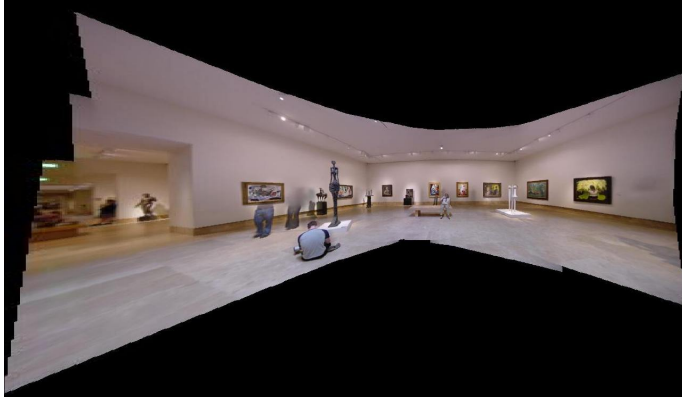# Squaring the Circles in Panoramas
Supplemental Material

Paper No.: 1092

In this document you will find the uncropped version of the figures from the paper. They are in some sense more insightful but also more confusing.
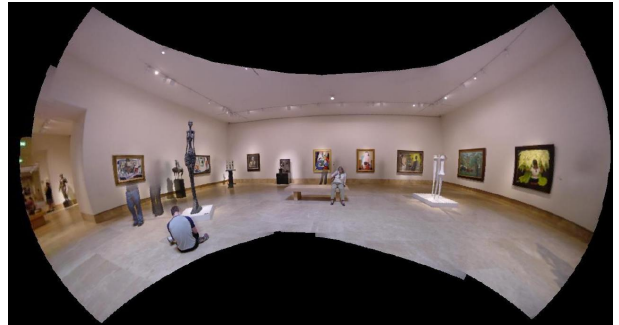
Perspective

Stereographic

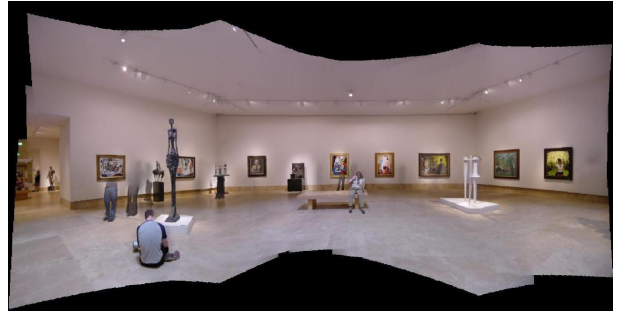Mercator

Transverse Mercator

Geographic

Multi-Plane

Figure 1: **Spherical projections.** *There are many spherical projections. Each has its pros and cons.*

