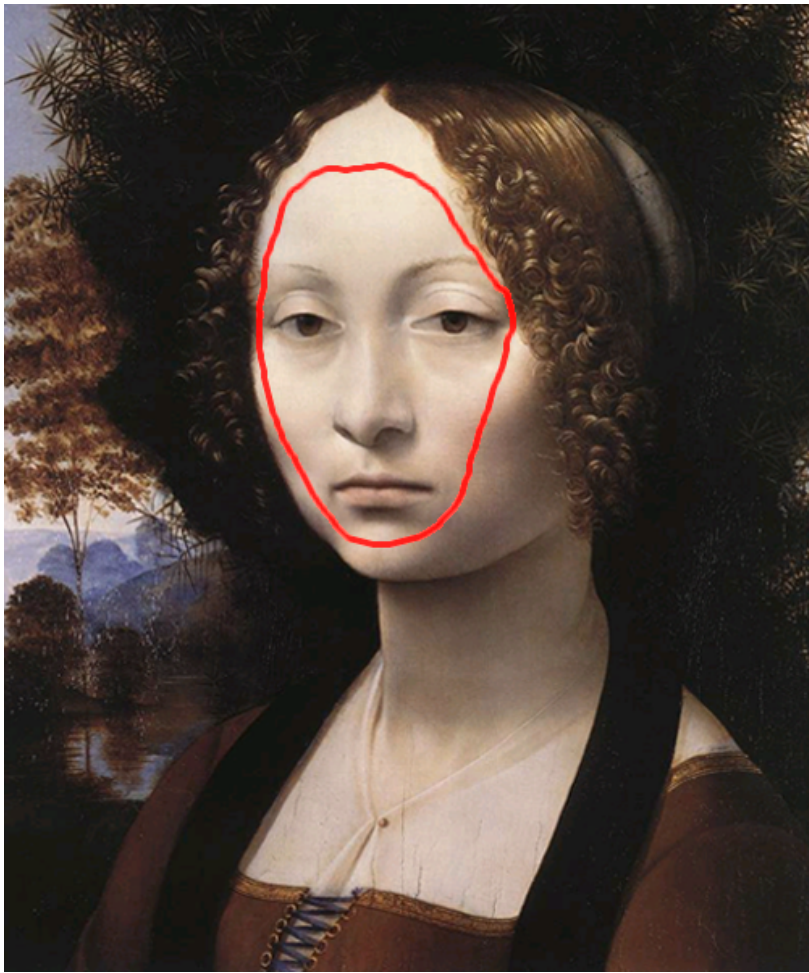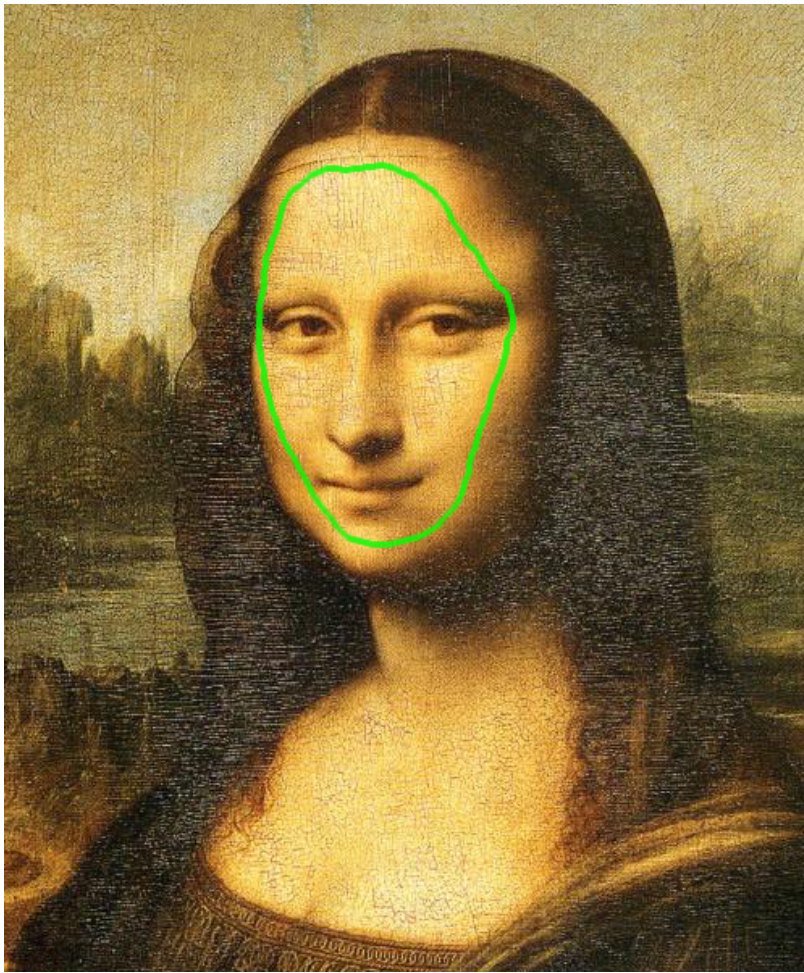
Figure 1: Mona Lisa – Source.
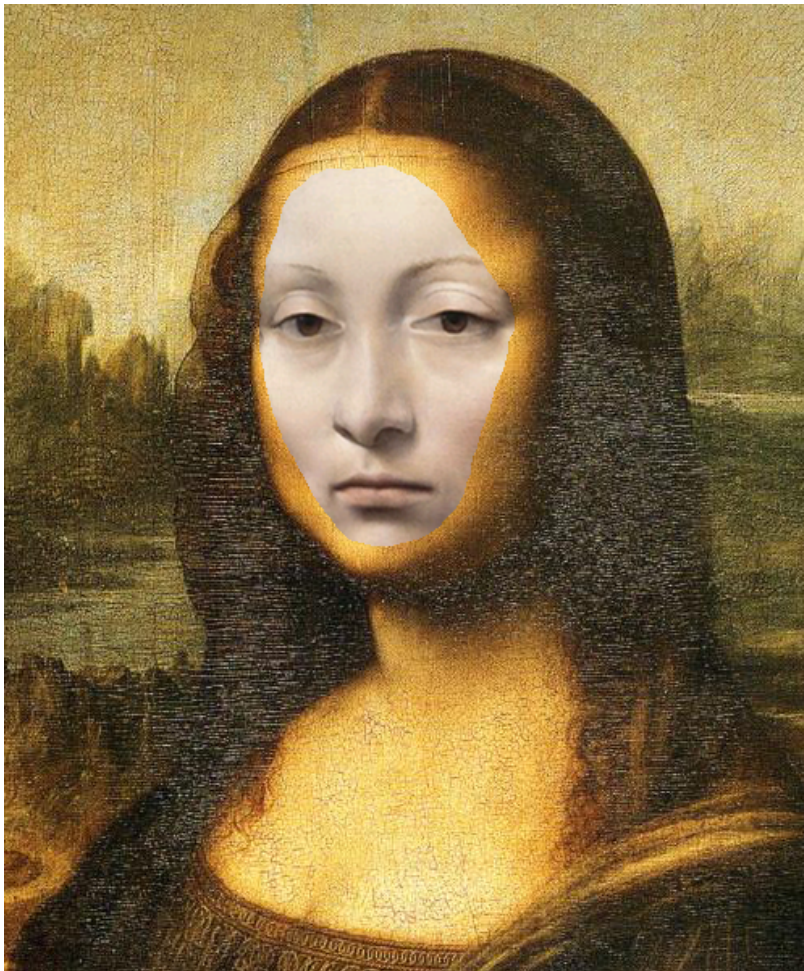
Figure 2: Mona Lisa – Target.
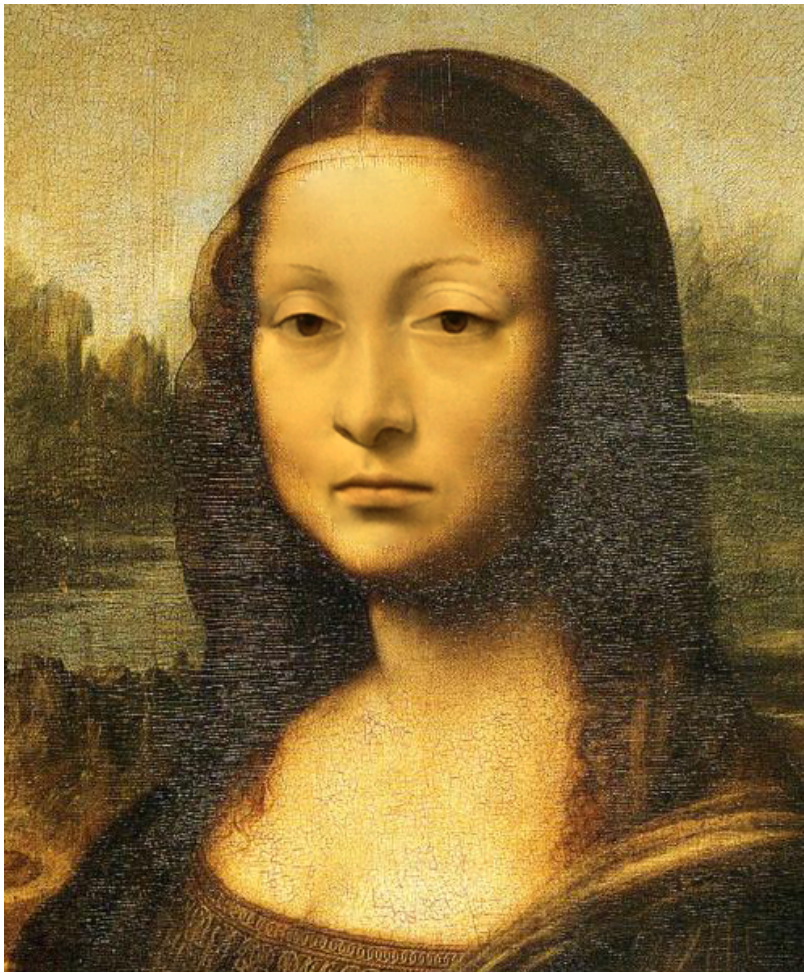
Figure 3: Mona Lisa – Cloning.
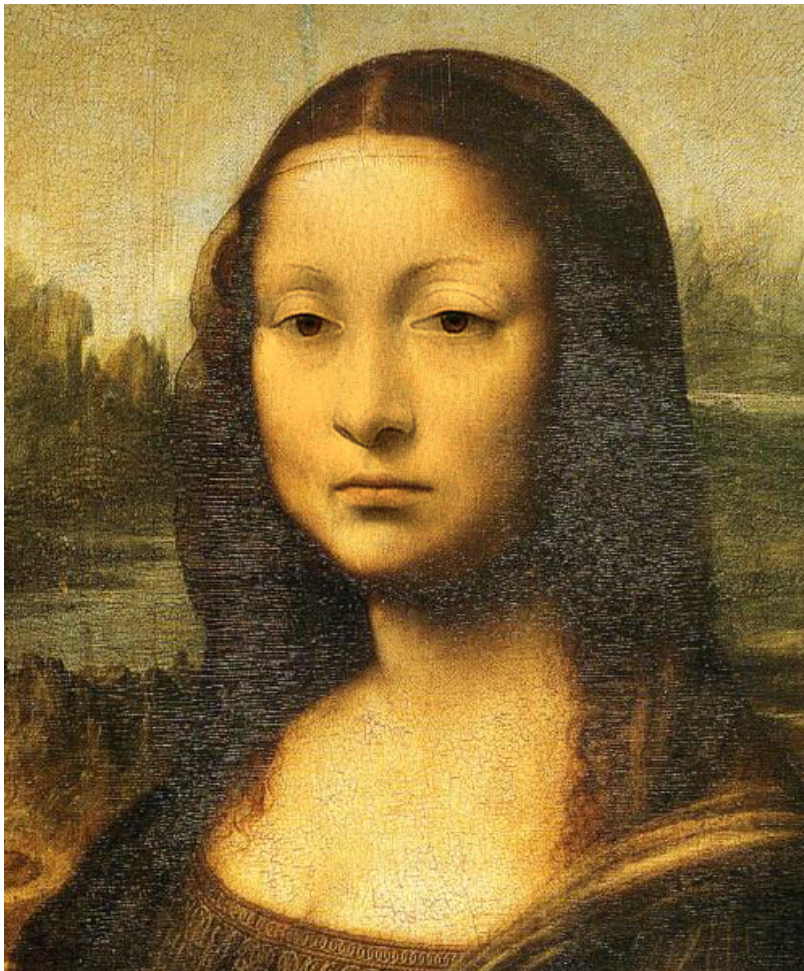
Figure 4: Mona Lisa – Seamless Cloning.
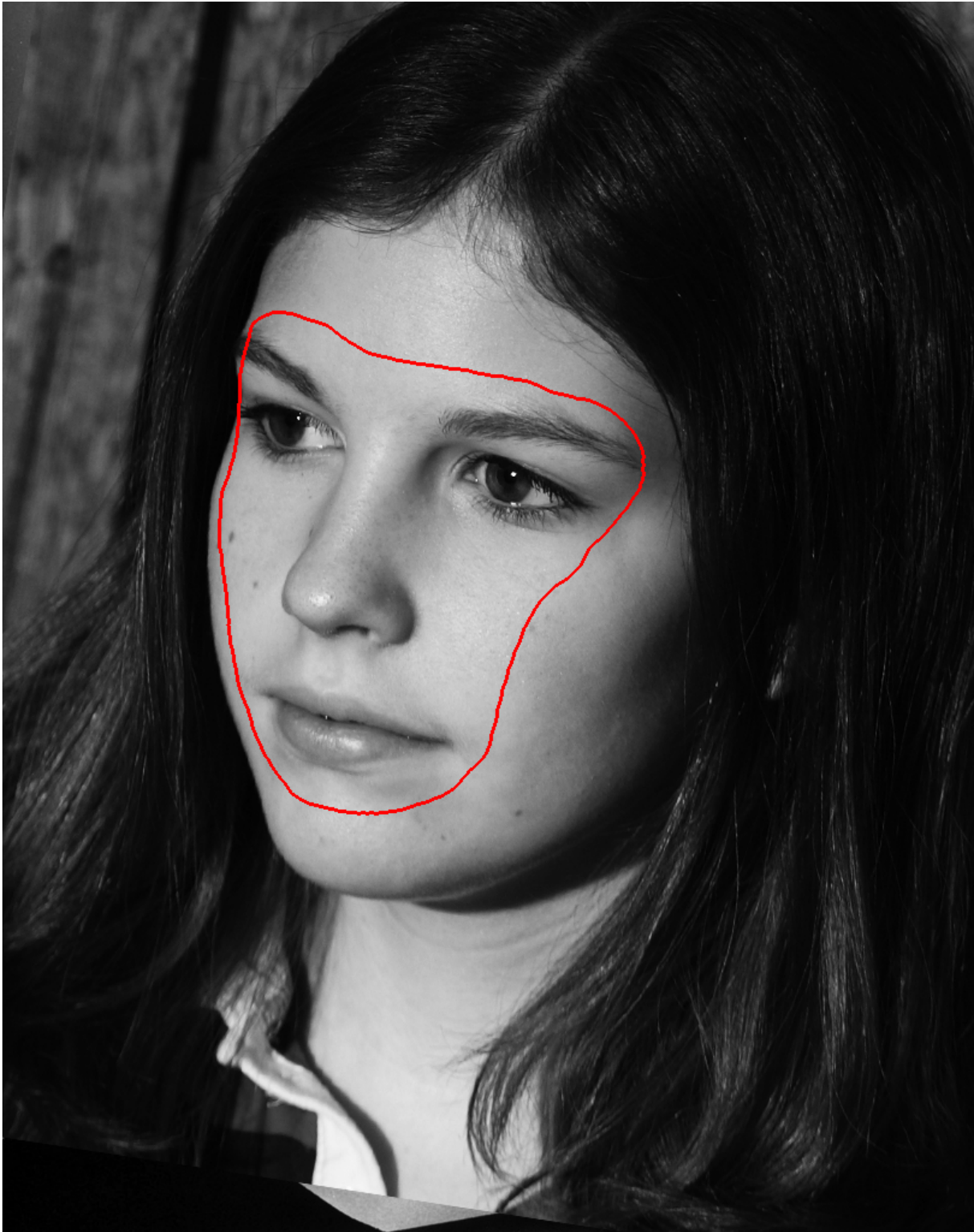
Figure 5: Mona Lisa – Harmonization.

