THE SOCIETY FOR ELECTRO-ACOUSTIC MUSIC IN THE UNITED STATES

SEAMUS

The Newsletter of the Society for Electro-Acoustic Music in the United States, providing news, interviews, and announcements.

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Laptop Orchestra Panel Discussion

I facilitated an email "discussion" on laptop orchestras with several composers currently involved in ensembles. The discussion includes links to several articles and performances, and some great advice for those interested in creating a group.

Princeton's "Sideband"

"EVERYTHING about LORks has been thrilling and disturbing. We didn't know if anything would work at first. When it did, it was like meth; we had to try more and more dangerous and crazy things."

—Perry Cook

Princeton Laptop Orchestra - PLOrk

The laptop orchestra has established itself as a standard, yet varied and unpredictable ensemble that represents the intersection of the latest music technologies with historical notions of the "large ensemble." Such groups seem to be proliferating and thriving, in both academic environments and as autonomous "bands." In my own neck of the woods, a group of young musicians/performers/composers formed SLEE (Salt Lake Electric Ensemble) in 2009 to create a laptop-based performance of Terry Riley's *In C*, which then led to subsequent performances, recordings, and a recent collaboration featuring their version of *In C* with Salt Lake's Ririe-Woodbury Dance Company. Laptop orchestras are here to stay, and are attracting more and more interest both inside and outside the academy.

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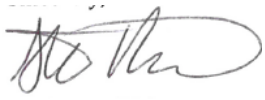
From the Editor

Hello SEAMUS Members!
I hope you're enjoying a productive summer that includes some time for mental/physical rest, retooling, and creative work. SEAMUS 2015 at Virginia Tech was a huge success. Please see the reflective note on the conference from its co-hosts on this page, and then continued on p. 4. Thanks to the hosts and participants for making it happen.

I'm very excited to present an email discussion on laptop orchestras as the feature piece of this issue. I've been thinking of starting a laptop orchestra at my institution, and I feel this discussion--with the links to articles and performances it includes and the great insights from some experienced practitioners--will be a useful guide to those with similar interests. In addition to that, it's a great discussion! Thanks so much to those who participated (their names are included below).

If you have recordings you'd like to send his way, please contact him via email at tjdempster@gmail.com, and make arrangements. I hope you enjoy this issue!

Sincerely,



Steve Ricks

SEAMUS 2015

A Reflection on the Conference From the Co-Hosts

What an exhilarating journey! SEAMUS 2015 met and exceeded all expectations with record attendance of 217 participants, fifteen concerts with 18.5 hours of music, two listening rooms, eight installations, and six paper sessions, including a panel, and all of this packed into a three-day marathon. The conference timing could not have been better with Virginia Tech's Moss Arts Center coming online in 2013, a state of the art building hosting the Institute for Creativity Arts and Technology and the Cube, a unique performance space with a 147-channel hybrid audio system. With the conference's theme "Emotion and Electroacoustic Music," we put a lot of thought into organizing events in a thematically engaging way and we sincerely hope this effort made your experience better. This year's SEAMUS award winner, Dave Smith, wowed us at the banquet with a masterful improvisation on his latest analog synth. We also heard four truly compelling works by the ASCAP/SEAMUS award student finalists: Thomas Beverly, Jason Charney, Shih-Wei Lo, and Justin Porter, as well as last year's winner John Nichols. We were tremendously lucky to have engaged many of our talented faculty and student artists here at Virginia Tech, including Tracy Cowden, Jay Crone, Alex Fowler, Phillip Paglialonga, Annie Stevens, and Ariana Wyatt, as well as worked with amazingly professional staff and student volunteers. Most importantly, we are thrilled and genuinely touched by the feedback we received from many of you, and are glad to hear the conference was perceived as a resounding success.

SEAMUS 2015 would not have been possible without the selfless efforts and generous contributions from many supportive colleagues, students, stakeholders, and sponsors. Our

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In the interview that follows I attempted to pose a broad range of questions that I think have yielded some great responses by the participants. There is a strong Princeton/PLOrk contingent here, with responses from **Perry Cook** and **Dan Trueman** (founding directors of PLOrk), and current PLOrk director and Sideband member **Jeff Snyder**. This depth-of-perspective from a single institution provides an instructive look at how this ensemble has evolved since its inception. **Ivica Ico Bukvic**, director of Virginia Tech's L2Ork, chimes in with another unique perspective, influenced by "Taiji" and a strong pedagogical interest. **Matt Starling** and **Nick Foster** of SLEE give their input on some of the questions I pose. And then I invited **Paula Matthusen**, director of Wesleyan University's Toneburst Laptop & Electronic Arts Ensemble, to join the discussion after most of the answers from the other participants were already collected. Her responses form an effective coda to the dialogue.