Stereographic

Mercator

Transverse Mercator

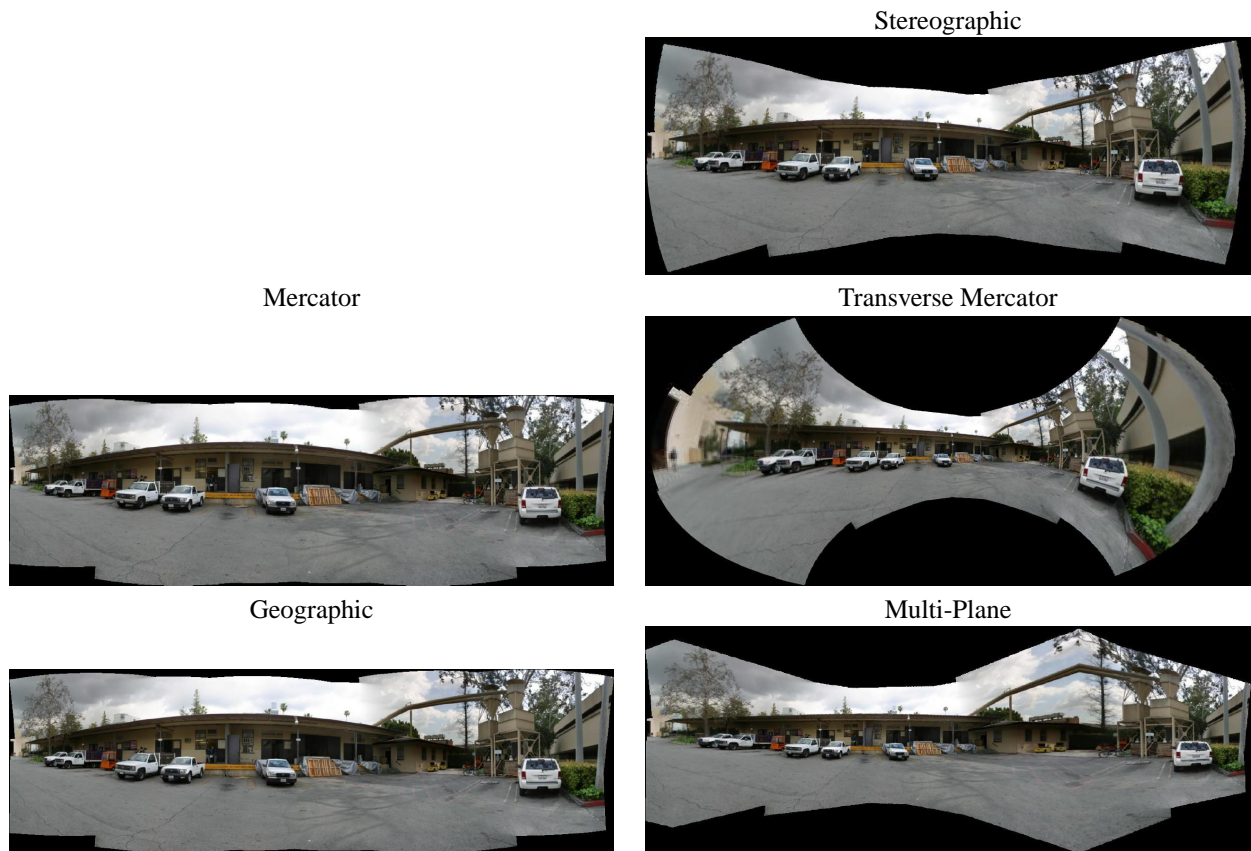
Geographic

Multi-Plane

Figure 2: **Multi-Plane projection.** *The Mercator projection captures the whole scene but bends lines. A single plane perspective projection is impossible in this case as the horizontal angle extends over* $180°$. *The multi-plane projection provides a more compelling result and the discontinuities are unnoticeable (to remove any doubt, the actual building is straight).*