Figure 6: Audrey – Source. Photo credit: Flickr user Steve Wampler / `Steve Wampler`.
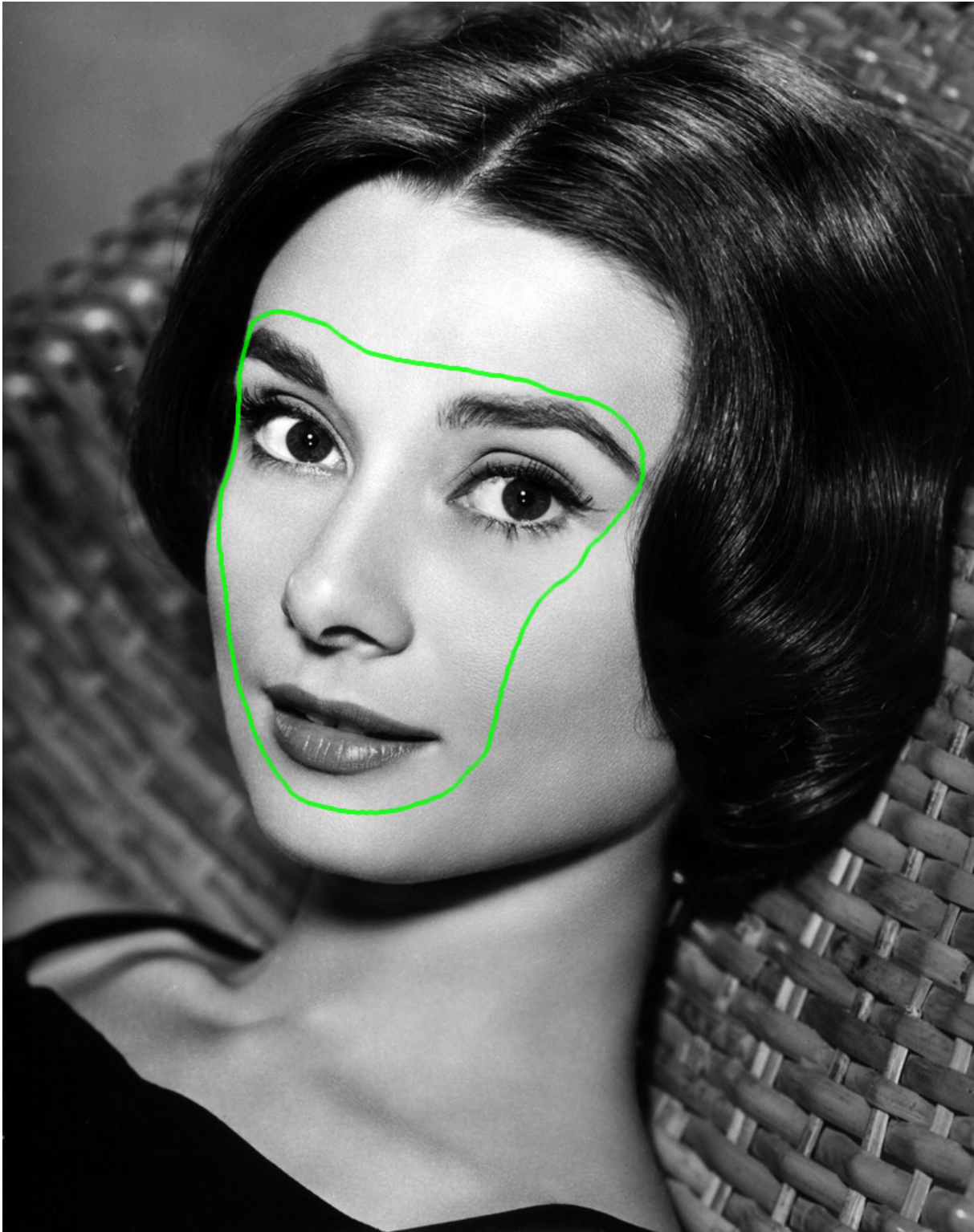
Figure 7: Audrey – Target. Photo credit: Starstock / Photoshot.

Figure 8: Audrey – Cloning.

Figure 9: Audrey – Seamless Cloning.

Figure 10: Audrey – Naive histogram matching.

Figure 11: Audrey – Smooth histogram matching.

