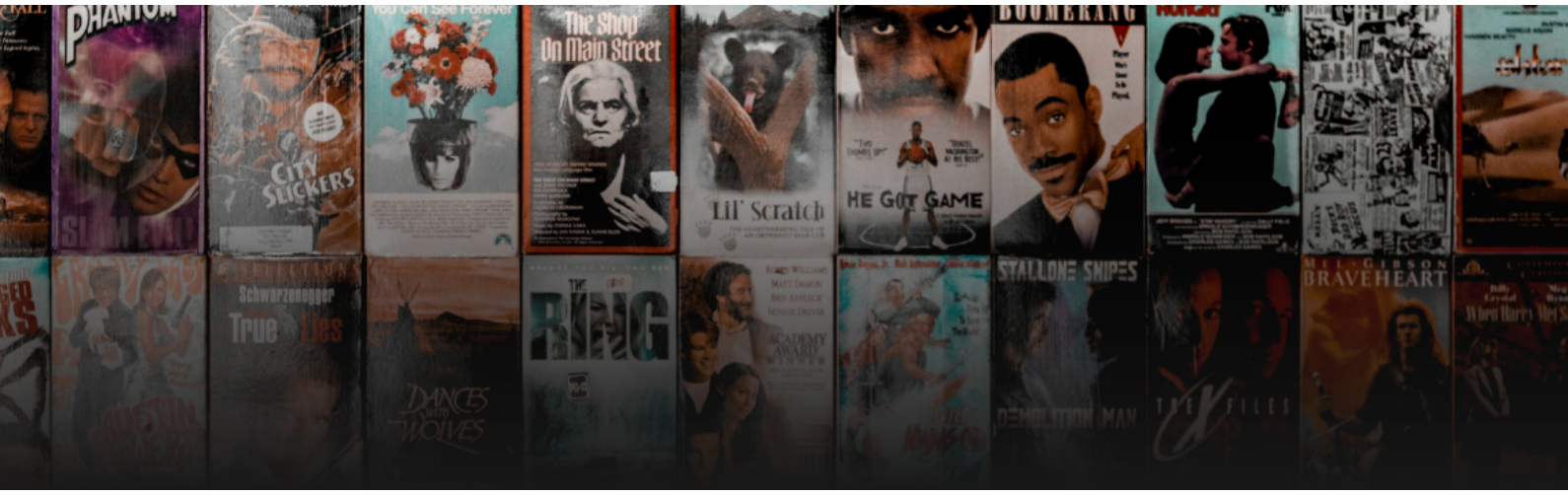

Yangting Li December 4th, 2025

How AI can make foreign language films more immersive

Foreign-language films offer audiences the opportunity to engage in cross-cultural experiences, however traditional localisation methods risk disrupting immersion. ***Yangting Li*** *explores her recent research paper showing how artificial intelligence (AI)-driven technology is providing ground-breaking solutions.*

The Champion is Polish-language film that tells the true story of Tadeusz Pietrzykowski, a Polish boxer who became famous for boxing during his imprisonment at Auschwitz-Birkenau during Nazi Germany's occupation of Poland.

Foreign-language films have always been a gateway to new cultures, ideas, and storytelling traditions. They allow for experiences beyond our own view of the world, offering fresh perspectives and narratives. Yet, for many viewers, the experience can feel incomplete. Why? The methods we've traditionally relied on, dubbing and subtitles, often disrupt the immersion that makes cinema magical.

In my recent research paper, my co-authors – Dr Mike Seymour, a University of Sydney-based VFX expert, and Professor Barney Tan from the University of New South Wales – and I explored how artificial intelligence (AI), specifically neural facial reenactment (NFR), can be used to create more immersive and culturally authentic experiences when video contents are adapted across languages. Through an action design research (ADR) collaboration with industry partners, we worked hands-on to design, build, and evaluate a novel NFR process, using the film *The Champion* as our core project.

Our goal was to address the long-standing limitations of subtitling and dubbing by developing a sociotechnically-grounded approach that preserves the original creative intent while enhancing audience immersion.