Finally, it may be a clunky way to start an interview or discussion, but since I don't know much about laptop orchestras I began by asking each of the participants to recommend performances and articles that would serve as quintessential examples and explanations of their work and what interests them most about this ensemble. I decided to leave these responses up front, in case any of you are in the same boat as me and want to do a bit of watching/listening/reading before you dig into the additional questions and responses that follow. Please enjoy!

SR: As we get started, can each of you point me towards any articles, interviews, or documents that you feel either best summarize your work in this field, OR which have been most helpful or influential on your work with the laptop orchestra?

PC: The articles (CMJ, ICMC, other) with Dan, Ge Wang, and Scott Smallwood for sure, but also more important in a way are some earlier pre-laptop-orchestra genesis articles. Such as:

Remutualizing the Instrument
SMAC:
https://ccrma.stanford.edu/workshops/dsp2008/prc/CookSMAC03.pdf

and fixed up/reprinted in JNMR:
http://www.tandfonline.com/doi/abs/10.1080/09298210420003178 77

Alternative Voices for Electronic Sound, with Curtis Bahn and Dan Trueman:
http://music.columbia.edu/~dan/alt_voices/alt_voices.comp.pdf

If you look at these articles you'll get a sense of why we wanted to experiment with ensembles of instruments that were more intimate and embodied than just a laptop plugged into house sound.

IB: I would start with the following 2 URLs:

http://ico.bukvic.net/main/l2ork/ (has a conveniently short overview)

http://l2ork.music.vt.edu/main/?page_id=2292 (provides 3 versions, short, medium, and large, of what is L2Ork all about and how it differentiates itself from others)

If I had to summarize L2Ork's identity, it would be:

1) technological consistency in pursuit of familiarity, expressive depth, and the virtuosity
2) emphasis on physical presence and choreography and more specifically mind-body practice through the use of Taiji choreography
3) open-source affordable design that promotes K12 outreach

Below is also some supporting documentation--you will find links to papers on my personal website whose URL is also provided above (http://ico.bukvic.net/main/l2ork/)

Bukvic, I., Baum, L., *Layman, B., & *Kendall, W. (2012). Granular Learning Objects for Instrument Design and Collaborative Performance in K-12 Education. New Interfaces for Music Expression (pp. 344-346). Ann Arbor, Michigan: NIME.

Bukvic, I. (2012). A Behind-the-Scenes Peek at World's First Linux-Based Laptop Orchestra – The Design of L2Ork Infrastructure and Lessons Learned. Linux Audio

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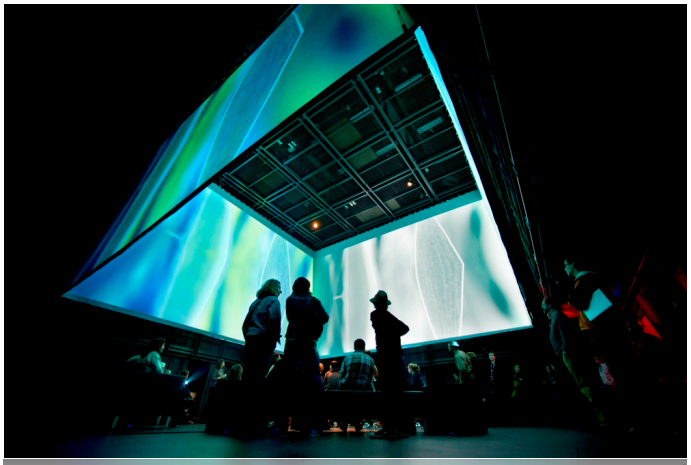
(SEAMUS 2015 reflections by conference hosts, cont.)

conference was supported by more than a dozen internal stakeholders, including the School of Performing Arts, Institute for Creativity, Arts, and Technology, Virginia Tech Office of the Provost, College of Liberal Arts & Human Sciences, Institute for Critical Technology and Applied Science, Center for Human-Computer Interaction, Graduate School, College of Engineering, Office of the Vice President for Information Technology, Department of Computer Science, Technology-Enhanced Learning and Online Strategies, University Libraries, and Institute for Society, Culture and Environment. Notably, we would like to acknowledge School of Performing Arts Director Patricia Raun, Institute for Creativity, Arts, and Technology Director Benjamin Knapp, and Vice Provost for the Arts Ruth Waalkes. Likewise, we would like to thank our external sponsors, Sweetwater Inc., Genelec Inc., and Rock the Blocks, a regional arts festival that took place concurrently with our conference, offering even more opportunities for our guests to experience regional culture. We would like to thank our incredibly supportive friends and colleagues, professional staff, student workers and volunteers, as well as our own families, without whom we never would have found the time nor strength to make this conference a reality.