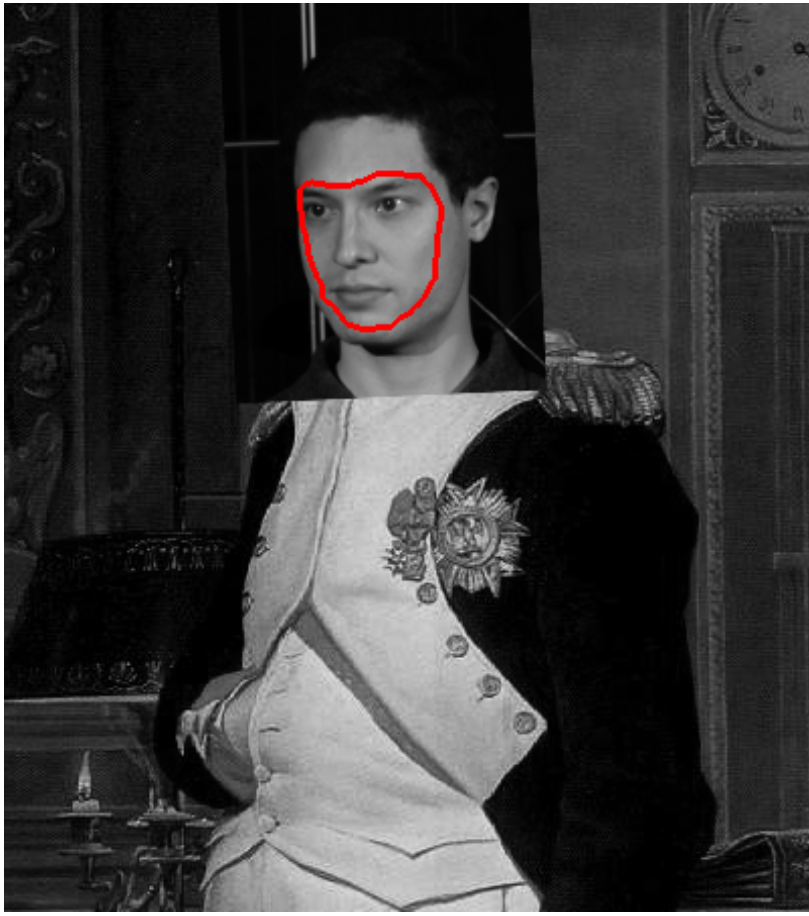Figure 12: Audrey – Smooth histogram and noise matching.

Figure 13: Napoleon – Source.

Figure 14: Napoleon – Target.

Figure 15: Napoleon – Cloning.

Figure 16: Napoleon – Seamless Cloning.

Figure 17: Napoleon – Naive histogram matching.

Figure 18: Napoleon – Smooth histogram matching.

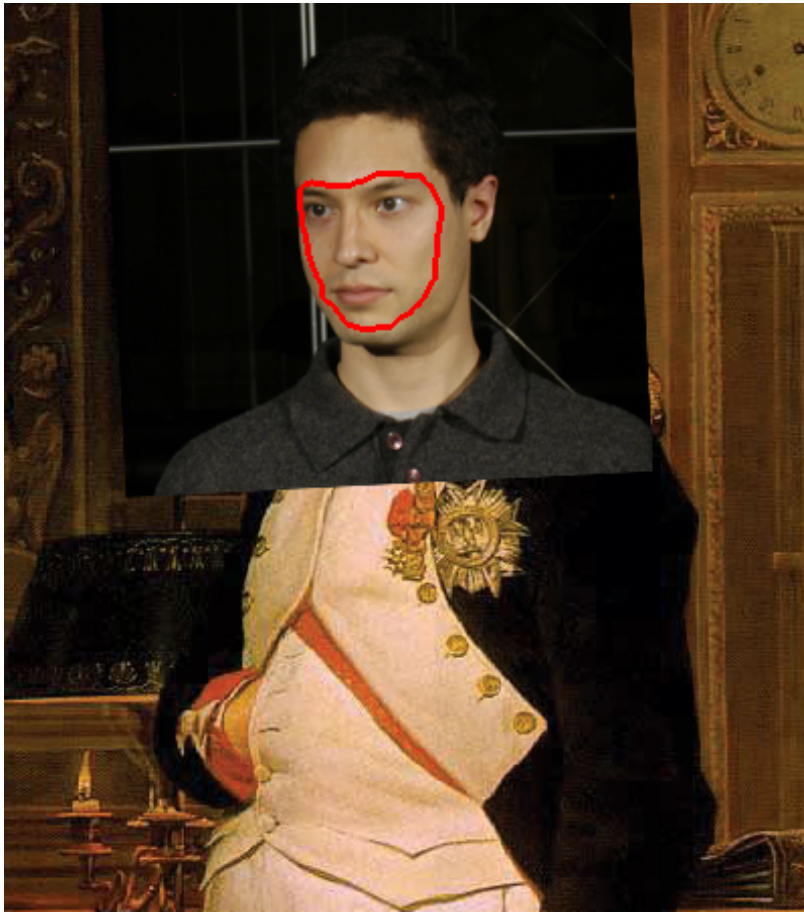Figure 19: Napoleon – Smooth histogram and noise matching.

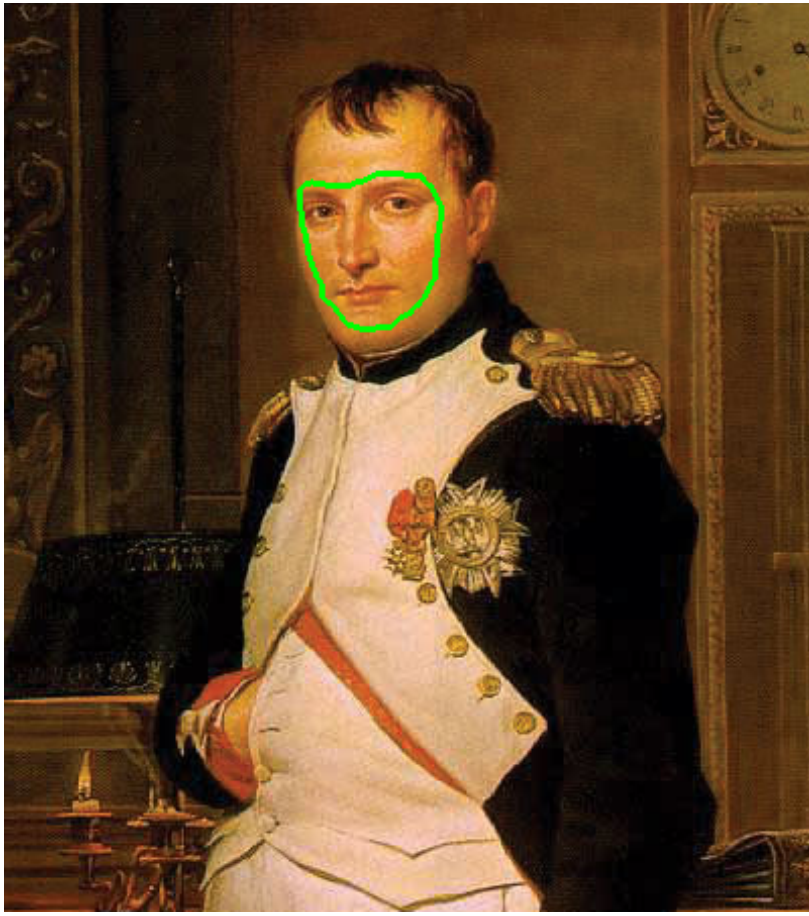Figure 20: Napoleon (color) – Source.

Figure 21: Napoleon (color) – Target.

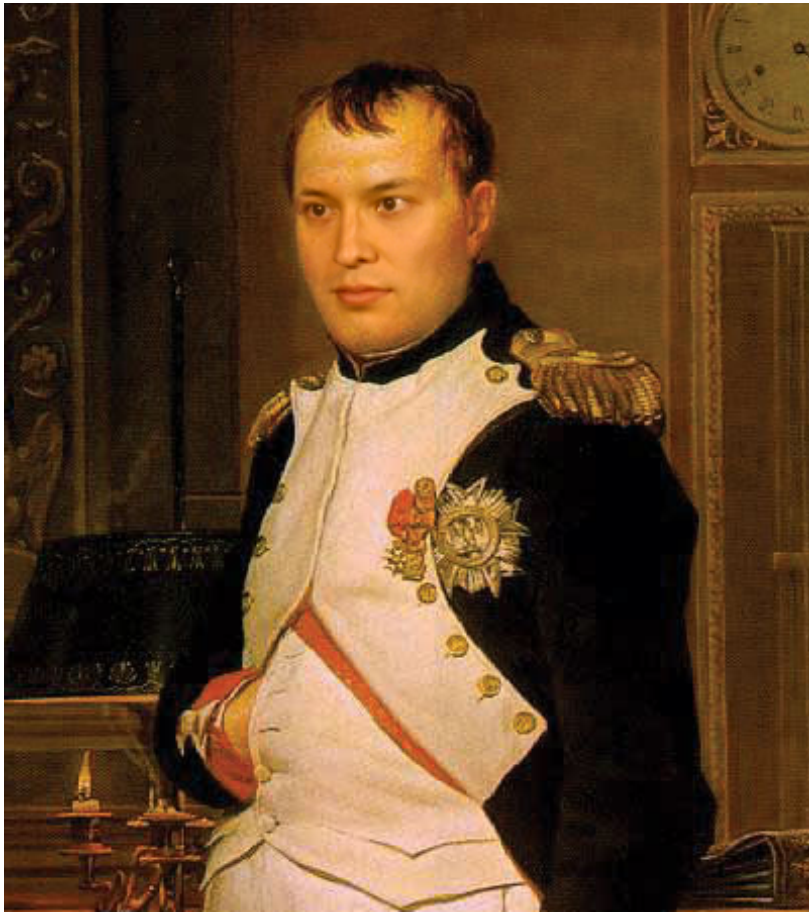Figure 22: Napoleon (color) – Cloning.

Figure 23: Napoleon (color) – Seamless Cloning.

Figure 24: Napoleon (color) – Harmonization.

Figure 25: Samurai – Source

Figure 26: Samurai – Target. Photo credit: Flickr user The Rob Oechsle Collection / `Okinawa Soba`.

Figure 27: Samurai – Cloning.

Figure 28: Samurai – Seamless Cloning.

Figure 29: Samurai – Naive histogram matching.

Figure 30: Samurai – Smooth histogram matching.

