Romain Michon is a PhD candidate at CCRMA. After graduating from two bachelors in Musicology and Computer Science in Ireland and in France, he completed a Masters degree in computer music at the university of Lyon (France). He worked as an engineer in several research center in computer music such as the *Institut de Recherche et Coordination Acoustique/Musique* (IRCAM), the *Groupe de Recherche en Acoustique et en Musique Electronique* (GRAME) and the *Centre Interdisciplinaire d'Etudes et de Recherches sur l'Expression Contemporaine* (CIEREC). Romain's research interest mainly focuses on digital signal processing, mobile platform and web-technology for music.
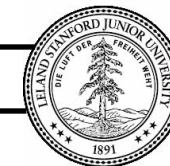
Tim O'Brien is a second year Masters student at CCRMA. His interests include signal processing, progressive rock, and interesting noises. Prior to Stanford, Tim composed and preformed with various bands in New York. He holds a B.S. in physics from the University of Virginia.

Rufus Olivier Jr.: a student of David Briedenthal of the Los Angeles Philharmonic. Member, Stanford Woodwind Quintet. Principal bassoonist of the San Francisco Opera Orchestra and S.F. Ballet Orchestra formerly with Los Angeles Philharmonic and San Francisco Symphony. International soloist and recording artist. Teaches at Mills College and Stanford University.

Leland C. Smith was born in Oakland, California in 1925. He began composing in 1938 and first studied with Darius Milhaud at age 15. He did some dance band work and then served in a Navy band (and combo) for two and a half years. He studied with Roger Sessions in Berkeley, where he served as his assistant, and received his B.A. and M.A. from the University of California in 1948. He attended the Paris Conservatory from 1948-1949 and returned to California in 1950. Smith played the bassoon and clarinet with the San Francisco Opera and Symphony. His first teaching position was at Mills College from 1951-1952, then at the University of Chicago for six years. He also played with the Chicago Opera and Symphony. He returned to California to teach at Stanford in 1958.

Colin Sullivan is a recent Master's student in Music, Science, and Technology at CCRMA where he researched and developed systems for algorithmic music composition, audio synthesis, and collaborative musical applications.

Kurt James Werner is a Ph.D. candidate @ CCRMA, composer of electro-acoustic / acousmatic (&c.) music, author of digital signal processing code & compositional algorithms (see: Grani+, boots&cats&&&, &c.), & avid circuit-bender. His research focuses on computer modeling of circuit-bent instruments (see: bent.fm lite, &c.), experimental audio and visual codecs, and other aspects of music technology. His music references elements of algorithmic / generative composition, breakbeat, chiptunes, musique concrète, circuit bending, & (granular & otherwise) synthesis, in juxtaposition & superimposition, directly & indirectly.

No food, drink or smoking is permitted in the building.
Cameras and other recording equipment are prohibited.
Please ensure that your pager, cellular phone and watch alarm are turned off.
http://ccrma.stanford.edu/concerts/

Department of Music   Stanford University

CCRMA Fall Concert

Bing Concert Hall   December 04, 2013, 7:30 PM

PROGRAM

Machines of Loving Grace (1970)   Leland Smith
for Reader, Computer and Bassoon   poem by Richard Brautigan

   Rufus Olivier Jr., bassoon
   Michael Berger, reader

Relations (2013)   Holly Herndon
(A documentation of the installation)

SuperCollider Tweet Medley (2013)   Elliot Kermit-Canfield

On The Sensations of Tone V (2013)   Alex Chechile

Toast and Jam (2013)   Ensemble AnaLocus
for six analog synthesizers

   featuring: Myles Borins
                 Gina Collecchia
                 Fernando Lopez-Lezcano
                 Romain Michon
                 Tim O'Brien
                 Kurt James Werner

Seeing is Forgetting (2013)   Luke Dahl
                                  Colin Sullivan

Luminescent Trajectories (2013)   Christopher Jette

Remote Control (2001)   Chris Chafe
for celletto, keyboard and guitar

   Chris Chafe, celletto
   Fernando Lopez-Lezcano, keyboard
   Rob Hamilton, guitar

ABOUT THE ARTISTS (continued)

Gina Collecchia is a second-year CCRMA Masters student. She has a Bachelors degree in Mathematics from Reed College where she completed a thesis on music information retrieval with chord progressions in mind. She went on to publish *Numbers and Notes: An Introduction to Musical Signal Processing* in 2012. At Stanford, Gina continues to explore aesthetics, acoustics, and signal processing.