SEAMUS as a organization has come a long way and is better off than ever. This is certainly reflected in increased attendance, the number of high-quality submissions of music, papers, and installations, as well as increased activity among younger members. Once again, we are truly thankful for the opportunity to host the 2015 conference and with excitement look forward to future events. Until then, we wish you a restful summer and productive year!

-Conference Co-Chairs Ivica Ico Bukvic, Eric Lyon, and Charles Nichols



Virginia Tech's "Cube"

Virginia Tech's Moss Arts Center

LETTER FROM THE PRESIDENT

Dear members of SEAMUS,

I hope you are having a terrific start to the summer. By now, you should have received your copy of SEAMUS CD 24. I am very happy to announce the composers whose works from the 2015 National Conference you voted to include on SEAMUS CD 25. They are Dan Van Hassel (fzzl), Paul Botelho (rising), Mark Phillips (Violin Power), Elainie Lillios (The Rush of the Brook Stills the Mind), Jeffrey Stolet (Imagined Destinies), John Nichols III (Nothing That Breathes, the ASCAP/SEAMUS Student Commission), Kirsten Volness (River Rising), and Benjamin Broening (Twilight Shift). Congratulations to each of you!

We have continued to implement improvements and new features to the SEAMUSonline.org website this summer. These include the ability to search the member directory by name and role (e.g. performer, composer), and behind-the-scenes functionality that will improve our ability to manage memberships. We are also adding a Repertoire Database, which will be a keyword-searchable library of electro-acoustic music created by SEAMUS members. There will be more information coming as this comes online.

And finally, the SEAMUS 2016 National Conference will be held at Georgia Southern University, hosted by John Thompson, Martin Gendelman, and Michael Olson. The dates are February 11 - 13, 2016 (a fine time of year to visit Statesboro, GA!) and the theme is Transvergence. Please be on the lookout for the upcoming call for submissions.

Best wishes for a productive and relaxing summer!

Scott L. Miller
President, SEAMUS

Conference (pp. 55-60). Stanford, California.

Bukvic, I. & Komelski, Matthew. (2012). Strategies for Structured *Ork Performance Choreography: Integrating Taiji Martial Arts into L2Ork Repertoire. Symposium for Laptop Ensembles and Orchestras (pp. 51-53). Baton Rouge, Louisiana.

Bukvic, I., Martin, T., Standley, E., & *Matthews, M. (2010). Introducing L2Ork: Linux Laptop Orchestra. New Interfaces for Music Expression (pp. 170-173). Sydney, Australia: NIME.

Ico Bukvic and Virginia Tech's L2Ork

JS: There's no article that really sums up what I've been doing with laptop orchestras. You can check out my recent NIME papers about projects I did as director of PLOrk: https://nime2015.lsu.edu/proceedings/275/index.html (Giant Robot piece) www.nime.org/proceedings/2014/nime2014_542.pdf (mobile percussion parade)

Here's an interview I did with Princeton magazine back in 2012, it's not up to date with the current state of how we do things, and I'm now director rather than associate director, but it's an accurate picture of what we were up to in the 2012/2013 academic year: http://issuu.com/witherspoonmediagroup/docs/finaljanfeb2013 (page 45)

The original articles Perry mentioned were an influence on me, as well as "Why a Laptop Orchestra?" since I came in after the ball was already rolling.

DT: In addition to the OS article, the CMJ articles with Ge Wang (Teaching with the Laptop Orchestra), and Smallwood (Composing for Laptop Orchestra) are important i think.

"Composing for Laptop Orchestra," Scott Smallwood, Dan Trueman, Ge Wang, Perry Cook, Computer Music Journal Spring 2008, Vol. 32, No. 1: 9–25.

"The Laptop Orchestra as Classroom," Ge Wang, Dan Trueman, Scott Smallwood, Perry Cook, Computer Music Journal Spring 2008, Vol. 32, No. 1: 26–37.

