The idea for When We Collide sprang from Douglas Hofstader's metaphor of creativity as the meeting between records and record players, appearing in his 1979 book "Gödel, Escher, Bach: An Eternal Golden Braid". In our case, the records are soundfiles, whilst the record player is a generative system.

The player analyses, selects, mixes, transforms, and spatialises the material created by the composers (monophonic and quadraphonic soundfiles). The system negotiates between algorithms that tend towards monotony (in terms of loudness, spatialisation, and frequency spectrum) and algorithms that tend towards variability (in terms of soundfiles, transformations, and scenes). In a nutshell, the installation is a space where sonic ideas collide and co-exist.

Creative Director: Joyce Beetuan Koh
Interactive Sound Designer: PerMagnus Lindborg
Sound Engineer: Yong Rong Zhao

With support from the National Arts Council of Singapore.

WHEN WE COLLIDE

a collaborative and generative sound installation by

Joyce Beetuan Koh
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Andrián Pertout
Seongah Shin
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Dirk Stromberg

ADM SCHOOL OF ART, DESIGN AND MEDIA 10 YEARS 2005 - 2015

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Soundislands

Sound is a medium that acts as a glue between the senses. Hearing is deeply intertwined with vision and movement. Beyond that, researchers and artists are mapping out crossmodal associations with touch, smell, feel, and taste, leading to new and fascinating multimodal designs and experiences, and a veritable coral reef of artworks.

Soundislands Festival /Si15 2nd International Symposium on Sound and Interactivity
http://www.soundislands.com/si15/

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'When we Collide', a sound installation, as part of the Soundislands Festival /Si15 on Sound and Interactivity, jointly organised by the School of Art, Design and Media, NTU.

Wednesday • 19 August 2015
Blue Room @ Arts House Singapore

In 2007, **Andrián Pertout** (Australia) completed a PhD degree at the University of Melbourne on Tweddle Trust, APA and MRS scholarships. Composition awards include the Jean Bogan Prize, 'John Cage Centennial' Wolf Museum of Music and Art Composition Prize (USA), Friends & Enemies of New Music Composition Prize (USA), Betty Amsden Award, Louisville Orchestra Prize (USA) and Oare String Orchestra Judges' and Audience Prize (UK).

He is currently the Australian Delegate of the ACL (Asian Composers' League), Honorary Fellow at the University of Melbourne, and between 2009 and 2013 was President of the Melbourne Composers' League. As well as being a freelance composer, he additionally works as composition lecturer, teacher, supervisor and examiner at the University of Melbourne at Bachelor, Masters and PhD levels.

Andrián's music has been performed in over forty countries by orchestras, ensembles and performers that include the Melbourne and Tasmanian Symphony Orchestras, Orchestra Victoria, The Louisville Orchestra (USA), Jerusalem Symphony Orchestra (Israel), Orquestra Petrobrás Sinfônica (Brazil), Orquesta Sinfónica Nacional de México (Mexico), Vietnam National Symphony Orchestra (Vietnam), Orquestra Cia Bachiana Brasileira (Brazil), Orquesta Sinfónica de Puerto Rico (Puerto Rico), Orquesta Sinfónica de Chile (Chile), Logos Foundation Robot Orchestra (Belgium), University of Hong Kong Gamelan Orchestra (China), La Chapelle Musicale de Tournai (Belgium), Oare String Orchestra (UK), Noah Getz (USA), Phyllis Chen (USA), Michael Kieran Harvey (Australia), Ónix Ensamble (Mexico), Ensamble Contemporáneo (Chile), Ensemble MD7 (Slovenia), Quinteto CEAMC (Argentina), Sonemus Ensemble (Bosnia-Herzegovina), Ensemble TIMF (Korea), Omni Ensemble (USA), and the Ensemble für Neue Musik Zürich (Switzerland).

PerMagnus Lindborg (Sweden/Singapore) is a composer, sound artist and researcher. He is assistant professor at School of Art, Design and Media, Singapore since 2007, and a member of the composer societies in Norway (since 1995) and in Singapore.

PerMagnus' creative work has been released on ECM Records, Daphne Records, and Ash International.

