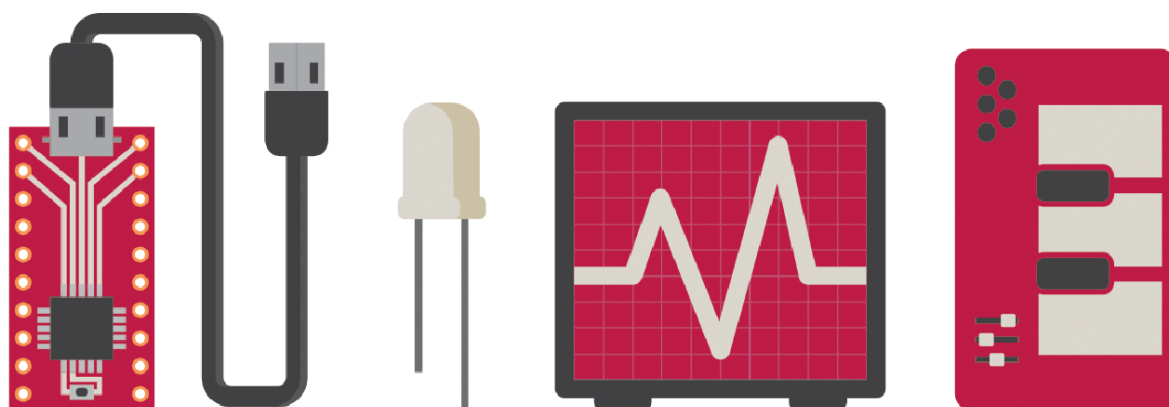# NIME 2017

NEW INTERFACES FOR MUSICAL EXPRESSION

COPENHAGEN, 2017

MAY 15TH – 18TH

PROCEEDINGS

Edited by : Cumhur Erkut

Aalborg University Copenhagen, 2017

All NIME papers are freely available at http://www.nime.org/archives/

WELCOME TO NIME

We are delighted to host the 17th edition of the New Interfaces for Musical Expression conference for the first time in Denmark. We believe there are many exciting challenges in the field, ranging from everyday sonic interactions to overtly musical interfaces, and we see great designs to improve the technology-based sonic world around us.

Although the general-purpose computers and mobile devices everyone uses today are extremely useful as multipurpose artefacts, such 'Swiss army knives' are not always the best tool for mastery of a specific task. Investigating how novel uses and extensions / re-inventions of musical interfaces can improve and re-shape our interaction with sound is a fundamental perspective that leads to many opportunities. How do tools shape our art? In music (or any art form, indeed all human endeavours) tools clearly have an impact on the expressions that are possible - even language itself (which some say evolved from music) shapes the way we think as humans. How do we create technologies that allow us to better connect to one another through New Interfaces for Musical Expression?

There is a huge opportunity for the NIME community to extend the reach of our work and help shape the future. While interactive technologies are now commonplace, it is our duty and privilege s a research discipline to advance the science of musical interaction and expression.

It is with these thoughts in mind that we present NIME2017: The academic conference with cutting edge research published as scholarly papers, presented as posters and demos, shared in workshops, not to mention performed and exhibited!

We also open up the musical programme to the general public this year: all concerts and installations are public events, taking place at Aalborg University Copenhagen and across a range of venues in town, connecting us to the wonderful local Copenhagen music scene. We have added NIME Kids day this year, as well as an Unconference day to the programme, to be held in Helsingør in conjunction with the CLICK Festival.

Whether you are here with us now at the conference, or revisiting these proceedings at a later date, we welcome you to NIME 2017!

Dan Overholt and Stefania Serafin
NIME2017 General Chairs

COMMITTEE

General Co-Chairs: Dan Overholt and Stefania Serafin, Aalborg University Copenhagen

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Unconference Chairs: Vanessa Carpenter, DELTA, and Aalborg University Copenhagen, Spencer Topel, Dartmouth College

Web Chair and NIME'17 Logo: Jacob Lynggaard Olsen, Aalborg University Copenhagen

KEYNOTES

Ge Wang
The ME in NIME
Wang is an Associate Professor at Stanford University, in the Center for Computer Research in Music and Acoustics (CCRMA). He specializes in artful design – researching programming language and software design for music, interaction design, mobile music, laptop orchestras, aesthetics of technology mediated design, and education at the intersection of engineering, art, and design.

Ge is the author of the ChucK music programming language, the founding director of the Stanford Laptop Orchestra (SLOrk), the Co-founder of Smule (reaching over 200 million users), the designer of the iPhone's Ocarina and Magic Piano, and a 2016 Guggenheim Fellow. He is currently writing a book about design, art, and technology.

Dorit Chrysler
An Austrian-born, New York based composer, producer and singer, Chrysler is the co-founder of the New York Theremin Society and founder of the first school for theremin, KidCoolThereminSchool. As much as the theremin is a tool in Chrysler's electronic instrument arsenal, she's also one the most visible thereminists spreading the gospel of this mysterious sounding instrument, which is basically played by massaging thin air.

