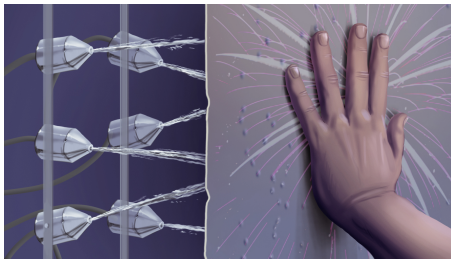




Feeling Fireworks is a large-scale tactile display which generates a tactile firework show.



A set of pan-tilt nozzles direct water jets at the rear surface of a flexible screen, to generate tactile effects on the front surface.

Feeling Fireworks: An Inclusive Tactile Firework Display

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ABSTRACT

Fireworks are enjoyed throughout the world, but are primarily a visual experience. To make fireworks more inclusive for Blind and Low-Vision (BLV) persons, we have developed a large-scale interactive tactile display that produces tactile fireworks. Fast dynamic tactile effects are created at high spatial resolution, using directable nozzles that spray water jets onto the rear of a flexible screen. The screen furthermore has back-projected visual content and touch interaction.

A BLV focus group provided input during the development process, and a user study with BLV users showed that Feeling Fireworks is an enjoyable and meaningful experience. Quotes from blind users include “*First time to get the feeling of what’s happening in the sky. Fountain—awesome, first time had a feeling of that is what is a fountain.*”, “*My mom always told me about fireworks but now I understand it.*” and “*Now I know why people like fireworks.*”

Beyond the Feeling Firework application, this is a novel approach for scalable tactile displays with potential for broader use.

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