The problem with traditional localisation

Tradition localisation methods, while convenient and accessible, risk breaking a viewer's immersion or undercutting subtle nuances in performances:

- Dubbing –replacing the original audio with a translated voice track –often strips away the emotional nuances of the original performance. Lip-sync mismatches can be distracting, and cultural subtleties may get lost in translation.
- Subtitles –keeping the original audio but adding text translations –preserve authenticity but force viewers to split their attention between reading and watching, reducing emotional engagement.

Both approaches compromise what researchers call presence—the feeling of "being there" in the story world. For decades, this trade-off seemed unavoidable. But now, AI offers a new way to overcome it.

Enter Neural Facial Reenactment (NFR)

AI-driven Neural Facial Reenactment (NFR) is a ground-breaking solution to the limitations of dubbing and subtitling. Instead of replacing voices or adding text, NFR uses machine learning and neural rendering to adjust an actor's facial movements to align with dialogue in another language. Guided by presence theory, our paper showed how NFR can deepen spatial, social, and self-presence.

The system works by analysing the original performance, capturing those all-important, subtle, facial expressions and emotional cues, and then synchronising lip movements with the translated audio, creating a seamless illusion that the actor is speaking the viewer's language, without losing the original emotional depth.

We applied NFR to *The Champion*, producing an English version of the film while maintaining its original vision. The result was a film that felt native to a new audience while preserving the director's creative intent, reducing cognitive dissonance and enabling a more emotionally resonant viewing experience.

Through multiple iterations, we distilled our learning into six design principles that emerged through close collaboration with filmmakers, actors, AI engineers, and production teams. These emphasise:

1. avoiding forced script changes,
2. respecting creative intent in translation,

3. minimizing intrusive technology,
4. reducing training data needs,
5. enabling informed flexible audience access,
6. co-designing within existing structures.

English-speaking audiences reported improved viewer satisfaction to this new version of *The Champion*, but importantly, this also demonstrated the commercial viability of NFR, paving the way for broader adoption.

Where else can NFR shine?

Entertainment is an obvious starting point for this technology, being straightforwardly applicable to film, television, and video games. However, NFR's potential applications could extend far beyond.

Education and corporate training are two additional areas NFR could readily be utilised. Lectures could be localised for different regions without losing the instructor's personal presence, style, and personality. Global companies could deliver training videos to their international staff that feel native to every employee regardless of language.

Despite the wide applicability, as with any transformative technology of this nature, NFR does raises important questions concerning consent, authenticity, and the risks of misuse. Transparency, clear contracts, and ethical guidelines must accompany technical innovation, and industry standards and governance frameworks will be essential to ensure responsible use.

The future of global storytelling

AI cannot just translate words—it can translate experiences. By bridging cultural and linguistic gaps without breaking immersion, technologies like NFR could redefine how we consume global media. Imagine a world where any film, from any country, feels as natural and engaging as a local production.

We are proud that our work led to the world's first full-length NFR-adapted feature film, which passed professional quality control and was later acquired by one of the world's largest streaming platforms. For filmmakers, this means reaching wider audiences without compromising artistic vision. For viewers, it means enjoying authentic performances without distractions. For the industry, it signals a new era of truly global storytelling.

Importantly for future research, ours is the first ADR paper in the *Information Systems Research* community highlighting it as a powerful methodology for the study AI related phenomenon. Also, by reconceptualising immersion as a co-constructed sociotechnical achievement, we advance

presence theory, showing how AI can augment – not replace – human creativity. Our findings hold broader relevance for transcultural communication, education, and the design of future AI-mediated media experiences.

- *This blog is based on research from Mike Seymour, Barney Tan, Yangting Li (2025) "The Creation of Immersive Experiences in Transcultural Entertainment: An Action Design Process Focused on Neural Rendering". Information Systems Research 0(0).*
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About the author

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Yangting Li is an LSE Fellow within the Information Systems and Innovation faculty group in the Department of Management. Her current research explores how digital infrastructures and media systems shape collective action and societal change.

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