

High-tech reimaging of The Lion King

Disney's latest cartoon-to-live-action remake is blurring the lines between animation and reality, inventing an entirely new computer-generated filmmaking process, dubbed virtual production

Virtual reality (VR) brings *The Lion King* to life, allowing crew to enter virtual sets and film scenes using traditional methods:

1 Record actors performing scenes

2 Create sets and rudimentary animations on computer, synchronising actors' dialogue to digital characters – using **Unity** video game 3D engine*



VIRTUAL WORLD

Director can even move sun to better light scene

Animation plays out in virtual world, with crew able to replay it while moving around, looking for perfect shot

THE LION KING

Director **Jon Favreau** (left) and cinematographer **Caleb Deschanel** scout locations inside virtual African savanna – from warehouse in Los Angeles

◆ **1994 original:** Highest-grossing hand-drawn animated movie – taking \$968m worldwide (includes 2002 IMAX re-release and 2011 3D conversion)

◆ **1994 merchandising haul:** More than \$1 billion

◆ **1997 stage musical:** Most profitable entertainment property ever created – over \$8 billion

ICONIC SCENE COMPARISON

1994 original



2019 remake



REAL WORLD

Camera dolly

3 VR headsets allow crew to "enter" environment. Moving around in real world,

using mock camera equipment mounted with sensors, allows same shots to be mimicked inside virtual surroundings

"Volume": Motion capture stage pioneered by **James Cameron** in *Avatar*, here used to track positions of equipment and crew

4 With shots finalised, visual effects artists refine scenes using pioneering photorealistic graphics – referencing actors' facial expressions to create lifelike visuals (right)