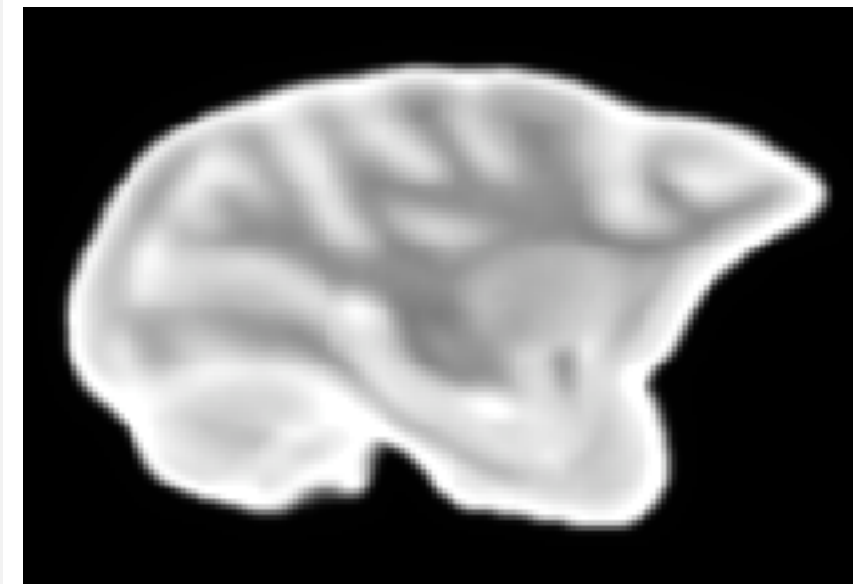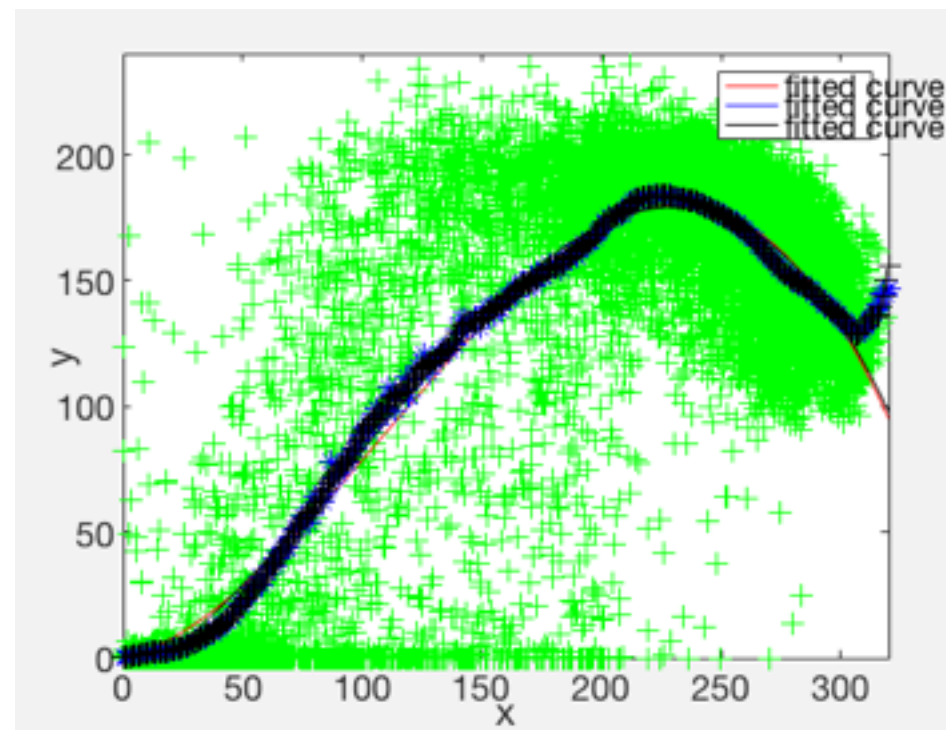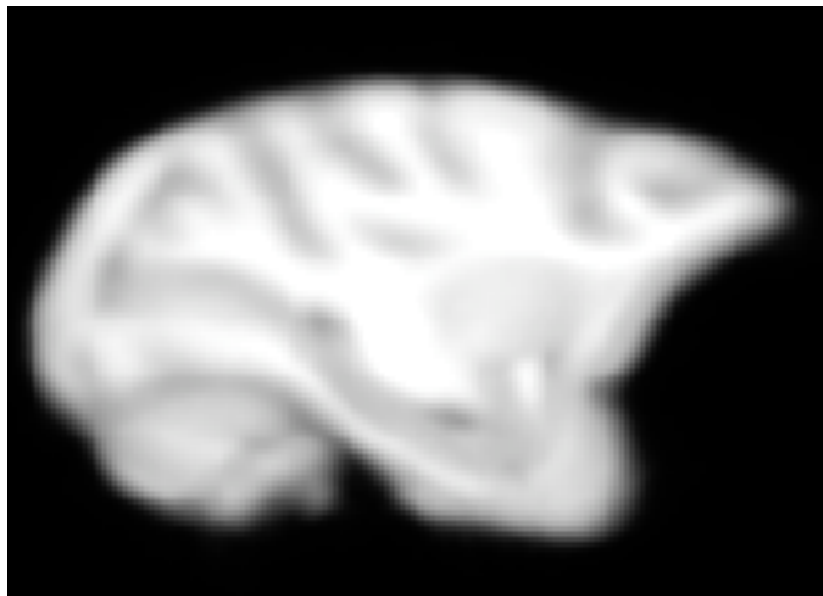1. The in-vivo T1w reference template (below) has a different contrast than the ex-vivo T1w image (right)
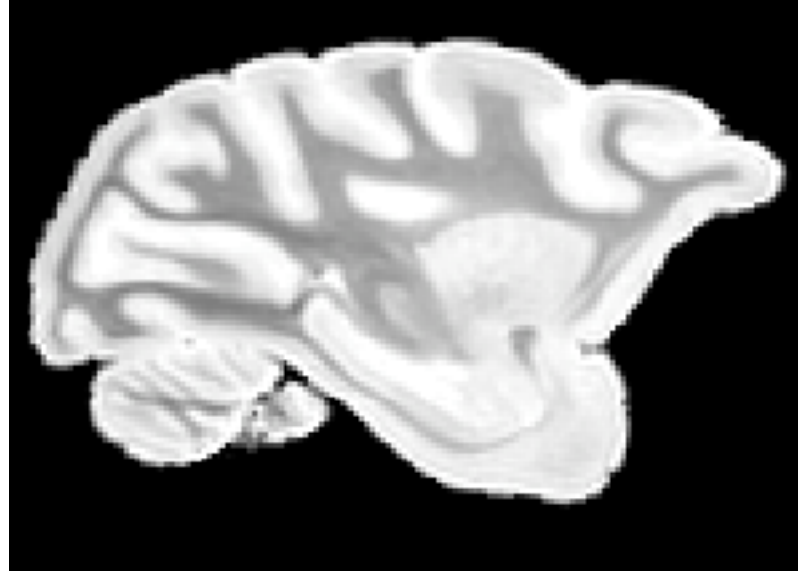
2. I created a weighted log-transformed inverse image to provide a rough approximation (below), and non-linearly registered the ex-vivo source to this template