Perspective

Stereographic

Mercator

Transverse Mercator
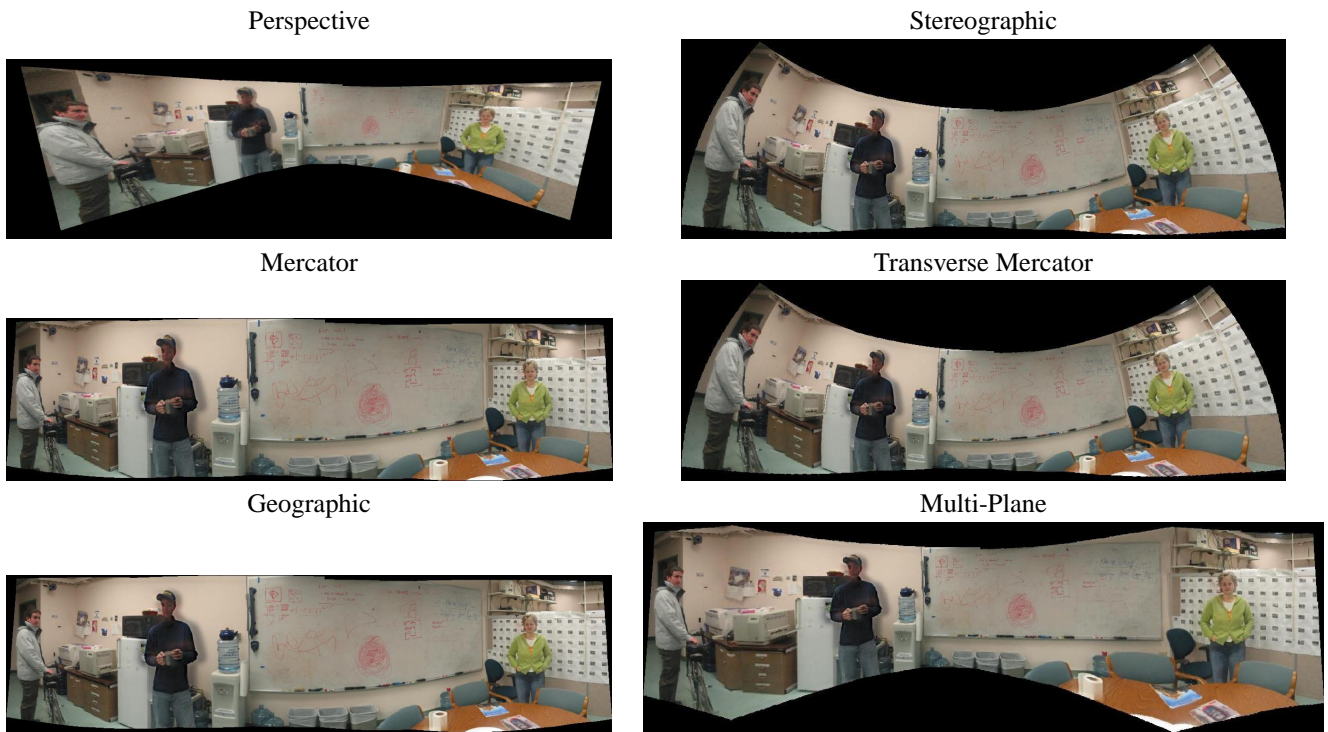
Geographic

Multi-Plane

Figure 3: **Foreground Vs. Background.** *The perspective projection distorts the people at large viewing angles. The Mercator projection keeps the people undistorted, but distorts the background. The Multi-Plane projection provides the most compelling result with no noticeable distortions in both foreground and background.*
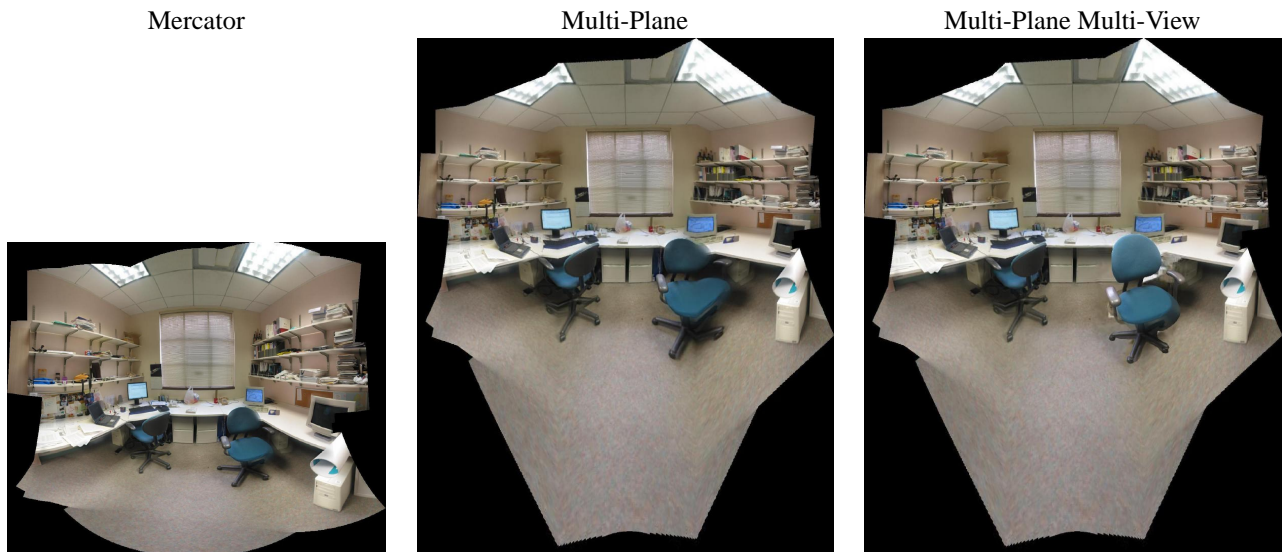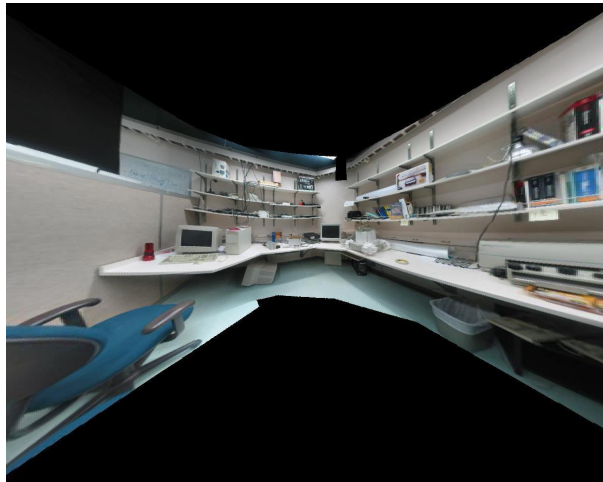
Mercator

Multi-Plane

Multi-Plane Multi-View

Figure 4: **Multi-Plane Multi-View.** *The multi-plane projection rectified the background but the chair on the right got distorted. Using the Multi-View approach the chair is undistorted.*