SR: Can each of you share a link with me of your favorite laptop orchestra performance? Whether you were part of it or not…

PC: Can't beat the original Gamelan piece: http://plork.princeton.edu/video/non-specific.mov
And CliX: http://plork.princeton.edu/video/clix.mov

Ge Wang's SLork piece "Twilight" in Stanford Bing Concert hall: https://vimeo.com/100624271

IB: You can view a YouTube video on my homepage (http://ico.bukvic.net/main/l2ork/), or (direct link) https://www.youtube.com/watch?v=tT8a5P2pcpg

JS: I was super happy with PLOrk's final show from this past season, where we did several performances of Medieval and Renaissance music. Here's one of the pieces, using many instruments that I built in the last few years: https://vimeo.com/126997588 and another one, Stella Splendens, where the audience got to control notation for live percussionists on stage and make their own sounds: https://vimeo.com/126996846

Here's a video of our giant robot piece from last year: https://vimeo.com/99536775.

I think of Jascha Narveson's In Line as really iconic: https://vimeo.com/80420967

DT: There are many! But I'll list Anne Hege's "From The Waters" here: http://www.sidebandchronicles.com/anne-hege-from-the-waters/

along with my own Four Squared for Ligeti: http://manyarrowsmusic.com/music.html#foursquared

NF: http://artistsofutah.org/15Bytes/index.php/ririe-woodbury-and-salt-lake-electric-ensemble-celebrate-in-c-with-53-rooms/#

SR: What are the natural strengths and/or abilities of the laptop you have come to prize most through your involvement with the laptop orchestra?

PC: The ability of each new piece to use a new "instrument" (which must be programmed, taught, learned, rehearsed)
Synchronization
Awesomeness

IB: Regaining synergy of a human-to-human interaction in an ensemble environment, something that was arguably missing in computer music until interactive technology became powerful, ubiquitous, and affordable enough for such an ensemble to become viable. It is also its discipline-agnostic design that promotes music creation and consumption, experimentation, the human curiosity and the exploration of the unknown, as well as the incredibly multifaceted transdisciplinary nature of the ensemble.

JS: I'm into the ability for performers to communicate non-verbally in the middle of a performance very quickly. As an

interface, though, I'm not that into laptops, screens, etc. I prefer to take advantage of the power and flexibility of the laptop for processing and synthesis, but use controllers as the focus for the performer instead. I also don't really think laptop orchestras need laptops - I think of it as an "electronics large ensemble" more than anything laptop-specific, and that makes it much more fun for me. That way it really opens up the possibilities for what these kinds of groups can do.

DT: It's all about "instrument" design. with the laptop we are able to develop instruments that offer new possibilities for engaging with sound, and engaging with others through sound. this is also the biggest challenge! developing new instruments that engage and inspire and can be responsive in musical/social contexts, even with the power and flexibility of code, is hard! but, more specifically, i think there are two obvious strengths that are attractive: 1) the decoupling of body from sound—unlike acoustic instruments, where the body and sound are physically coupled in some ways, digital instruments have no such connection, and we must invent it; 2) dynamism—these instruments can change subtly or dramatically as we play them, in ways that would be impossible with acoustic instruments.

MS: More than anything, the laptop as a musical instrument represents a platform where multiple powerful, expressive technologies can all be sounded at once. In any given performance, our ensemble has drawn from technologies like digital audio recording and playback, DSP, MIDI, sequencing, sampling, synthesis, generative techniques, and programming. Having the ability to leverage any/all of these technologies is remarkable. I would even go so far as to say that the integration of computers in musical performance represents an evolution in the act of performance itself.

NF: For SLEE, syncing an ensemble together with a non-linear DAW like Ableton Live inspires improvisation within a strict or very loose pre-composed environment.

New and exciting hardware interfaces are constantly being released allowing more expressive performance possibilities for the "laptop ensemble" and older software like MAX/MSP is given new life with MAX for Live.

SR: In Dan Trueman's article "Why a laptop orchestra?" published in Organised Sound, Dan mentions how the speed with which the ensemble members could respond to instructions via the shared network were unexpectedly fast--what he calls "limit violation." He describes this realization as both "thrilling and disturbing." I love this pairing of words--what other things have you found both "thrilling and/or disturbing" about this medium? What have been some of the surprises?