Luke Dahl is a computer musician and PhD student at CCRMA where he conducts research into interaction design for new musical instruments and ensembles, and musical movement and gesture. He has composed works for the Stanford Laptop and Mobile Phone Orchestras, interactive music for live Twitter data, and enjoys making electronic dance music.

Holly Herndon is an multi-disciplinary artist currently based in San Francisco, California. As well as touring the world to perform and exhibit new work, she is currently candidate for doctoral study in Computer Music at Stanford University. She received her MFA in Electronic Music and Recording Media at Mills College under the guidance of John Bischoff, James Fei, Maggi Payne, and Fred Frith. While at Mills she won the Elizabeth Mills Crothers award for Best Composer in 2010 for her vocal generated piece '195′. Her critically acclaimed debut album 'Movement' was released in November 2012 through RVNG Intl.

Christopher Jette is a curator of lovely sounds; a composer, performer, educator and concert organizer. He holds a PhD from the University of California Santa Barbara. His compositions and research address the intersection of technology and human interaction in the creative and performative arenas. Christopher has created a large range of acoustic and electronic compositions and frequently collaborates with artists of various disciplines. His music has been performed in England, Italy, New Zealand, France and throughout the United States.

Elliot Kermit-Canfield is a sound engineer, composer, and first year CCRMA masters student. He holds degrees in music theory and music technology from Penn State University, where he wrote his thesis on spatialization in the music of Iannis Xenakis.

Fernando Lopez-Lezcano enjoys building things, fixing them when they don't work, and improving them even if they seem to work just fine. The scope of the word "things" is very wide, and includes computer hardware and software, controllers, music composition, performance and sound. His music blurs the line between technology and art, and is as much about form and sound processing, synthesis and spatialization, as about algorithms and custom software he writes for each piece. He has been working in multichannel sound and diffusion techniques for a long time, and can hack Linux for a living. At CCRMA, since 1993, he combines his backgrounds in music (piano and composition), electronic engineering and programming with his love of teaching and music composition and performance. He discovered the intimate workings of sound while building his own analog synthesizers a very very long time ago, and even after more than 30 years, "El Dinosaurio" is still being used in live performances. He was the Edgar Varese Guest Professor at TU Berlin during the Summer of 2008.

ABOUT THE ARTISTS

Vancouver-born composer **Michael Berger** graduated from the Doctor of Musical Arts program at Stanford University in 2012. While there, he also received a Master of Arts in Music, Science, and Technology from Stanford's Center for Computer Research in Music and Acoustics. Michael's creative focuses have widened to include physical interactive and electronic instrument design, audio/visual reactive installation, in addition to both electroacoustic and acoustic composition. His recent work has tended to be influenced by philosophical and scientific examinations of the perception of time and memory.

Myles Borins is currently pursuing a Master of Music Science and Technology at The Center for Computer Research in Music and Acoustics at Stanford University. His work has been seen on the pixel board of Roy Thompson Hall during the "New Creations Festival", at Interaccess Electronic Media Arts Center during the "Handmade Music Festival", at OCAD University during the Graduate Exhibition where his installation "The Autonomous Speaker-Bot" received the OCAD Medal in Integrated Media, at the Maker Faire in San Francisco, and most recently at the NIME conference at KAIST in South Korea. Occasionally he can be caught performing music in such cities as Toronto, New York, San Francisco, Palo Alto and Santa Fe. His hobbies include Digital Signal Processing, Algorithmic Composition, Max/MSP/Jitter, Ableton, Physical Computing, Musimathics, hardware hacking, DIY, Bash, Linux and Electricity.