Awards include a First Prize at Stavanger Symphony Orchestra Competition 2002 for "Khreia", the Audience Prize at Forum-Montreal 1996, as well as commissions from Centre Pompidou 2002 and the Norwegian Cultural Ministry 2012. He was a featured composer at WOCMAT 2012 in Taiwan, and as member of 'freq-out' collective, has made sound installations at Stedelijk Museum Amsterdam, Stockholm Museum of Modern Art, and Niemeyer's French Communist Party headquarters.

PerMagnus' research focuses on psychoacoustics, spatial sound, interactive performance, and perception. Notable publications include IRCAM-Delatour - a chapter by Lindborg in the OM Composer's Book 2008; peer-reviewed articles have been published in Applied Acoustics, LNCS-Springer Verlag, eContact, and NASS, and in proceedings of SMC, ICMC, ICME, ICMPC and ICAD. He has led eight research grants while at NTU, including two AcRF Tier 1. He initiated and chaired the Si13 Sound and Interactivity symposium 2013 and the Si15 Soundislands Festival 2015. Since January 2014, Lindborg serves as Music Coordinator on the Board of the International Computer Music Association.

In his spare time, PerMagnus enjoys outdoor sports such as sailing, scuba diving, and kayaking.

Joyce Beetuan Koh (Singapore) has a portfolio ranging from concert music, dance collaborations, sound installations and multimedia production.

Two piano works ('la pierre magenta' and 'Piano Peals' for piano and soundtrack) are published by the Associated Board Royal Schools of Music (UK).

Featured at international festivals and concert series; her music is performed by BBC Radio 3 (Tai for orchestra by BBC Symphony Orchestra, Johannes Kalitzke), Magyar Rádio (Tai by Hungarian Symphony Orchestra, László Tihanyi), Birmingham Frontiers Festival (Sonography IV, trio with electronics by Birmingham Conservatoire musicians), Biennale Musiques France (Sonography II, for 6 voices by Résonance Contemporaine), the Concertegbougw Netherlands (The Water Burns for contralto and chamber ensemble, Hilary Summers and Nieuw Ensemble); Stavanger Symphony Orchestra concert series (Divergent Plates for accordion concerto, Frode Haltli and Susanne Mällki).

Highlights of her multimedia collaborations include 'Future Feed' (site-specific dance, 2014, Arts Fission Company at Singapore Design Centre), 'On the Strin'g (Lindborg, Khiew, 2010, multimedia, Singapore Arts Festival), 'The Canopy' (Lindborg, Yong, sound installation, at 2013 World Stage Design, UK) and 'Hearing Lines' (audiovisual, 2013 International Computer Music Conference, Australia).

Joyce holds a Ph.D in Composition (York, UK) and Postgraduate Diploma in Music Computing (IRCAM, Paris). After 20 years in Europe, she joins as Vice Dean (Interdisciplinary Studies) at the Nanyang Academy of Fine Arts, Singapore.

Seongah Shin (Korean), composer and sound designer, works in the fields of performance arts and computer music. She graduated from the composition department of Chugue University of Arts in Seoul and later earned Masters of Music in Computer Music Composition at Peabody Conservatory of Music, Johns Hopkins University in the United States.

From the University of Missouri-Kansas City, Seongah was awarded Master of Fine Arts in Theatre Technology in Sound Design and the Doctor of Musical Arts in Composition. She worked as resident sound designer in Missouri Repertory Theatre and Aspen Music School and Festival and residency composer at RPI.

Seongah's music has been performed at Seoul International Computer Music Festival, International Computer Music Conference, June in Buffalo, EMS, SEAMUS, ACL, Seoul Performance Arts Festival, Seoul Experimental Film Festival and many others. She served as a regional director of Asia/Oceania of International Computer Music Association.

Currently, Seongah holds the position of composition professor in Keimyung University in Daegu, South Korea.

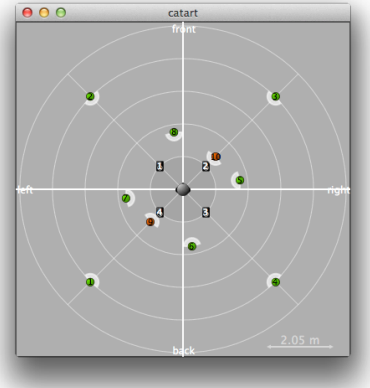
Dirk Johan Stromberg (USA/ Singapore) improviser, composer and music technologist, explores dynamic interaction between performer, technology and performance practice, often questioning how performers interact and perceive technology in improvisation. Designing electronic instrument hardware and software is an integral part of the process and has led to the development of several instruments.