PC: EVERYTHING about LORks has been thrilling and disturbing. We didn't know if anything would work at first. When it did, it was like meth, we had to try more and more dangerous and crazy things. Things kept working. Many things didn't work, but the solutions just gave us more crazy ideas, and bravery that we could really try new things for every piece and show. We kept pushing the limits. That, right there, defines thrilling and disturbing.

IB: YES, everything about laptop orchestras is both thrilling and disturbing. It is like a black hole that sucks up as much of your creative energy as you allow it to. More to the point, I continue to be thrilled (and disturbed) by its holistic all-inclusive extent--it is art, it is science, it is design, it is engineering, it is technology, it is maker culture, it is K12 education, it is mindfulness practice, it is Human-Computer Interaction, it is software development and User Interface design, and it is all this while being essentially discipline agnostic. Likewise, I am thrilled (and once again disturbed) by the engagement threshold in the hyperinstrument design--there is a point where the addition of a single new feature,be it a button press or a gesture, beyond which participants simply disconnect and become disinterested. Finding that balance between the technological complexity and the complexity of human interactions is what makes this journey both thrilling and disturbing.

JS: We've done some things where the members can really stretch out while a network takes care of keeping things synchronized, even allowing really complex polyrhythms that would be difficult or impossible to do as humans - I find that pretty exciting. I also like having performers be able to manipulate sound created by other members: you can get very thrilling AND disturbing effects from that situation! Or having many performers controlling one instrument is also a mind-bending exercise... In general changing or violating the accepted interaction paradigms is really interesting and surprising.

DT: I think the other responses have covered this well!

SR: How has the appearance and ubiquity of mobile devices--tablets and smart phones in particular--influenced the way you think about the ensemble and its potential?

PC: I personally am not as jazzed by phones and pads, except as controllers. I regularly now perform with an iPhone/iPod or two strapped to me sending OSC to my laptop (now often offstage). My solo work is all wireless now, but I often wear speakers :-) So mobile is good, but not like you mean it.

IB: In two ways:
1) as long as there are new technologies there will be new opportunities and angles to spin the laptop orchestra idea (however we choose to call it), even though the idea remains by and large the same--ensemble- and human-centric music performance mediated through technology, which in turn offers unique opportunities, such as telematic performances and other activities that are either impractical or simply impossible for traditional instruments to perform, actions that validate the very existence of the laptop orchestra genre.

2) there is an inherent danger of continually running after latest technologies, as such a journey can easily tip the experience towards technology demos and away from profound art. There is something inherently beautiful about drilling deep in a particular direction in search of that profound virtuosity which is only possible once a particular technology becomes so established that no audience member (or performer) is distracted by its novelty or the so-called "wow" factor, so that the only thing remaining is the art itself. This, of course, on some levels goes against the very grain of experimental ensembles, and yet, I remain hopeful that a balance between experimentation and the pursuit of virtuosity can be struck.

JS: The mobile percussion parade article I linked to describes one project we did that was clearly inspired by mobile computing power. For me, that element becomes most interesting in situations where you either want the performers to surround the audience and be able to move around, or where you want the audience to be able to be involved. Our Stella Splendens piece from this year took advantage of the fact that everyone in the audience has a cellphone that is capable of some series audio synthesis and network communication. We explored having the audience be able to play their own phones as "instruments" through a web audio app, then we use them to crowd-source composition (via upvote/downvote on a sequencer grid), and then we used all of their phones as a massive distributed speaker for one of the PLOrk performers playing a keyboard. It was really exciting to be able to get the audience involved in that way using instruments they already had with them in their pockets.

An easy way to develop for iOS and Android phones is to use Daniel Iglesia's MobMuPlat app, a free platform that lets you wrap up PD patches, make a fast GUI, and deploy them on your phones. I find this most useful when coupled with a decent portable amplifier. We use Fender Passport Minis to which we have attached straplocks and guitar straps.

DT: Not much; they are just smaller wrappers for computation. They are sometimes handy (apologies for the pun), and it's nice to have options where movement is easy, but I also like good sound, which is hard to manage with mobile devices.

MS: I think that the greatest potential lies in the touchscreen user interface. The ability to design custom control interfaces for multiple instruments is very powerful.

SR: One of the benefits of creating a laptop orchestra, not least perhaps, has been re-establishing human connection(s) in a medium (laptops/ electronic music) that has experienced de-centralization including the sort of weakened role of a single studio. Can you comment on that?