Figure 31: Samurai – Smooth histogram and noise matching.
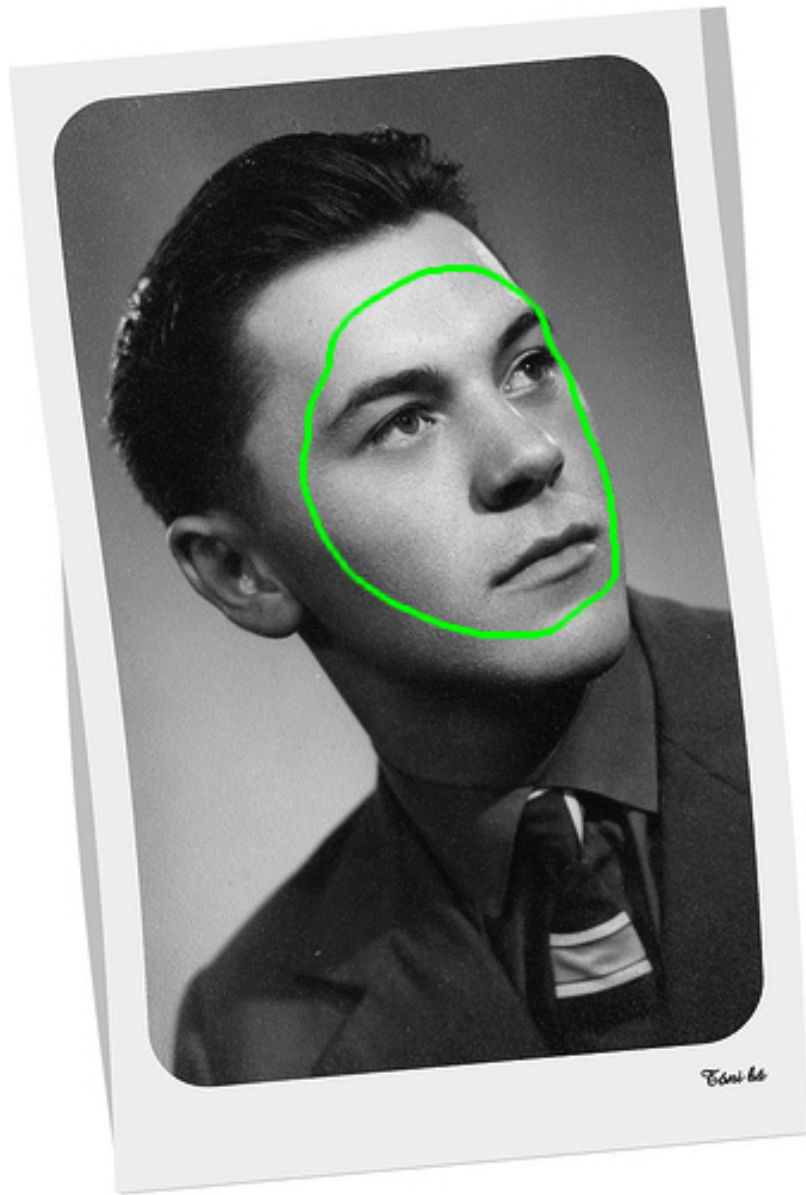
Figure 32: Stepfather – Source.

Figure 33: Stepfather – Target. Photo credit: Flickr user Zsolt Botykai / `zsoltika`.
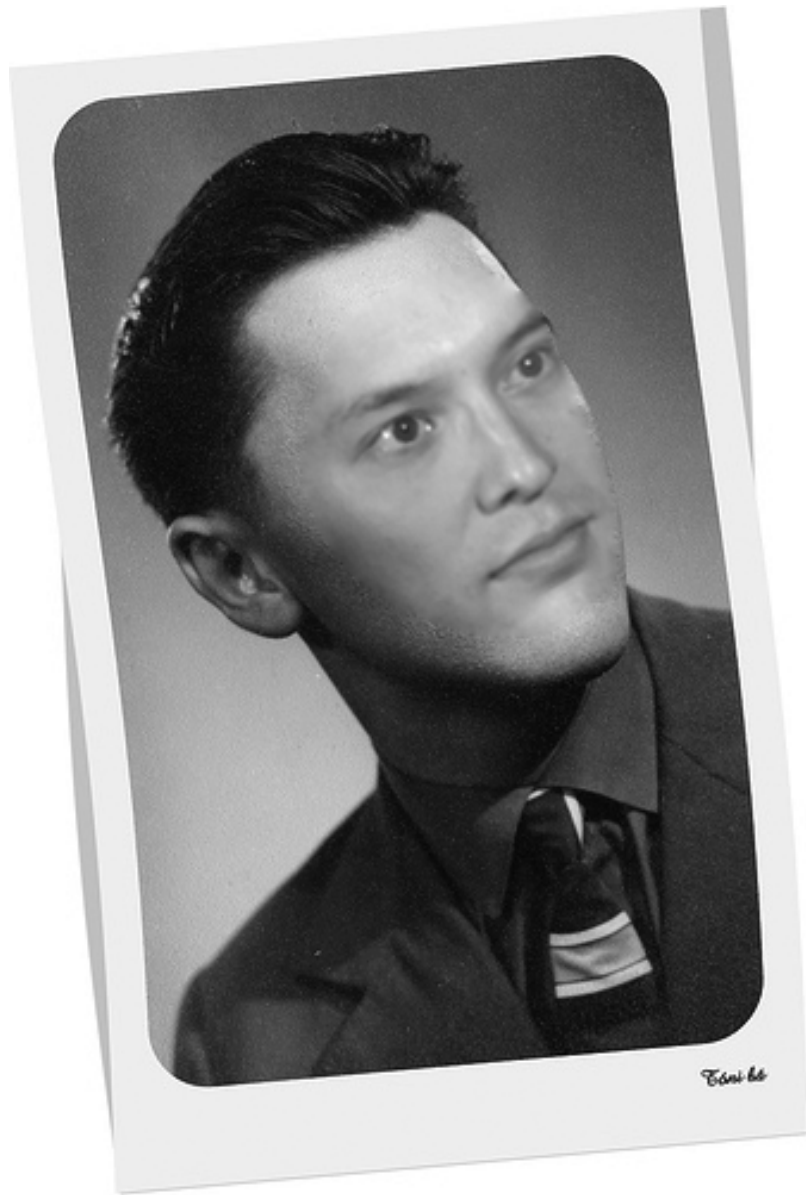
Figure 34: Stepfather – Cloning.

Figure 35: Stepfather – Seamless Cloning.

Figure 36: Stepfather – Naive histogram matching.

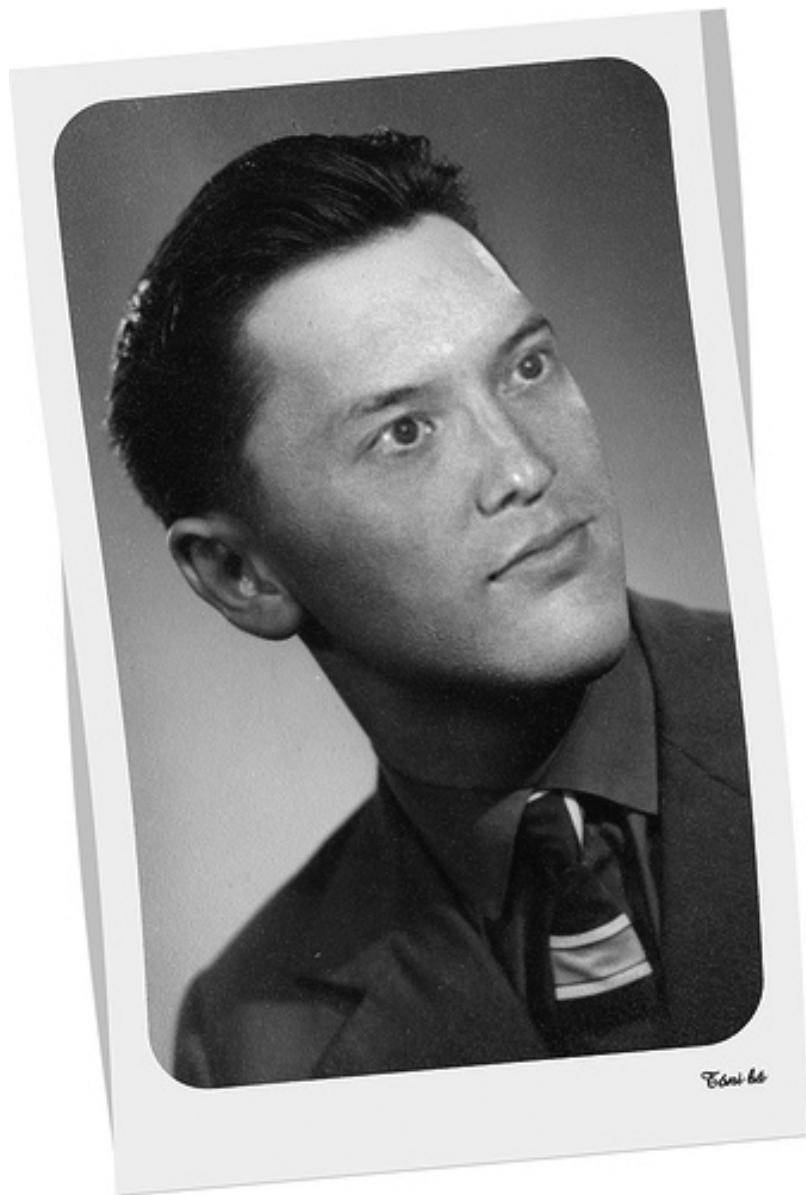Figure 37: Stepfather – Smooth histogram matching.

Figure 38: Stepfather – Smooth histogram and noise matching.

Figure 39: Hat – Source.

Figure 40: Hat – Target. Photo credit: Flickr user David Flam / `freeparking`.

Figure 41: Stepfather – Cloning.

Figure 42: Hat – Seamless Cloning.

Figure 43: Hat – Naive histogram matching.

Figure 44: Hat – Smooth histogram matching.