Chris 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 works include Tomato Quintet for the transLife:media Festival at the National Art Museum of China, Phasor for contrabass and Sun Shot played by the horns of large ships in the port of St. Johns, Newfoundland. Chafe premiered DiPietro's concerto, Finale, for electric cello and orchestra in 2012.

Newly relocated from New York, **Alex Chechile** is an artist and composer whose work is focused on the tightly connected relationship between sound, physiology, and the creative process. Taking form as compositions, installations, and performances, Chechile's music finds new use of applied research in cognition and psychophysics. His work has been supported by the New York State Council on the Arts, Harvestworks, the American Embassy, the Experimental Television Center, and Issue Project Room. Alex is a PhD student at CCRMA, holds a MFA from Rensselaer Polytechnic, and a BA from Tufts University. For more information: http://alexchechile.com

PROGRAM NOTES

Machines of Loving Grace

Machines of Loving Grace for computer and bassoon was composed in 1970 and premiered at Stanford's Dinkelspiel Hall on March 8 of the same year. The work is really an environment of sound (and, to a certain extent, sight) for a reading of the poem, *All Watched Over by Machines of Loving Grace*, by Richard Brautigan. The three parts of the poem mention a 'cybernetic meadow,' a 'cybernetic forest' and a 'cybernetic ecology' in which human beings can return to their natural, mammal state under the loving protection of computers. The music is presented by a bassoon (the human-mammal) and a PDP 10 computer. The main elements...grow out of three chords and two melodic lines which are heard in a wide variety of computer-chosen and human-chosen random deviations.

Relations *(A documentation of the installation)*

Conrad Shawcross transformed an industrial robot into a series of light sculpture choreographies inspired by Ada Lovelace (1815-1852) - Lord Byron's daughter and a British mathematician known for her tempestuous life story. The ADA project embodies both the scientific ideas that Lovelace pioneered and the extraordinary times she inhabited. Holly Herndon was commissioned to write a score for one of these choreographies which was installed this summer at the Palais de Tokyo in Paris. The next stop for the robot is in Tasmania, where Herndon will create a multichannel video installation of a performance of the piece to be played alongside the robot. Using a combination of vocal processing, synthesis and recordings of the robot in motion, I attempted to emote the sentience implied in the robot's movements as she curiously probes and surveys her environment.

As she becomes more confident, the composition blossoms and her movements develop into energetic expression. Lovelace made the unprecedented conceptual leap to both notice and attempt to express the computational potential of machines. In line with the new frontier of inquiry into the coming singularity, I attempted to set myself the challenge to not merely soundtrack the robot's movements for human enjoyment, but attempt to listen, empathize and give voice to it's expressions. To this end, I deliberately attempted to devise an alien palette of sounds and use the motion of the robot to make sense of them, tying them together in harmony and rhythm.

SuperCollider Tweet Medley

In this work, three multi channel SuperCollider tweets are presented in series. The full texts of the tweets are reproduced below:

```
{a=XLine.ar([9,25,27,30,43,55,85,99,140,225,365,580,781,945,1525,2470],
4e2,44);SinOsc.ar(XLine.ar(0.5,9,45,1,0,2))*BPF.ar(Saw.ar(a),a)}.play
```

```
play{a=RLPF.ar(FreeVerb.ar(Saw.ar(Sweep.ar(Dust.ar([1,1,1,1,1,1,1,1]),3)*200),
800,1/2));a=Limiter.ar(a+CombN.ar(a,3,Saw.kr(1,0.5)+1,9),0.9)}
```

```
play{LocalOut.ar(a=Limiter.ar(CombN.ar(BPF.ar(LocalIn.ar(7)*5+Saw.ar([6,9,11,13,
20,21,31],0.1),2**LFNoise0.kr(5,3)*300,0.5),3,3,40)),0.9);a}
```