PC: Yep. The community and ensemble feel of the people who rehearse and play together is deep. The role of a single studio has been diminishing and changing since people could buy their own Commodore Amigas, Laptops, etc. Having a nice space packed with Genelecs and ProTools is cool to do some kinds of necessary work, but the power on our laps, combined with really good open-air and closed-air headphones, and free/cheap DAWs and plugins, means we can all make records, edit, etc. in our pajamas, or on a plane. But the laptop orchestra takes electronic music into a really different, but ancient, space of people all sweating and working together, listening carefully, doing musical (or not) gestures, making music. Inspired by what a brilliant man I know once said, I'd say, "It's at once frightening, exhilarating, and unbelievably gratifying (when it works, and even when it doesn't)"

IB: I think this perceived de-centralization is more of a cycle (or should I say cycle~? ;-). It is absolutely true that today's studios have been redefined by affordable mobile devices such as laptops and smartphones. On the other hand, in recent years we have seen a rapid growth of massively multichannel audio infrastructure that is impractical at best or simply impossible to reproduce in a mobile/portable format. As long as there are new disruptive technologies that require co-location to promote cutting-edge research, such infrastructural changes will help permeate studios' relevance. More importantly, studios have always been and will likely remain communal co-located learning spaces with particular stylistic traits (defined by its faculty and at last in part fostered by its tailored technological ecosystem), offering a unique human-to-human synergy. It seems to me it will take more than a conferencing tool to replace this powerful synergy. From this perspective, the laptop orchestra genre further strengthens the aforesaid human-to-human connection, and by doing so reinforces the studio as a learning hub paradigm.

JS: Definitely! That's the most interesting part of it, as far as I'm concerned. Live human interaction, being able to play electronic music like it's chamber music, or a samba band, or like you're neurons inside a brain, etc. So many possibilities when you are taking advantage of the people and thinking of the computers as simply tools to make new sonic interactions between those people possible.

DT: This is the most important part of it, the whole reason we did it; I was tired of people working alone in studios and then sharing their products after the fact. I'm a fiddler, I like to make music with other people, and the laptop "orchestra" is all about trying to bring computation into the worlds where people make music together.

SR: Movement as an aspect of performance seems to be a vital part of the laptop orchestra. Some of it seems to grow naturally out of typical conducting or instrumental gestures, while at other times it seems to borrow more from dance (or obviously in Ico's case Taiji). What is your philosophy of movement in relation to laptop orchestra?

DT: I don't usually think of movement in isolation, nor do I really prioritize it. I'm most concerned with what kind of experience performers are having with whatever instrument/system I am building; if they are having a rich, engaging experience, and that experience is framed by both the instrument *and* the other musicians, then I usually think I'm on the right track. Movement then emerges from that in some way or another, or maybe it doesn't.

Now, if movement does *not* emerge, we do sometimes have issues in performance — the old "are they just checking their email?" problem — in which case I do think we have the responsibility to consider the audience perspective and either rethink our instrument, or find other compelling ways to invite the audience in (perhaps via video, or other instruments that *do* have a movement component). unless we are not concerned with actually presenting our work in a

conventional performance context, something I think is important to point out; we shouldn't presume performance when we are exploring new possibilities with computation and music — perhaps we are more interested in making something that musicians engage with one another without thinking about performing it (not so unlike fiddlers in a kitchen jam session, or gamers for that matter, or from another viewpoint, researchers in a lab; from the beginning we viewed PLOrk as both a lab and an ensemble).

From another angle, we can think about the notion of *embodiment*, and movement being an *emergent* phenomenon from an embodied activity, one that induces a sense of *flow* in the performers. To use several of the current hip words/ concepts! Really though, when I'm building new instruments, I am thinking along these lines...

IB: Gesture and choreography are inseparable components of a musical instrument and consequently performance. More so, in the world of acoustic instruments, it not only offers visual engagement from an audience's perspective, it also affects the very sound quality of the instrument. Its boundaries are defined by tradition, by centuries of trial and error. It seems to me it only makes sense that we pursue this same form of synergy in a laptop ensemble, despite (or, better yet, exactly because of) the fact that today's technology allows us to fabricate and define these causalities between an action and an outcome.