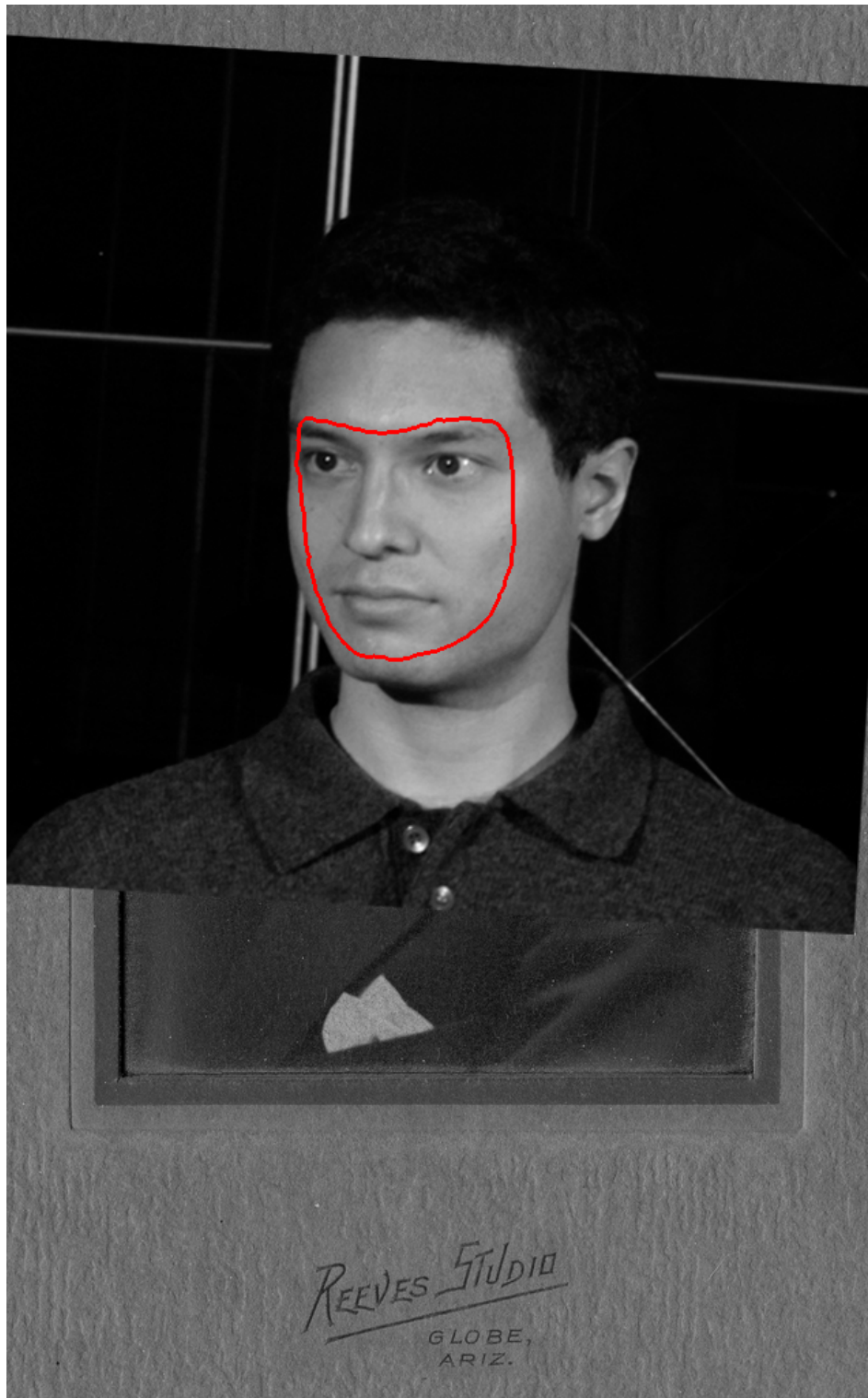Figure 45: Hat – Smooth histogram and noise matching.
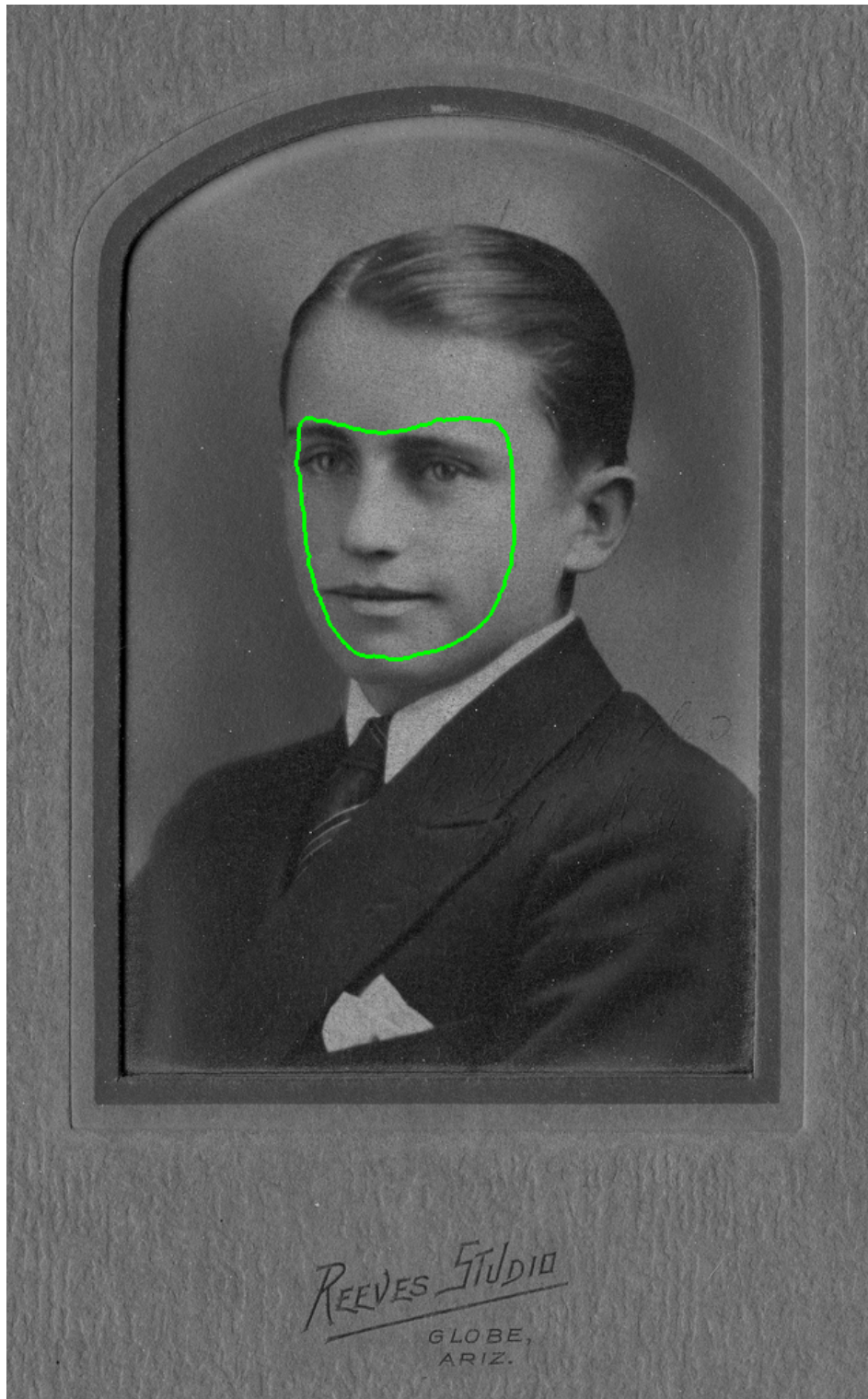
Figure 46: Stepfather – Source

