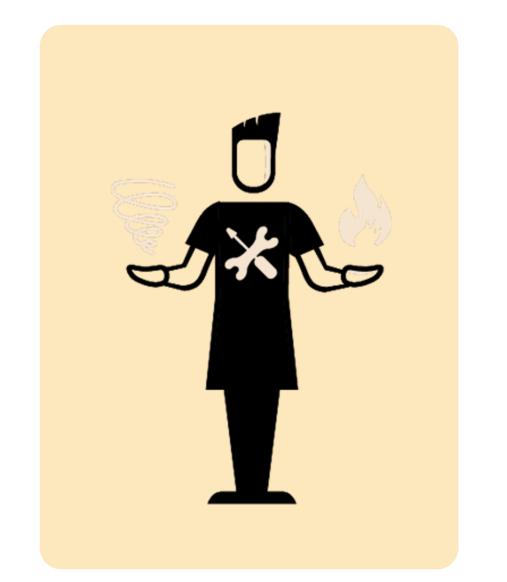# SFX and VFX

AI overview

AI is beginning to revolutionise the roles of SFX and VFX designers by automating tasks such as rendering complex simulations, material selection, and managing physical effects. AI-driven tools could improve both the accuracy and speed of creating life-like effects and integrate digital and physical elements more seamlessly. This has the potential to reduce manual work while offering creative possibilities.

To prepare for the future, designers could consider mastering AI tools for real-time rendering, simulation, and virtual production. Embracing AI-driven workflows, understanding the integration of physical and digital effects, and staying informed about developments in autonomous robotics will allow designers to remain at the forefront of the industry.

How can I prepare for the future?

As technologies develop, keeping up-to-date with the latest opportunities can be really beneficial.

These are some areas that special effects and VFX designers may need to understand in the future.

Future Tech	Description	Learning resources
AI-driven effects simulation	AI tools that automate the creation of complex simulations, such as explosions, water, and smoke, making effects more realistic and efficient to produce. Taking into account real & simulated environments.	Check out ScreenSkills Training, page for courses in post-production, while platforms like Houdini and Maya provide tutorials on AI-assisted simulations.
Real-time rendering	Allows for the instant rendering of VFX and SFX elements, enabling supervisors to see immediate results and make adjustments on the fly.	ScreenSkills provides training in virtual production technologies; Unreal Engine offers free online courses in real-time rendering for VFX.
Virtual production	Combining real and digital elements on set, virtual production tools allow VFX and SFX supervisors to collaborate in creating seamless scenes.	ScreenSkills has workshops on virtual production, and Unreal Engine offers free courses on this technology.
3D scanning and printing for SFX	3D technology that enables the scanning of physical objects to create digital models, or printing physical models for practical effects on set.	Courses on 3D printing are available via platforms like Coursera, with workshops on 3D scanning and printing also available through ScreenSkills.
Augmented Reality (AR) and Virtual Reality (VR)	AR and VR are increasingly used in pre-visualisation, allowing supervisors to plan and test effects in immersive environments.	Check out ScreenSkills Training, page for up to date courses. Platforms like Unity & Unreal offer tutorials on integrating these technologies.
Autonomous Robotics	Stunt robotics, autonomous robots and physical manipulation robots can allow onset SFX to take place where previously it was too dangerous, or simply not possible previously	Bow Robotics software and development platforms. Udemy and Coursera learning platforms
3D Volumetric Capture Technologies	Capturing live performances directly into a 3D pixel format and 3D mesh based formats, allowing re-positioning of cameras after the recording has been made.	Understanding of Gaussian Splatt techniques and Mesh based volumetric capture technologies, many good scientific papers on the subjects.

What AI tools can I use right now? – Efficiency & workflow opportunities

Pre-production

Automated asset tracking: AI tools could automate resource allocation, linking shooting schedules with predicted equipment lists, ensuring efficient planning and preparation.

Tech-vis simulation: AI-driven simulations could help the team work through rigging challenges and predict power consumption, optimising the set-up phase.

Custom AI models: Designers could run AI locally to protect confidential data and create bespoke tools tailored to their style, enhancing productivity.

Production

Real-time image correlation: AI could replace traditional techniques for face and performance capture, enabling quicker data processing during production.

Markerless tracking: AI-based computer vision could track movements and elements on set, reducing the need for extensive VFX work in post-production.

Virtual production techniques: AI-driven tools could allow the integration of physical and digital effects on set, making real-time rendering workflows seamless.

3D scanning and printing: AI-driven 3D scanning and printing tools could create digital models or physical replicas for practical effects on set.

Post production

AI-driven effects simulation: AI could automate complex simulations, such as explosions or fire, offering more realistic and efficient VFX production.

Real-time rendering: AI tools could instantly render VFX and SFX, enabling designers to make immediate adjustments and enhance visual quality.

Lighting and scene adjustment: AI tools are now able to adjust the lighting or elements of a scene in close to real-time on video content, helping correct problems or adding effects.