SOUTHBANK CENTRE

James McVinnie & Tristan Perich: Infinity Gradient

Saturday 23 March 2024, 8pm
Royal Festival Hall

Classical music is an incredible, centuries-long story. As we at the Southbank Centre – alongside our Resident Orchestras and Resident Artists – share that story with the world today, we're creating as many ways for as many different people as possible to experience this wonderful art form.

Whether this is your first encounter with classical music or one of many, I'm absolutely thrilled that you're joining us for more powerful human experiences. Welcome to Classical Music: Spring/Summer 2024.

Toks Dada, Head of Classical Music, Southbank Centre

Repertoire

Tristan Perich Infinity Gradient for organ & 100 speakers 65'

Performers

James McVinnie *organ*
Tristan Perich *electronics*

Please note that tonight's concert will start with a brief conversation between James McVinnie and Tristan Perich about the work.

This performance lasts approximately 75 minutes without an interval.

Tristan Perich (b 1982)

Infinity Gradient for organ & 100 speakers (2021)

Infinity Gradient is a composition for organ and 100 speakers by Tristan Perich. Lasting just over an hour, the work is symphonic in scale, with nine contiguous movements, and is a musical tour de force through Perich's unique sound-world and artistic philosophy that merges primitive electronic waveforms with physical acoustic instruments – in this case, exploring the distinctive parallels between the pipe organ and 1-bit sound.

The organ, itself a product of the technology of its time, is a hybrid wind and keyboard instrument, whose sound production principles have remained unchanged for centuries. It offers a grandiose, kaleidoscopic array of pitch and unique tone colour, and a sheer volume like no other instrument. On an abstract level, organs are giant site-specific sound installations designed to fill architectural spaces: the room in which the organ is situated literally becomes the body of the instrument – a thrilling experience for all involved, but especially for organists themselves. Organists develop a keen sense for sound, and can often identify the acoustic of a space, the connection to the sound of its organ being so intrinsically linked. The organ also possesses a certain unreality and otherworldliness, owing to the remoteness of the player in the sense that their presence – often hidden completely from view – explains little of the sounds and music that the instrument emits. Given its instrumentation, *Infinity Gradient* is also therefore a commentary about the perception of sound in a space.

The speakers in *Infinity Gradient* are themselves an ensemble of instruments. Their sound is produced by simple means, which together speak as a 100-voice chorus. 1-bit sound is produced from an electrical signal entering a speaker in one of two states: on or off, at a specified rate per second. If we consider the pitch A=440Hz – the note to which orchestras tune – this is a result of 440 oscillations per second of a longitudinal wave through air. The ear perceives this frequency of sound as its pitch. In the case of 1-bit sound, imagine a cable carrying current

into a speaker: 440 pulses of electricity per second enter the speaker's electromagnet, making the speaker cone and surrounding air vibrate 440 times per second. The pitch of that frequency will be the same A that we know orchestras tune to. By changing the number of oscillations, the perceived pitch will differ too. For instance, if you halve the frequency (or number of currents per second) you will hear the A an octave below.

The pipes of an organ and 1-bit electronics share this binary on/off element in the production of their sound. The organist depresses a key, which allows a steady stream of air through the corresponding pipe. The air hits the mouth of the pipe and makes a noise (akin to the way an acoustic recorder speaks) until the player releases the key; crucially there is no decay or development in the sound like most other acoustic instruments; despite its sonic grandeur, organ pipes simply speak or are silent. This shared conceptual philosophy makes the organ an ideal partner for Perich's work and approach to sound production. Unlike most other electronic instruments, producing 1-bit sound does not involve any other computational element such as a digital sample library, or modular setup.

Perich has previously written *Surface Image* for piano and 40 speakers, *Drift Multiply* for 50 violins and 50 speakers, and a host of other works combining acoustic instrumentation with 1-bit electronics. *Infinity Gradient*, with 100 speakers, is the largest scale in this series of works that explore the relationship between acoustic instruments and electronics. All of the hardware is custom made by the Perich: 4 subwoofers, 24 medium and 72 small speakers are connected to circuit boards, which supply each speaker with its current. The speaker array is arranged in such a way that it is perceived as its own instrument and a natural counterpart to the organ, and the piece is a musical duet between organist and speakers.

In terms of its musical structure, the piece is made up of clearly delineated sections, offering contrasting, interrelated 'scenes,' each with strong, inexorable kinetic movement. Sometimes the organ and electronics are in dialogue, and at other points the movement is locked in to a microscopic degree. Compositionally, the music is built on repetition, change and mathematical groupings of figurations. Each of the sections explores a different musical idea, pitch and tonal centre, and one in particular features the lowest cluster tones of the organ, where the music is more felt than heard. At a certain point, around three-quarters of the way through the piece, and after an ecstatic build-up, the electronics and organ come to rest on a giant frozen chord. Soon after, the organ and electronics start to drift apart, the electronics sounding with an infinite slow upwards glissando, as if destined for another universe. The piece from that moment on is more volatile than what has come before – the final section heralds wild and abstract fanfares from the organ, while the speakers drift in and out of white noise. The piece comes to a close with a high, quiet chord from the organ which somehow seems to suggest an open-ended question rather than a sense of finality.

The Royal Festival Hall organ is an ideal instrument for the exploration of contemporary music, given its unique clarity and forward-thinking tonal design. Each pipe of the organ is constructed in such a way that gives the best possible harmonic picture, giving a supremely 'musical' sound. I have performed the piece several times in different venues and on different organs, and *Infinity Gradient* finds a natural home here at the Southbank Centre.

Find out more

- James McVinnie
- Tristan Perich
- southbankcentre.co.uk

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Saturday 4 May 2024, 7pm in Purcell Room at Queen Elizabeth Hall &
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An evening of eclectic music, installations and DJ sets to mark nonclassical's milestone birthday.

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Sunday 5 May 2024, 4pm | Queen Elizabeth Hall

What would it feel like to be inside a painting by Mark Rothko?
This audio-visual live concert turns to the artist's immense canvases for inspiration.