Early laptop ensembles have explored a sense of economy by relying solely on whatever a laptop could offer gesture- and choreography-wise, which compositionally seems to make perfect sense. On the other hand, due to laptop's unique versatility, this aesthetics can bear potentially troubling similarity to actions that have little to do with music making process and as such can have a negative impact on performer and audience engagement. Today, we have laptop orchestras pursuing the ever-expanding collection of motion- and gesture-driven human-computer interaction interfaces. While I appreciate the early approach and continue to see it as a potentially compelling aesthetic, with my traditional music background I feel performing on a laptop begs for a more choreography-centric performance, one that can sidestep the aforesaid pitfalls, while also giving as much depth to physical presence as we give to sound and interaction. This kind of an approach offers an opportunity for closing the loop between defining the sound of an instrument, the way we generate the sound and interact with it, and in turn what makes sense for a human performer and what makes for an engaging performance experience from an audience's perspective. I believe all of these help define an optimal instrument and assist us in getting as close as possible to that engagement threshold without crossing over.

As a result, for me the focus on gesture and choreography was an essential component that begged to be explored further and which over the years in many ways defined the ensemble. Early on, we started out by using Nintendo Wii remotes and borrowing gestures from acoustic instruments with mixed results--some we kept and continued to improve upon, some proved borderline offensive (as we found out only after the actual performance took place--perhaps our self-reflection was clouded by the exhilarating exploration of the newfound paradigm?). Around the same time, I got into Taiji (Tai Chi) and soon came to a seemingly obvious realization--using Taiji as a scaffolding for L2Ork's choreography and thus helping the ensemble engage in persistent study of body language as an equally important component of instrument design and performance practice, while minimizing the chance of visually undesirable outcomes. . This choice helped uncover a whole new dimension. L2Ork became more than a music ensemble and a technological research hub, it became a mindfulness haven to the point where after a while students began asking for extended Taiji practice sessions and even enrolled into a class taught by my colleague and Taiji teacher Dr. Matthew Komelski. There is something truly magical when one can embark on an exploration of full body choreography and hear it sonified with haptic feedback through Wii remote's vibration. Choreography is not an afterthought--it is an essential building block of the overall experience.

JS: I don't have any particular philosophy about movement as it pertains to the laptop orchestra, or at least not as strong a philosophy as Ico. In general, I care most about instrumental performance, and creating instruments that work well for the performer. Therefore, whatever gestures are ideal for the musical needs of a particular piece are what I would tend to prefer. I think of the audience's experience as mostly secondary to those goals, but of course that depends on the piece.

Here is one example where gesture and movement was important to the piece. We did one piece this year called "La Harpe de Melodie" (a version of the piece by Senleches), and we thought it would be great to create an instrument that gesturally recalled a harp. Obviously there are precedents like the laser harp of Jean Michel Jarre. We decided to use the GameTrak controller to create a sort of virtual harp in the air that the performers could strum. You can view the result online: https://vimeo.com/127001238 (the harps start in around 3:20).

While there is always a risk of creating a boring visual presence and the infamous "are they checking their email" look, some pieces or instruments call for performance method that works that way. Here's a recent example, Skipstep, where the interface was sequencer grid software on iPad touchscreens. (video here: https://vimeo.com/99373121) The audience's experience could have possibly been improved by a video component that showed the contents of each performer's grid, but I think the interface for the instrument itself was appropriate for the musical interaction. My piece Whac-A-Note has a similar interface style but does compile the performer information for screen display, and I think it worked in that case, especially since the structure of the piece was intended to be something of a "game", so the audience needed to know how each member was doing, and who was winning (video here: https://vimeo.com/27988027). Lathyrus, by Paula Matthusen, is a successful example where the basic "typing on a laptop" interface works well. When performing it with either PLOrk or Sideband, we tend to communicate with each other about the various choices in the piece through very visible hand gestures, which I think works well and makes it extra fun for us as performers, although it's not specified in the score. (video here: https://vimeo.com/27988027).

I have a strong attraction to Partch's concept of **corporeal music**, and I'd like to be able to really argue for movement and body involvement in electronic music-making. However, I have realized lately that my own performance method is and has always been from the "stand in front of a table and turn knobs" school (here's a video of a performance with my duo exclusiveOr and members of ICE: https://vimeo.com/89002047). But I really like experimenting with all the possibilities within the context of a laptop orchestra.

As for live performance of electronic music vs. the completely non-live performance of "tape music", that is something I feel very strongly about. Tape music is fine but I have almost zero interest in it. Even in the history of early electronic music, I find the music of those who do real **live** electronics - the David Tudors and Pauline Oliveroses - so much more exciting than the studio composers working in the same period. Not to say Parmegiani's stuff doesn't sound amazing (it really does), but there's something very fascinating about the performative nature of live electronics. I love the energy and risk of realtime instrumental control of sound.