On the Sensations of Tone V

On the Sensations of Tone V is part of a series of works exploring the physicality of sound, layers of spatial counterpoint, and cognitive involvement during the creative process. In addition to the sound emerging from the multichannel speaker system, a second layer of spatial depth is created through the use of distortion product otoacoustic emissions, which are sounds generated by the listener's ears. In response to a combination of pure-tone frequencies in the room, a third tone is evoked in the cochlea. By moving one's head, the listener will notice new tones appear, disappear, and change timbre.

Through employing a neurobiofeedback system, information pertaining to listening, creativity, and improvisation is used re-influence the overall work. Cognitive involvement during live performance is converted into control data to shape and direct the composition while the piece is performed. The process creates an ebb and flow between musical intention and intuition.

Toast and Jam

Six Noise Toasters, each with 10 knobs to twist, 9 switches to throw (well, 10 if you count the on/off switch) and a button to push. Six humans moving all those controls in unexpected yet related ways. A bit of reverberation to spice things up. A computer (we have to have a computer, right?) that places those sounds inside an artificial soundscape in Bing. The result: a chaotically complex sound, noise and modulation world. The Ensemble AnaLocos (contraction of Analógicos Locos, roughly "Crazy Analogs") tries to keep them [under|out] of control in this directed improvisation. The old guy that seems to be out of place (the synthesizer of course) is El Dinosaurio, another analog synth built more than 30 years ago and still young at heart, sonically speaking. El Dinosaurio is maybe the inspiration that lead to 5 students (Romain, Tim, Myles, Gina & Kurt - in no particular order) synchronizing their "Independent Study" courses with Nando, finding this hardware project on their own, building them, and finally jamming together for a better world, or maybe just a noisier one (in a good way). A happy outcome.

Seeing is Forgetting

If truly seeing something requires forgetting its name or category, what is listening?

In this live improvised duet Luke plays an analog modular synthesizer through a custom 4-channel reverb/delay effect while Colin warps and spatializes field recordings. But try to forget these facts and experience the sensations arriving through your ears!

Luminescent Trajectories

Luminescent Trajectories is a series of variations on a theme. The theme is exposed most explicitly as a serious short transient sounds in the closing twenty seconds. The variations explore different layers of the theme by extending and processing the material, Moving among the different components and laying them, a counterpoint of color and texture is developed. The movement of the different streams of material through the 8 channel space is controlled on different meso and micro time scales. The different strategies of moving sound through and presenting it within this space are meant to reinforce the sound objects as they unfold.The aesthetic and spatial trajectories of sound sources is varied and paired with different processing techniques to create the variations of the material.

The aesthetic impulse for the work is the result of the view of the studio in which it was created. Studio E at CCRMA on the Stanford campus is on the top floor and affords a view south by south west. Mixing the various components of the piece at night, an occasional glance out the window into the sky revealed that one of the main approaches to the San Francisco International Airport (SFO) was in clear view. The airplanes begin their final approach at the base of the bay and head north to SFO. The different angles of approach implied by all of the planes collecting in this one area suggested trajectories, which seemed to coincide with the movement of the sounds through space. Hence the title Luminescent Trajectories refers to the lights in the various weather conditions tracing space as airplanes begin their final approach. Again and again, night after night, with slightly different angles as a result of wind, point of departure, the well worn airspace provided a backdrop to my thoughts around and about movement in space.

Remote Control

Remote Control was written for an ensemble which performed together from 1992 - 1994. The current version is a duo "update" of the piece 20 years later. The piece is fusion music in the literal psychoacoustic sense. The players achieve a perfectly fused texture and can only make themselves heard as individuals by pulling away from the whole. Where originally each performer used identical FM sounds on Yamaha TX-802 synthesizers, the new version exploits software synthesis.