

SELECTED WORKS in GHOST in the MACHINE

The exhibition draws on Constructivism and Precisionism — elevating engineered objects to geometric abstraction — to explore what transcendence looks like when it is man-made rather than natural. Among the works on view:

Golden Primary Mirrors series — A series of works based on the telescope’s 21-foot-wide gold-plated primary mirror, designed to collect and focus infrared light from the farthest reaches of the visible universe. Rather than depicting what the mirror will eventually see in space, Makepeace renders what it reflected in the mundane fabrication room where it was being built — capturing the room itself, and the telescope, and setting up a deliberate contrast between the exquisite precision of the instrument and the ordinary environment of its construction. Charcoal and pastel on paper.

Ray Tracing (MIRI Light Path) — Working from a 3D model created by the European Space Agency, Makepeace traces the path of collected light as it travels on a complex journey through the Mid Infrared Instrument’s beam splitters and filters, reflecting across many different mirrors in a complex pattern. He describes the result as “an ethereal sculpture made out of photons: the finite describing the infinite.” Derivative works extend the abstraction further, using computer-generated image effects to smear and stretch the light into beams of light from beams of light. Gouache, sumi ink, acrylic paint on paper.

Star Trail Works (Journey Across the Stars) — Works in which Makepeace devised tools and imaginary cameras to trace the orbital path of the telescope through the night sky. In the Polar Star Trails works, he used an imaginary mirror to capture both the polar stars and the southern sky simultaneously. In the Orbital Path drawings, he plotted JWST’s position every night at midnight over the course of a year to produce looping shapes describing its journey across the sky — the backgrounds consisting of a sinusoidal rake of distant stars smeared across a year-long imaginary exposure. Sumi ink, acrylic paint on paper.

“Reflective Heat Shielding series — This series features details of the Webb telescope’s structure, a highly reflective foil, housing the systems that keep it functioning. One drawing is shown side-by-side with its mirrored twin — a stencil, or mask, used to make the first image. The artist’s fingerprints, in smudged charcoal, are visible throughout, as residue of the process of its creation, using one of humanity’s most ancient and imprecise drawing tools — soft charcoal — to render one of the most technically advanced objects ever built. Charcoal and pastel on paper.

Ghost in the Big Machine (Simultaneity and the Flow of Time) — A 25-foot-wide acrylic painting inspired by a convex wall in the American University Museum. Because of the tight radius of the curved wall, a viewer cannot see both ends simultaneously — the viewing path resembles a planetary orbit. The work has two discrete parts: on the left, the black hole at the center of our galaxy with nine stars orbiting it — unknowable and intangible; on the right, a detail of the Webb telescope’s Mid-Infrared Instrument light path — a machine built for imaging the infinite. The two halves are tenuously connected by an amorphous line resembling cosmic dust or debris. Acrylic paint on canvas.

Letters Home — Works showing the position of the Webb telescope as a small streak against the stars. Makepeace describes the telescope sending back a few photons: “like a letter home.” Using positional data from NASA adjusted for his home in Washington, DC, he composed imaginary astrophotographs with a theoretical 30-minute exposure, drawing the correct stars at their appropriate magnitude and position. Sumi ink, acrylic paint on paper.

Defocused Stars of Orion with JWST — Makepeace discovered that, instead of focusing properly on a star, which results in a small whitish dot, he could defocus his telescope so the image of the star is blurry, which makes the star’s light spread out and its colors more apparent, showing their spectra and magnitudes and creating an abstract composition. After consulting the positional data for the Webb telescope, which NASA’s Jet Propulsion Laboratory makes public, he added its trajectory with a faint line, visible above the hunter Orion’s head. Sumi ink, acrylic paint on paper.

Foil Abstractions — A series based on a piece of Kapton foil — the highly reflective film used in the telescope’s thermal shielding — given to Makepeace by someone who worked on the telescope’s optical systems. Knowing that the other part of this foil is currently orbiting one million miles from Earth, Makepeace photographed it in a variety of folded configurations, creating a new set of abstract shapes from a material with an extraordinary provenance. Digital images on paper.