Her latest record "Avalanche" has been produced by Anders Trentemøller and is released on his Label InMyRoom. Her compositions have been commissioned for the Venice Biennale, the MoMA Filmdepartment, Steirische HerbstFestival and CERN. Most recent composer residencies have been received by Pioneerworks NY, City of Bern, the Knightsbridge Foundation in Detroit and VillaTereze, Italy. In 2016 she created and curated "Dame Electric" Festival Edition for the Austrian Cultural Forum in New York, featuring a sold out performance of electronic music pioneer Suzanne Ciani.

Chris Chafe
The Modeling Shift
Chafe is a composer, improvisor, and cellist, developing much of his music alongside computer-based research. He is Director of Stanford University's Center for Computer Research in Music and Acoustics (CCRMA). At IRCAM (Paris) and The Banff Centre (Alberta), he pursued methods for digital synthesis, music performance and real-time internet collaboration. CCRMA's SoundWIRE project involves live concertizing with musicians the world over.

Online collaboration software including jacktrip and research into latency factors continue to evolve. An active performer either on the net or physically present, his music reaches audiences in dozens of countries and sometimes at novel venues. A simultaneous five-country concert was hosted at the United Nations in 2009. Chafe's works are available from Centaur Records and various online media. Gallery and museum music installations are into their second decade with "musifications" resulting from collaborations with artists, scientists and MD's. Recent work includes the Brain Stethoscope project, PolarTide for the 2013 Venice Biennale, Tomato Quintet for the transLife:media Festival at the National Art Museum of China and Sun Shot played by the horns of large ships in the port of St. Johns, Newfoundland.

STEERING COMMITTEE

The Steering Committee is responsible for guiding future directions with regards to the NIME conference. Its members currently include :

- Alexander Refsum Jensenius, University of Oslo (Chair of SC, Chair NIME 2011)
- Andrew Brown, Griffith University (Chair NIME 2016)
- Jesse Allison, Louisiana State University (Chair NIME 2015)
- Atau Tanaka, Goldsmiths, University of London (Chair NIME 2014)
- Rebecca Fiebrink, Goldsmiths, University of London (Chair NIME 2014)

The Advisory Board consists of former chairs, and serve as support for the Steering Committee:

- Georg Essl, University of Michigan, Ann Arbor (Chair NIME 2012)
- Sidney Fels, University of British Columbia (Chair NIME 2005)
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- Michael Lyons, Ritsumeikan University, Kyoto (Chair NIME 2004)
- Norbert Schnell, IRCAM (Chair NIME 2006)
- Woon Seung Yeo, KAIST, Daejeon (Chair NIME 2013)

PAST NIMES

- NIME 2001, Seattle, Washington
- NIME 2002: Media Lab Europe, Dublin, Ireland
- NIME 2003: McGill University, Montreal, Canada
- NIME 2004: Shizuoka University of Art and Culture, Hamamatsu, Japan
- NIME 2005: University of British Columbia, Vancouver, Canada
- NIME 2006: IRCAM, Paris, France
- NIME 2007: New York University, USA
- NIME 2008: University of Genova, Italy
- NIME 2009: Carnegie Mellon School of Music, Pittsburgh, Pennsylvania, USA
- NIME 2010: University of Technology, Sydney, Australia
- NIME 2011: University of Oslo, Norway
- NIME 2012: University of Michigan, Ann Arbor, Michigan, USA
- NIME 2013: Korea Advanced Institute of Science and Technology, Daejeon, South Korea.
- NIME 2014: Goldsmiths University, London, UK
- NIME 2015: Louisiana State University, Baton Rouge, Louisiana, USA
- NIME 2016: Griffith University, Brisbane, Australia

Keynote speakers

- 01 (Seattle) Max Matthews
- 02 (Dublin) Tod Machover, Joel Chadabe
- 03 (Montreal) Joseph Paradiso, Claude Cadoz, Michel Waiswisz
- 04 (Hamamatsu) Robert Moog, Toshio Iwai
- 05 (Vancouver) Don Buchla, Golan Levin, Bill Buxton
- 06 (Paris) George Lewis, William Gaver
- 07 (New York) Perry Cook, Trimpin, Teresa Marin Nakra
- 08 (Genova) Andrew Gerzso, Xavier Serra
- 09 (Pittsburgh) Paul DeMarinis
- 10 (Sydney) Nicolas Collins, Stelarc
- 11 (Oslo) Tellef Kvifte, David Rokeby, Sergi Jorda
- 12 (Ann Arbor) David Wessel, David Huron
- 13 (Daejeon) Bill Verplank, Ajay Kapur
- 14 (London) Hiroshi Ishii, Laetitia Sonami
- 15 (Baton Rogue) R. Luke DuBois, Sile O'Modhrain
- 16 (Brisbane) Miya Massoka, Garth Paine