War Horse – Special Visual Effects

War Horse features a seamless combination of practical SFX and digital VFX. From the outset, the filmmakers stressed the effects created for the film must be 'invisible' and never break the reality of the story being told. Traditional techniques such as crowd replication, matte paintings and split screens, along with 'in-camera' effects were embraced by the director, rather than immediately going for the CG solution.

The practical effects team provided extensive battle effects, pyrotechnics, stunt rigs, atmospherics and 'live' armaments for the WW1 battle scenes. A fully functional, 15 Ton, steel plated British Mark V tank, built from original engineering drawings, was one of the unique vehicles and weapons built for the project.

For the ploughing scene in Devon a complex winch system was built to allow the practical plough to cut the heavy soil without tiring or injuring the horses. Another larger winch system was used in the Cannon Pull sequence which features horse teams dragging the massive practical Morser M10 Cannons up a steep hill. During post the VFX team were called upon to paint out these rigs and assist in numerous other shots containing horse trainers, harnesses, lighting rigs and grey-suited stunt riders.



Joey's first encounter with battle comes during a British Cavalry Charge against a German camp. The Cavalry conceal themselves in high reeds before the charge begins. Extensions to the limited practical reed bed where achieved through digital matte painting. Crowd replication was used to multiply the available 80 riders to over 300 for wide shots. As the stricken charge approaches the German machine guns, rider-less horses were corralled through fenced channels to avoid collisions with the gun positions and soldiers. Having painted out the fencing and added muzzle flashes, the sequence closes with a high wide digital matte painting showing the devastation caused by the German guns to the last British Cavalry Charge.

The most complex scene involving VFX started with Joey cornered in a battlefield gully and forced to make his escape by leaping over an oncoming tank. After many attempts to shoot the stunt with real horses failed to capture the desired action, we built and hand animated a CG horse to leap over the advancing tank. The horse featured new volumetric muscle simulation systems, as well as detailed simulated animation for the complex riding tack and cannon harness.



As night falls Joey runs through the German trench line during a British shell attack. For this scene we again used our digital horse in the opening shot showing Joey leaping over a trench, crashing into the sand-bagged wall, falling to the floor and getting up to continue running through the trenches. This shot consists of 2 separate plates of real horse action and 2 sections of digital horse animation. As Joey progresses through No Man's Land he crashes into barbed wire fences and drags broken Belgian gates behind him. Interaction between the real horse, barbed wire and dragged gates required extensive use of simulated CG wire, CG gates and FX passes for final integration. The VFX team also used the digital horse to assist in the removal of grey suited stunt riders that were frequently required to guide the running horse safely through the explosions in battle. The special effects crew also built an animatronic horse that was caught up in the barbed wire. It was a mixture of puppeteers and radio controlled servo motors. This was inter-cut with live action of the horse with CG barbed wire.

Set during the world-changing period of WW1, it took the combined talents of seasoned practical effects specialists and cutting edge digital artists to invisibly support this incredible story of a boy and his horse.