Mercator

Perspective

Multi-Plane

Figure 5: *A standard perspective projection cannot cover the full field of view. This is fixed by using the multi-plane approach.*

Geographic   Multi-Plane

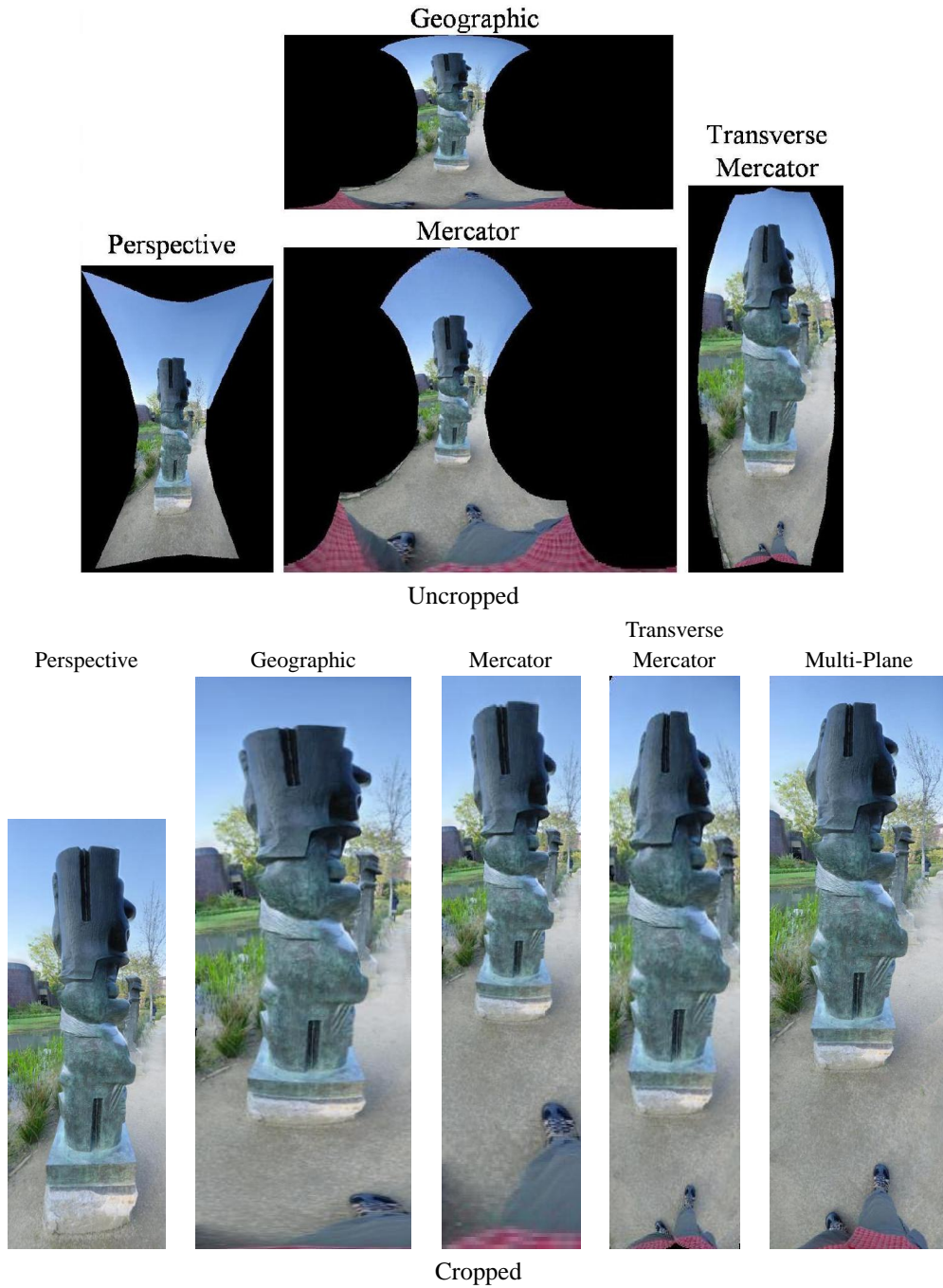Figure 6: **Another Multi-Plane Example.**

Figure 7: **Vertical Panorama.** *For wide angle panoramas, perspective cannot capture the full range, thus the photographers legs are excluded. Geographic distorts proportions (see how squashed the legs look). Mercator stretches the legs across the bottom. Transverse-Mercator captures both the sculpture and the photographer which suggests it is the best global projection option for narrow vertical panoramas. Multi-Plane does even better.*