Dirk's music has been performed in Europe, Asia and the United States including; Ho Chi Minh City, Singapore, Manila, Bucharest, Istanbul, Amsterdam and New York City. He has released two albums with the Turkish improvisation group Islak Kopek as a performer and engineer and his music appears on a number of compilations. In de Knipscheer released a two CD set of his composition, Tropendrift, in 2006, a collaboration with Dutch poet Albert Hagenaars.

He has been composer in residency at STEIM (Studio for Electronic Instrumental Music) and Brooklyn Center for Computer Music and has received recognition for his work from ISAM (Institute for Study in American Music) and MATA (Music at the Anthology). His 2008 album, Islak Kopek, was in the top 20 albums in Turkey for 2009.

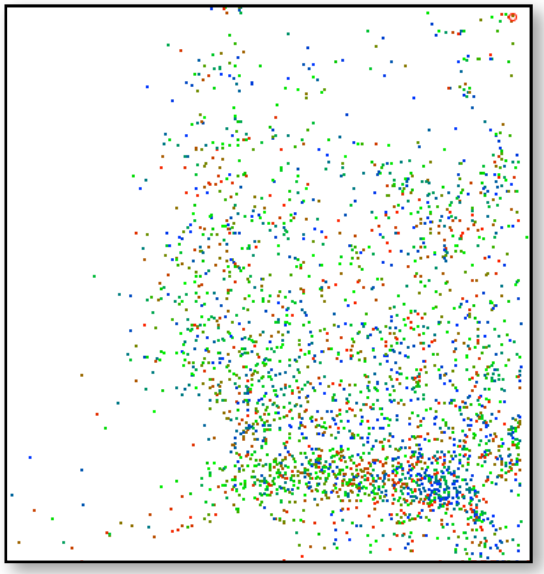
He holds a Masters of Music from Brooklyn College and a Bachelor of Music from Texas Tech University. Founder of the Contemporary Music Festival of Ho Chi Minh City, Dirk was also faculty at Istanbul Bilgi University and Saigon Technology University and School of the Arts, Singapore (SOTA). Recently, Dirk joins LASALLE College of the Arts, Singapore as faculty.

The Player...*by PerMagnus Lindborg, interactive sound designer*



The ideas behind the When We Collide "player" come from different places. Inspirations were John Cage's "William's Mix", the "Freq-out" installations curated by CM von Hauswolff (where I participated), and my compositions such as "Khreia" for orchestra. First, Joyce and I thought of it as a jukebox - "put another nickel in, then you'll hear the music spin" - that picks at random among the 30 quadraphonic files that the artists had composed.

The selection mechanism is underlined by a small set of rules where the probability vector for the quadraphonic files is updated in cascade depending on which files have been played previously. These quad files limit which monophonic files can be selected, as well as when, and where (in the surround panning) they shall appear. In the system, there are two quad players. The players take turns to play and may overlap a bit. Their present output is analysed for loudness (using Ircamdescriptors) and main directivity. A 'self-correcting' mechanism tries to adjust the spatialisation to make the overall output as 'even' as possible. There are two CataRT players (adapted from Diemo Schwarz's software), which in different ways, imitate what the quad players are doing. One plays the 120 mono files as they were made by the composers, and the other 'chops' them up into 3000 little bits to produce a cloud-like sound. There is a fourth instrument in the ensemble that selects mono files and merges them two by two in cross-synthesis (using the supervp object). While the first two players (quad and CataRT-quad) respect the composers' original work, the other two players (CataRT-cloud and crossynths) produce new and quite unpredictable output. Finally (this was the last phase in the design work), an overall mechanism (at the middle level in the player structure; macro - meso - micro) decides which player plays when, by applying fade-ins and fade-outs according to a cyclical process (developed from my earlier "Graviton Dance" pieces), and 'freezez', that are applied stochastically. The overall output was always meant to be a "chill-out electroacoustic music", yet the material and the players "decide" to make it rather active, at some unexpected moments! The superposition of deterministic and probabilistic mechanisms creates a player structure where the interactive design and composed material collide.