Figure 47: Grandfather – Target. Photo credit: Flickr user David Flam / `freeparking`.
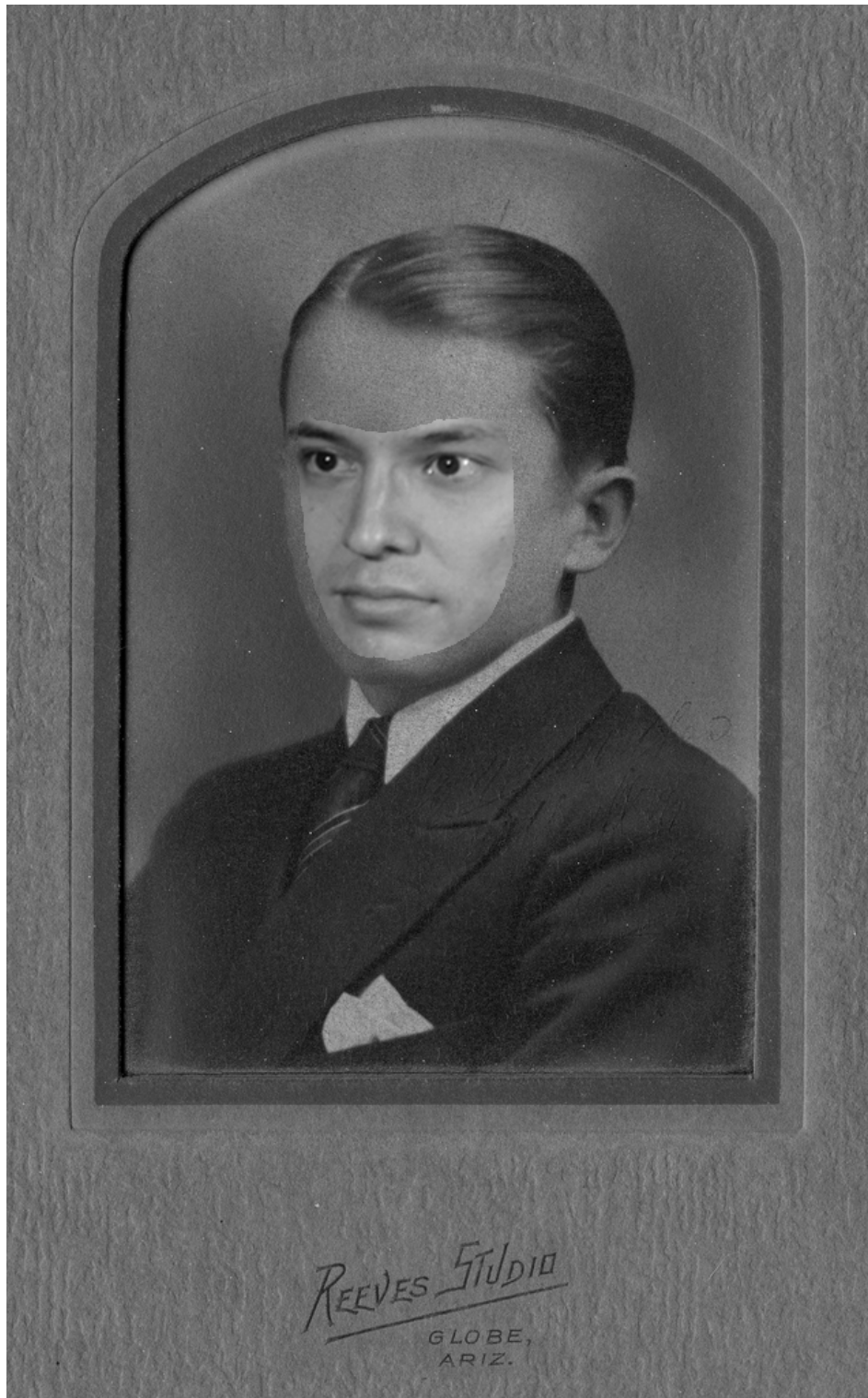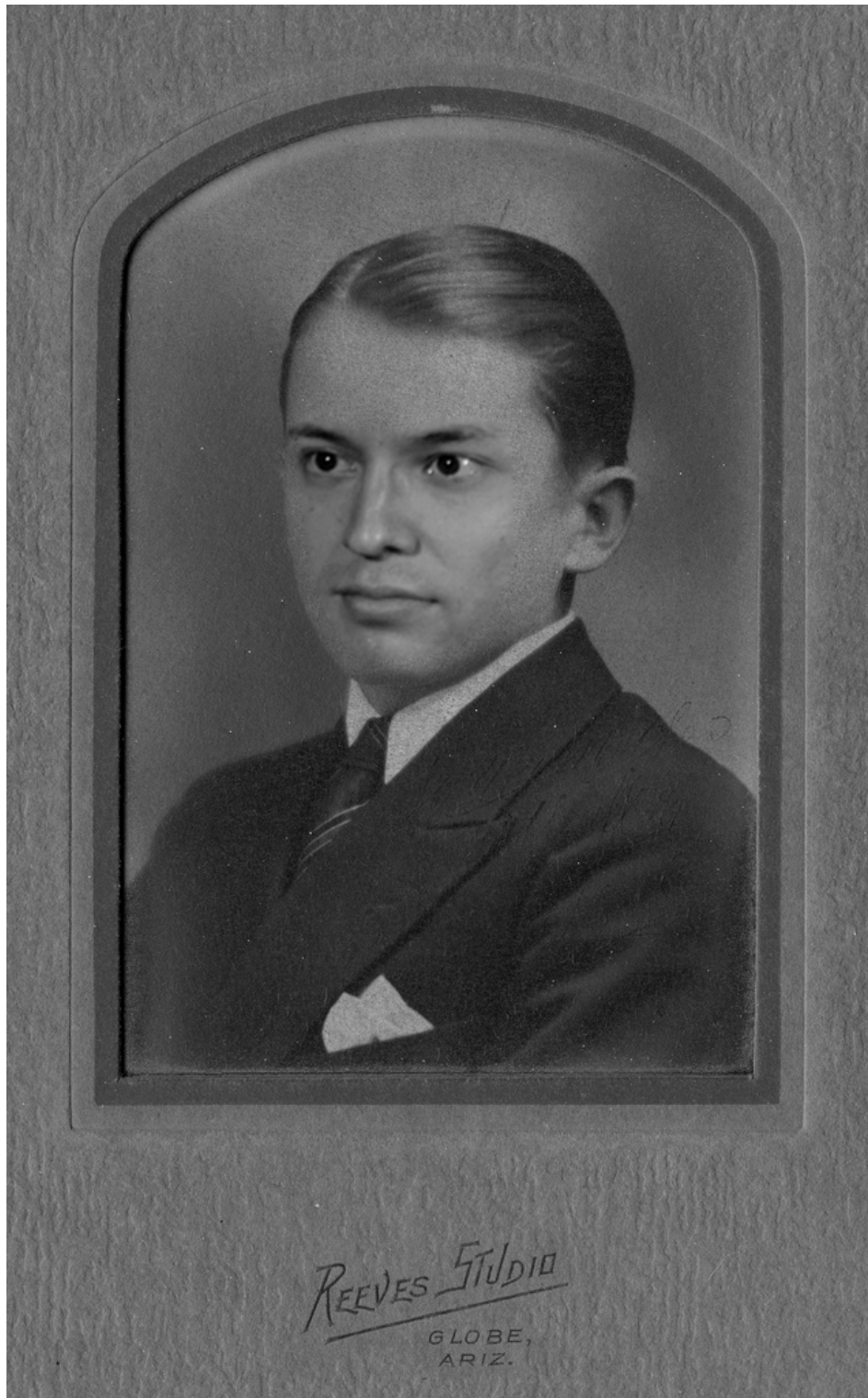
Figure 48: Stepfather – Cloning.

Figure 49: Grandfather – Seamless Cloning.

Figure 50: Grandfather – Naive histogram matching.

Figure 51: Grandfather – Smooth histogram matching.

Figure 52: Grandfather – Smooth histogram and noise matching.

Figure 53: Footprint – Source. Photo credit: Flickr user Ivar Husevåg Døskeland / `Scarto`.

Figure 54: Footprint – Target. Photo credit: Flickr user Christian Guthier / net_efekt.

Figure 55: Footprint – Cloning.

Figure 56: Footprint – Seamless Cloning.

Figure 57: Footprint – Harmonization.

Figure 58: Hearts – Source. Photo credit: Flickr user Brad T. Patterson / `patterbt`.

Figure 59: Hearts – Target.

Figure 60: Hearts – Cloning.

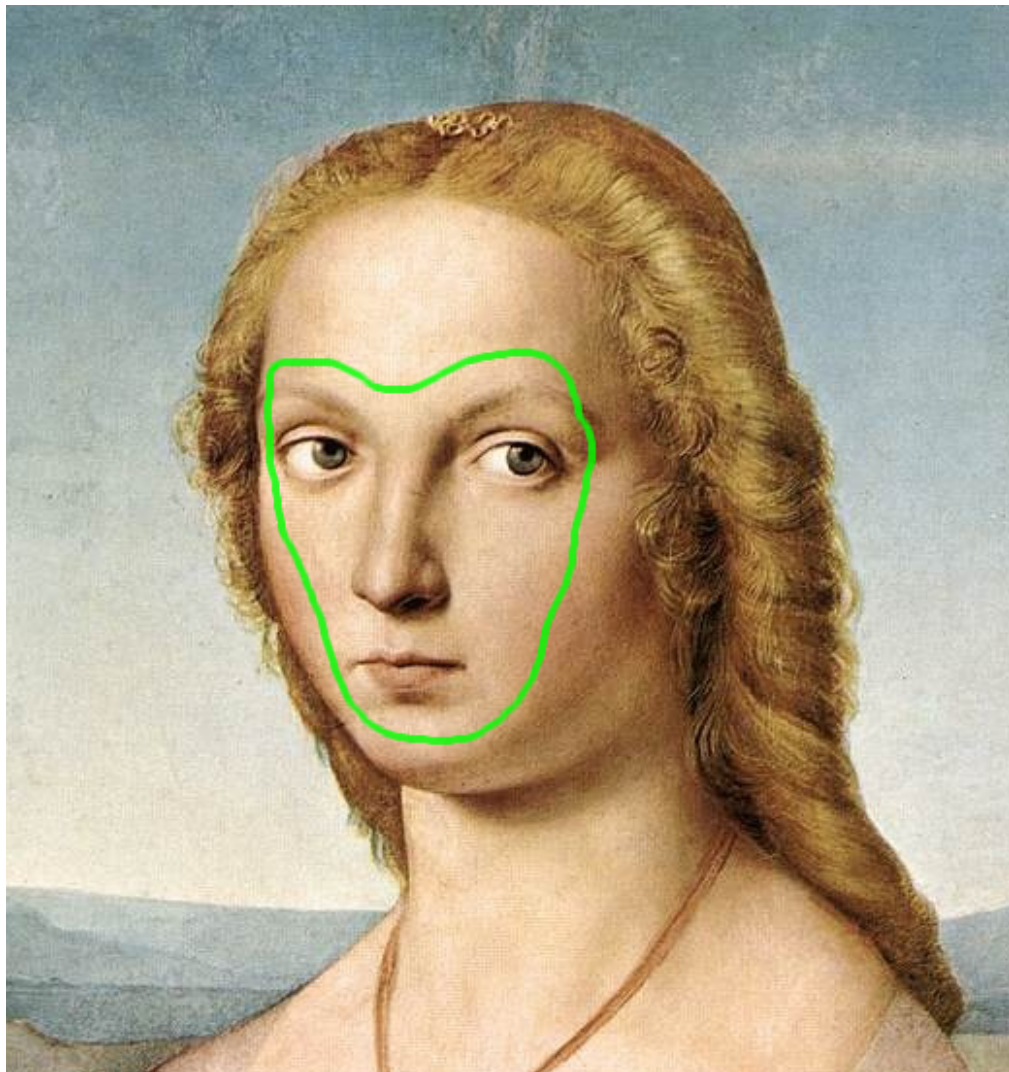Figure 61: Hearts – Seamless Cloning.

Figure 62: Hearts – Harmonization.
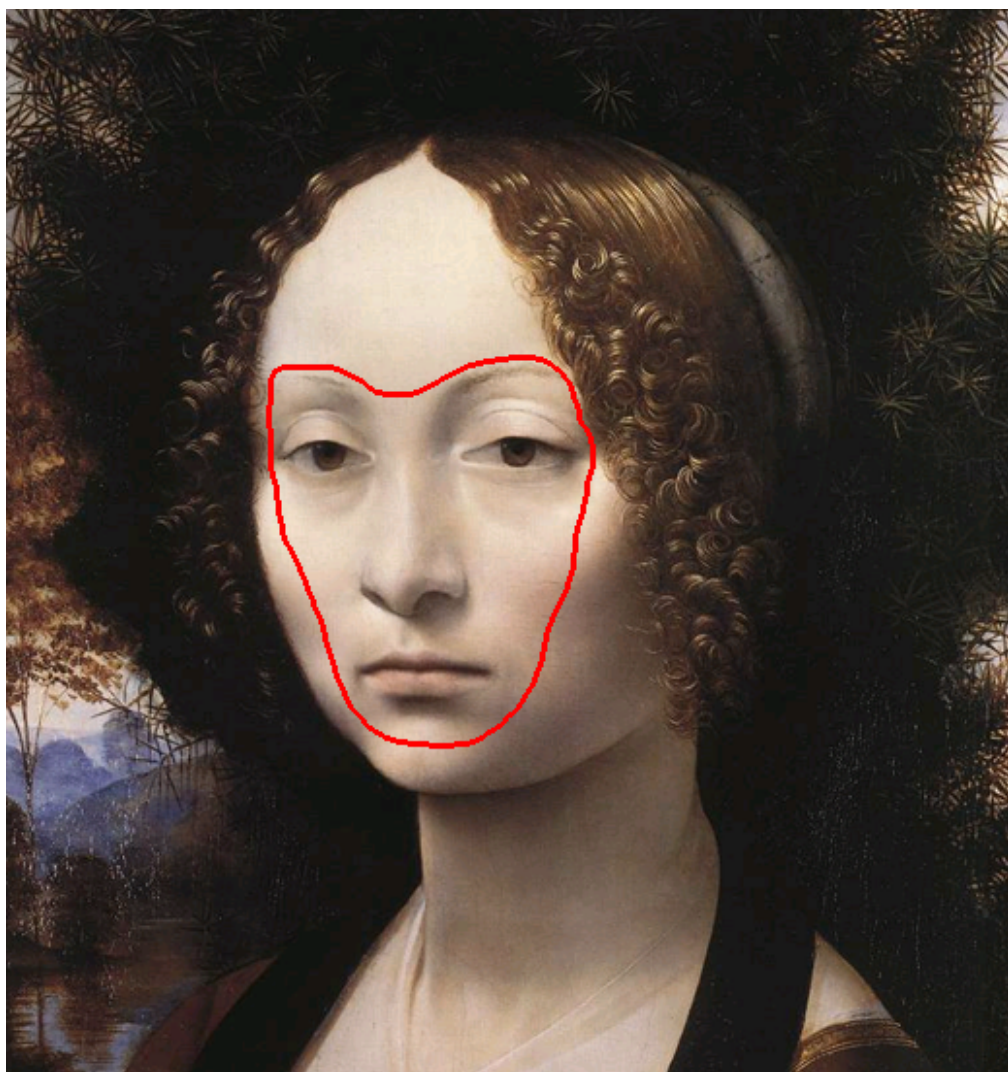
Figure 63: Lady with a Unicorn – Source.