3. I regressed all voxel intensities of the original template against the registered ex-vivo source (middle plot, green points). Then anti-aliased resampled (blue), and low-pass filtered (black).
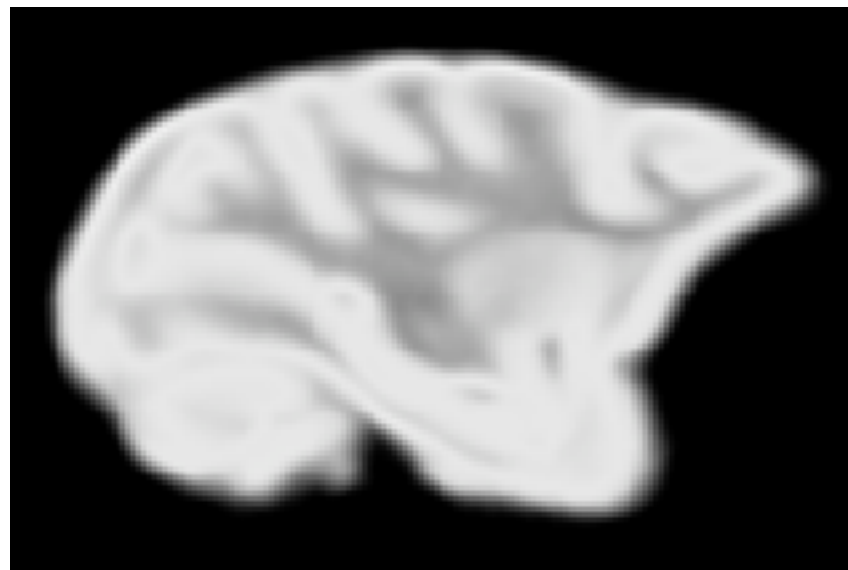
4. Then I fitted a polynomial against this resampled data and projected the original template through this function to obtain a new adjusted template (left).