Behind the scene... *by Joyce Beetuan Koh, creative director*

When we collide is a development from two previous productions; On the String, inspired by String Theory, commissioned by the Singapore Arts Festival 2010 and The Canopy, presented at International Computer Music Conference 2011 and World Stage Design Festival 2013. These works are about our fascination with the building blocks of the universe, in particular, the distinctive decay signatures of elementary particles. Imagine attributing their distinctive features to sonic characteristics - what musical possibilities arise from the idea of particle collisions, interactions, and decay?

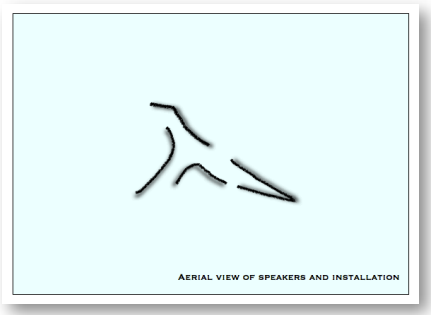


Figure 1

Originally, it was conceived as an interactive installation of four independent large physical structures of strings, configured in the Chinese character 'ru' /入 which means 'to enter' (Figure 1). The visitor, in the role of a dancer-musician, modifies the sonic characteristics of a particle by movements. The image evoked is a pas de deux with an invisible, dark super partner - dancing elementary particles - yielding a multimodal experience that mediates between the eyes, ears and body.

The construction of this scale became too resource intensive. Many discussions ensued and various guises of the installation were deliberated. One of the guises was inspired by Iannis Xenakis' drawings of the Montreal Exposition 1967 (Figure 2). Our structure was to have strings fixed with stretch sensors. The intention was to 'wrap the space' in a specific pattern reminiscent of the particles decay signatures (Figure 3).

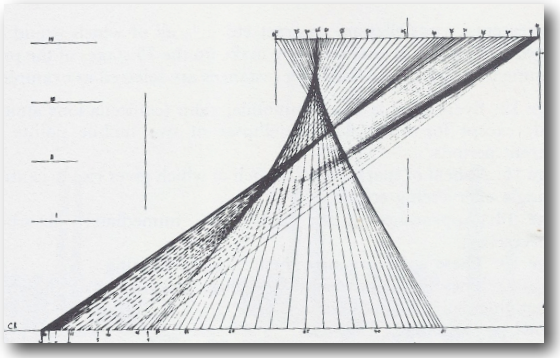


Figure 2

We felt necessary to revisit the concept of particle-collision. Instead of simulating the concept with physical material, we could lean on our aural and spatial senses. What could be more apt than to have 6 composers, each has a distinct language, alluding to the decay signatures of particles, compose musical material for a generative system that is designed to allow collision, morphing and becoming....

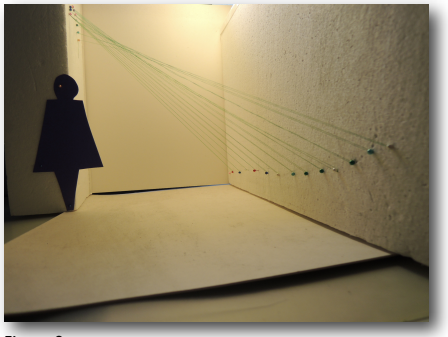


Figure 3

Stefano Fasciani (Italy) designs, crafts, composes and performs with electronic machines that generate sounds. He is a postdoctoral researcher at the Digital Signal Processing Lab of the Nanyang Technological University in Singapore.

Stefano is a member of the Arts and Creativity Lab at the Interactive and Digital Media Institute of the National University of Singapore. His research interests include technologies for sonic arts, sound and music computing, artificial intelligence in human-computer interaction, sound synthesis and analysis, and real-time embedded systems. In his performances and compositions, he experiments novel practices and musical genres on the edge of the modern club culture and multichannel audio.

Yong Rong Zhao (Singapore) is a sound engineer and sound designer. He has a wealth of experience working with dance and theatre companies. Highlights of his work as sound designer are Singapore Repertory Theatre's productions of 'Fantastic Mr Fox' and 'Rapunzel', and a triple bill 'Power Sex and Success' by Intercultural Theatre Institute Singapore.

When We Collide, player overview

6 composers x (5 quadfiles + 20 monofiles)

PerMagnus Lindborg 2015