Figure 64: Lady with a Unicorn – Target.

Figure 65: Lady with a Unicorn – Seamless cloning result for inserting source image into target image.

Figure 66: Lady with a Unicorn – Harmonization result for inserting source image into target image.

Figure 67: Lady with a Unicorn – Seamless cloning result for inserting target image into source image.

Figure 68: Lady with a Unicorn – Harmonization result for inserting target image into source image.

Figure 69: Ferrari – Source. Photo credit: Flickr user Thomas Helbig / `teliko82`.
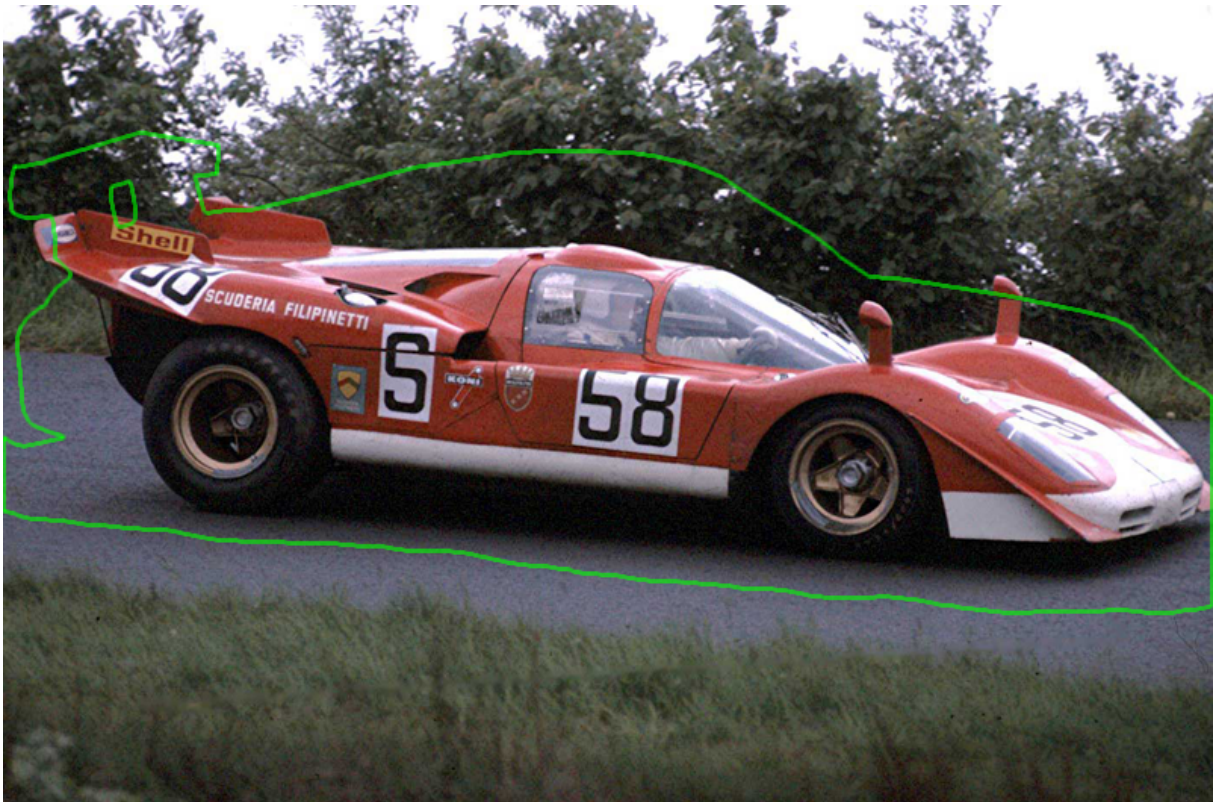
Figure 70: Ferrari – Target. Photo credit: Flickr user Jim Culp / `prorallypix`.
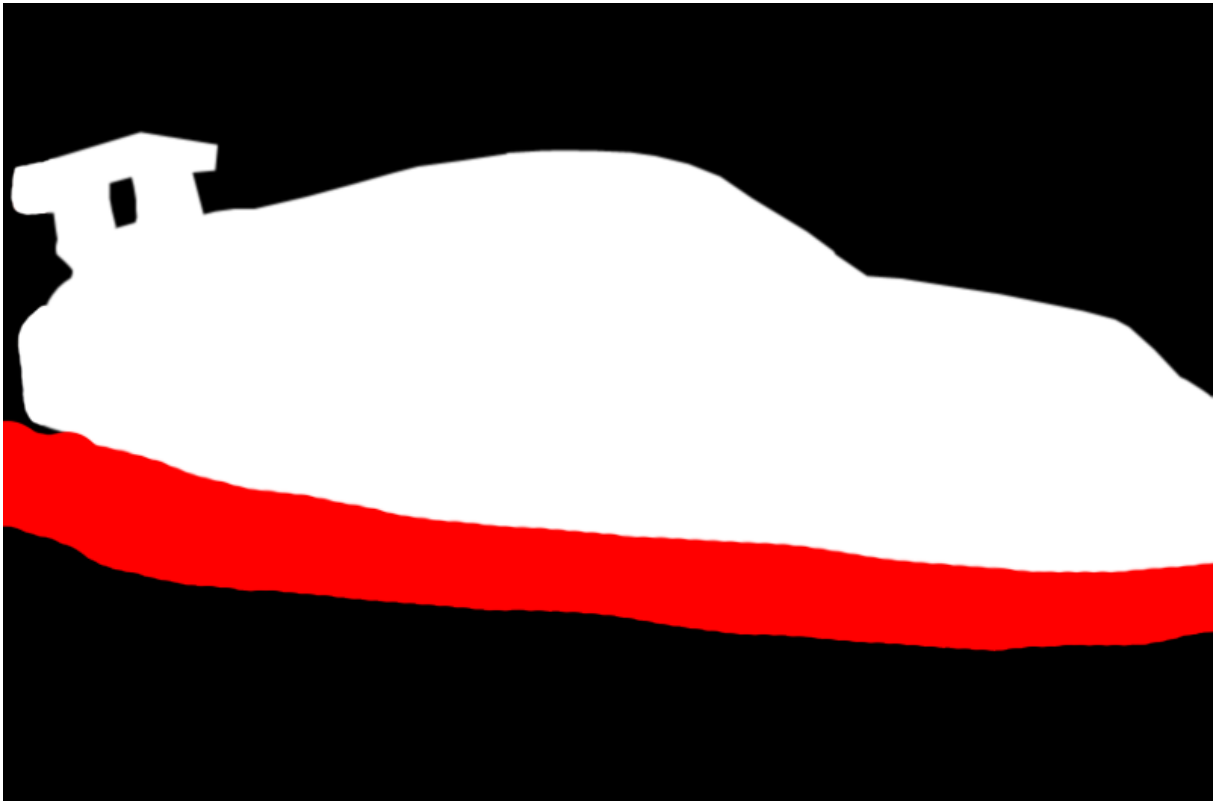
Figure 71: Ferrari – Cloning.

Figure 72: Ferrari – Boundary Conditions (white = alpha matte, red stroke = seamless boundary).

Figure 73: Ferrari – Harmonization.

Figure 74: Hydrant – Source. Photo credit: Flickr user Robert Fornal / `Bob.Fornal`.

Figure 75: Hydrant – Target. Photo credit: Flickr user Luis Argerich / `lrargerich`.
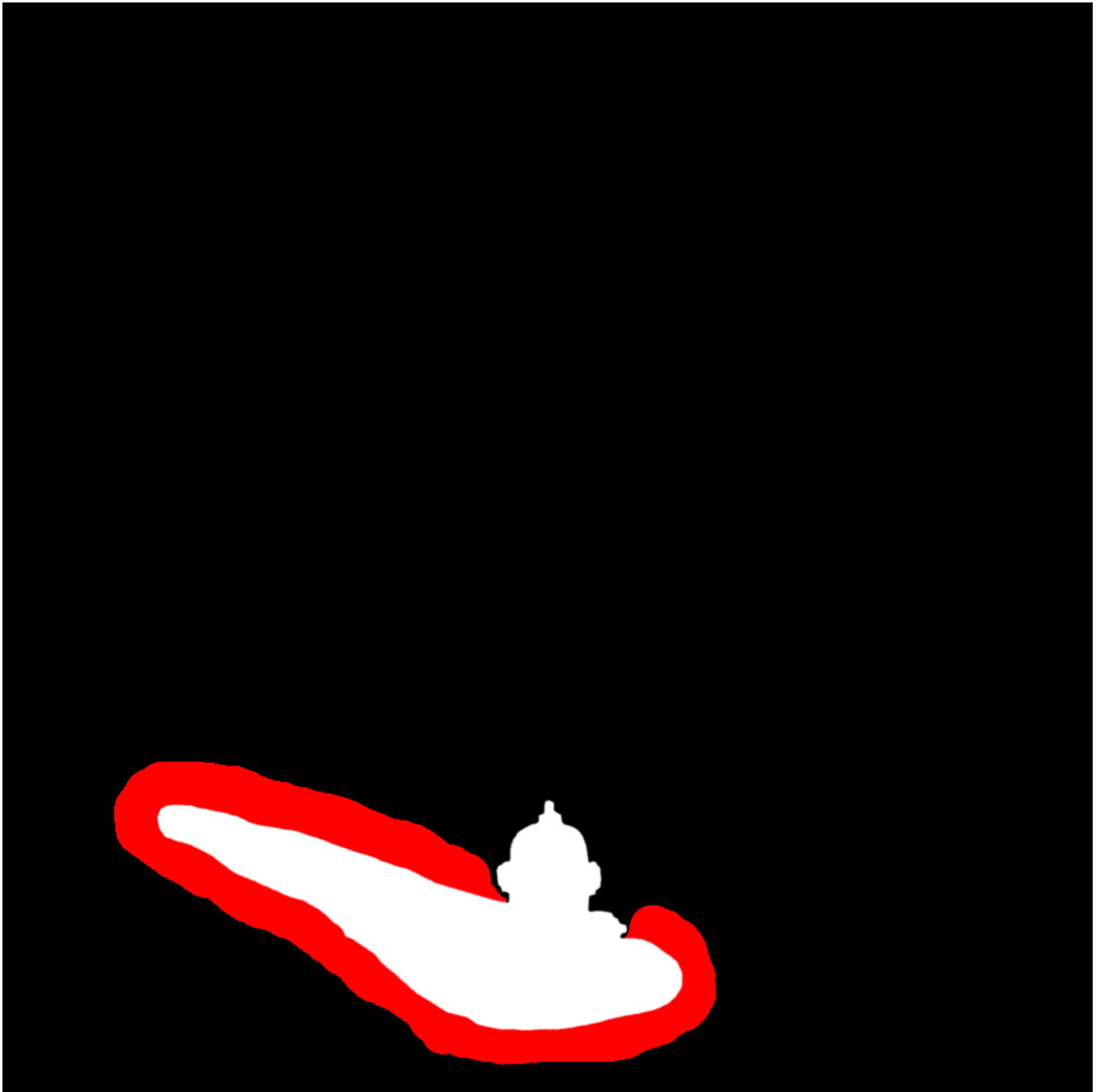
Figure 76: Hydrant – Cloning.

Figure 77: Hydrant – Boundary Conditions (white = alpha matte, red stroke = seamless boundary).

Figure 78: Hydrant – Harmonization.

2   Style Transfer

The following images show the results of transfering the style of Ansel Adams' *Clearing Winter Storm* photograph to the input images.

Figure 79: Tulip – Input image.

Figure 80: Tulip – Naive histogram matching.

Figure 81: Tulip – Smooth histogram and noise matching.

Figure 82: Rock – Input image.
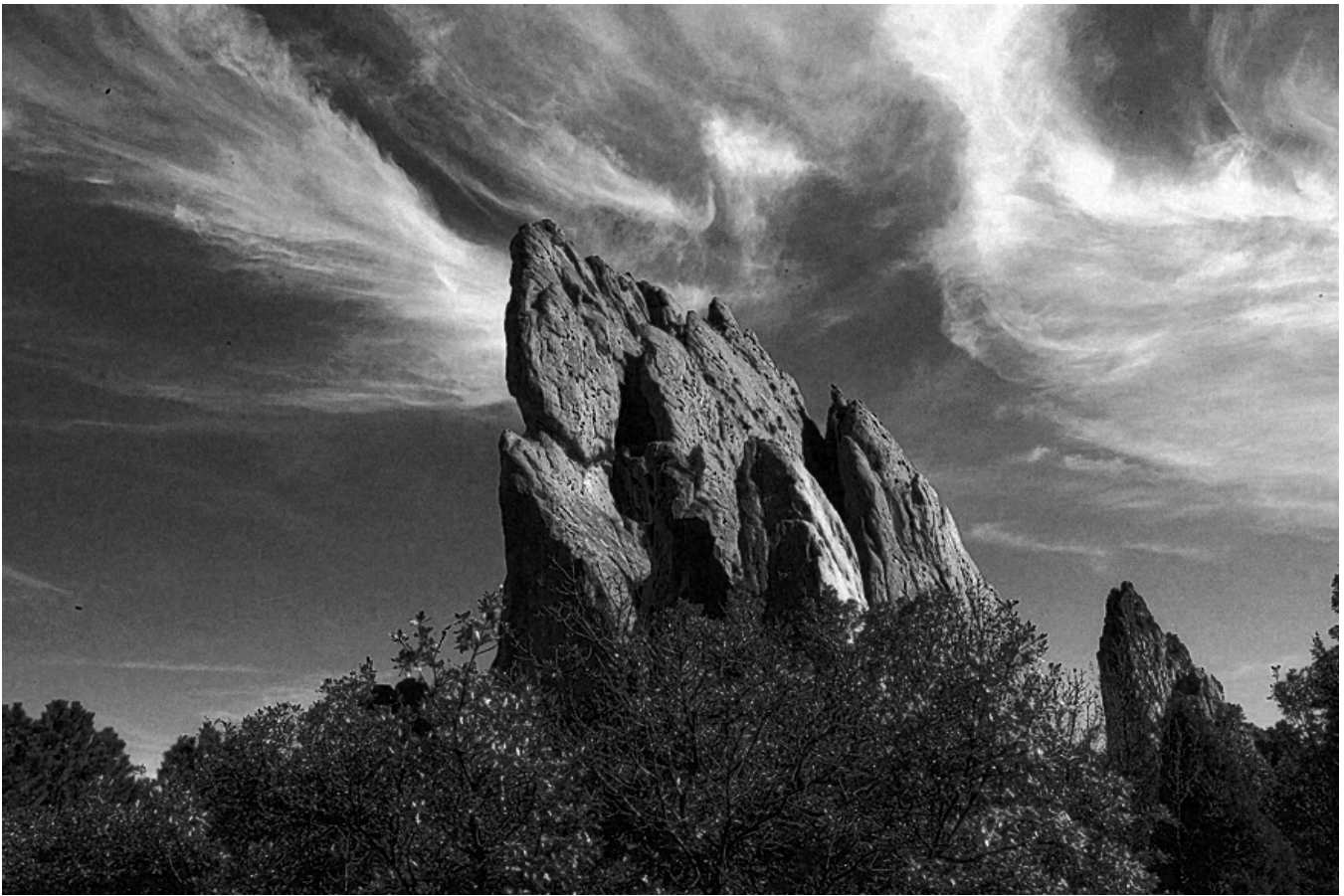
Figure 83: Rock – Naive histogram matching.

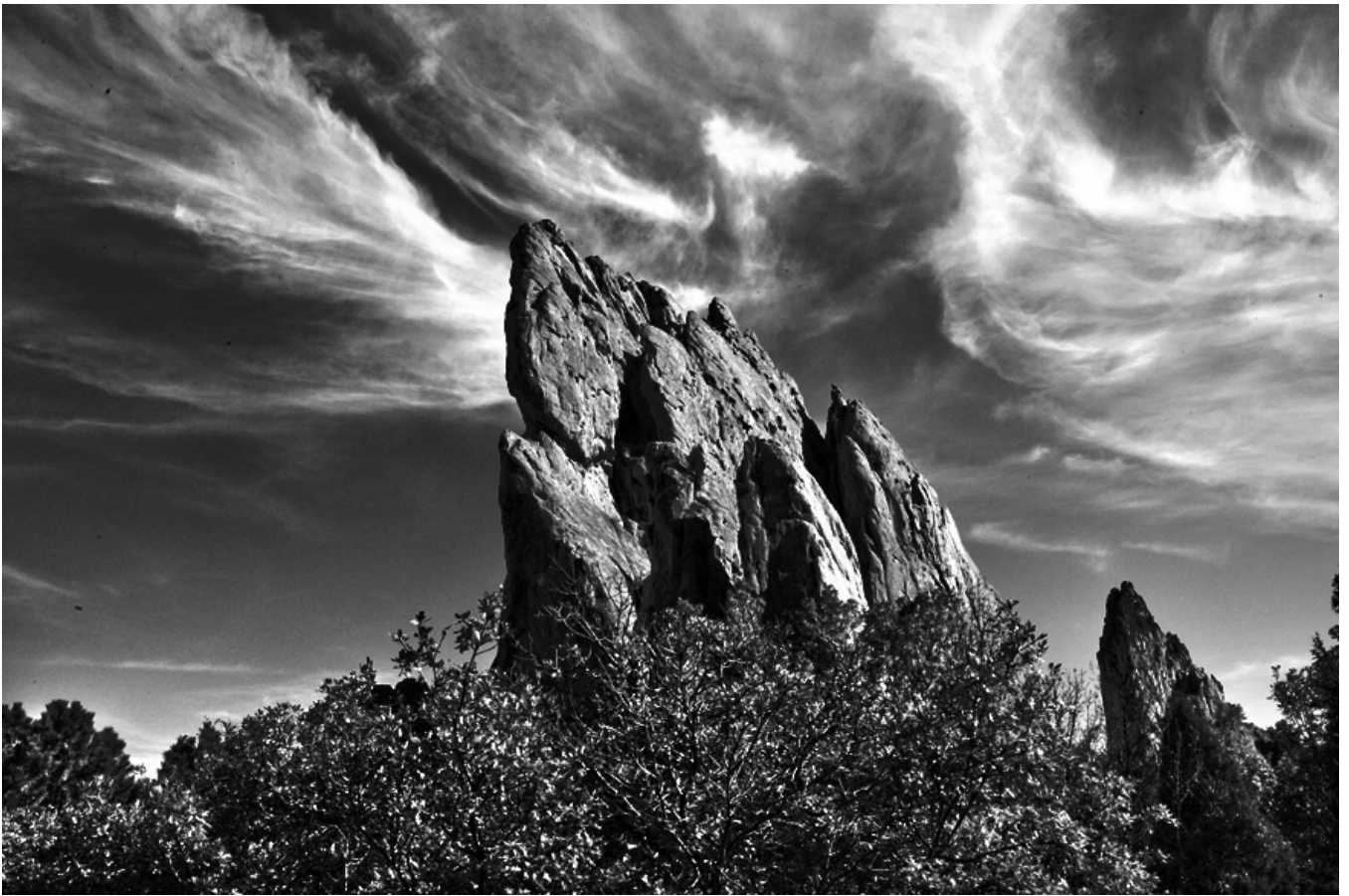Figure 84: Rock – Smooth histogram and noise matching.

Figure 85: Rock – [Bae et al. 2006].

Figure 86: Dome – Input image.

Figure 87: Dome – Naive histogram matching.

Figure 88: Dome – Smooth histogram and noise matching.

Figure 89: Dome – [Bae et al. 2006].