NF: Movement makes all the difference. Modern Dance and computer-based music seem to be fated for each other. Collaborating with the Ririe-Woodbury dance company and taking visual cues from dancers and vice versa was extremely gratifying. http://www.ririewoodbury.com/about/guest-artists/item/233-salt-lake-electric-ensemble

SR: Here's a slightly different attempt at the same question...some early electronic music practitioners, like say Mario Davidovsky, moved from "tape" pieces to "instrument and tape" pieces early on in an attempt to have their cake and eat it too--to have the energy that comes from live performance AND the virtuosity and flexibility that comes

(continued on p. 17)

Member News

Brian Belet's composition *Summer Phantoms: Nocturne* (piano and computer-processed piano sounds) is included on Kai Schumacher's (www.kaischumacher.com) new CD *Insomnia*, published June 2015 on the SWR Music/Hänssler Classic label in Germany. The CD also includes night music by George Gershwin, John Cage, George Crumb, and Bruce Stark. Schumacher has performed the music from the CD in Kaiserslautern and the Duisburg 'Traumzeit Festival' (June 2015), and in Berlin (August 2015).

Belet's ensemble SoundProof (Patricia Strange, violin; Stephen Ruppenthal, trumpet; & Belet, viola & bass) will be the resident ensemble for the 2015 Kyma International Sound Symposium, August 9-13, Bozeman, Montana.

Details posted at: www.BeletMusic.com

Julius Bucsis will be performing a set of original material for electric guitar and computer processing at the Electro-Music 2015 festival in Huguenot, New York in September. His composition *In the Interest of Time* (fixed media) was selected for NYCEMF 2015 held in New York City in June. *The Drama in Her Eyes* (fixed media) was selected for the Summer 2015 issue of the online journal *ink&coda*. *I Am Who Am I* (fixed media) was selected for the Si15 conference held in Singapore in August. *The Message* (fixed media) was selected for Electroacoustic Barn Dance 2015 held in Fredericksburg, Virginia in October and for Electronic Music Midwest 2015 held in Kansas City, Kansas in November.

Ben Fuhrman co-hosts the podcast Sound Notion, which recently featured an interesting interview with Morton Subotnick, available here.

Orlando Jacinto Garcia's mixtura for cello and fixed media was performed at the New York Electroacoustic Music Festival on June 24 by cellist Mirjam Ingolfsson. In August Garcia will be in residence at the Visby International Center for Composers working on a new work for bass clarinet and fixed media for Harry Sparnaay and his proteges as well as several other bass clarinetists in the US and the Americas.

Keith Kirchoff recently performed at the New York City Electroacoustic Music Festival and was on faculty for the inaugural season of SPLICE in July. He will be touring New Zealand and Australia with performances at the New Zealand School of Music, the University of Canterbury, the University of Waikato, the Audio Foundation, and the University of Western Sydney in August featuring works by Peter Van Zandt Lane, Scott Miller, Steve Ricks, Robert Seaback, Dan VanHassel, and himself.

Tornado Project CD release July 10 on Ravello Records: Music for flute, clarinet, and computer by US and UK composers: **Ricardo Climent, Eric Lyon, Andrew May, Russell Pinkston, Robert Rowe, Paul Wilson** performed by Elizabeth McNutt (flute) and Esther Lamneck (clarinet).
http://www.ravellorecords.com/tornadoproject/
https://www.youtube.com/watch?v=9SNgzSNdzaU
http://tornadoproject.xyz

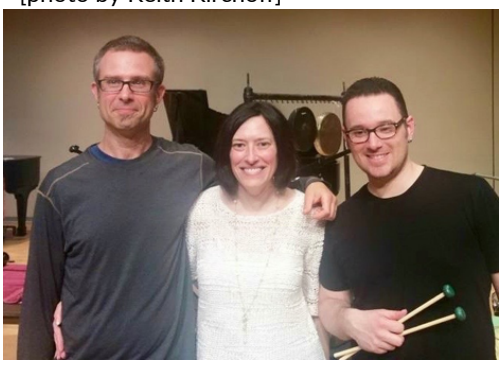
Philip Schuessler recently received the President's Award for Artistic Excellence at Southeastern Louisiana University. The merit-based award is among the highest awards a faculty member can receive at the institution. A recording of Schuessler's electronic music was recently released on the Centaur label on an album called *Embers* (CRC 3385) featuring saxophonist Richard Schwartz and Schuessler on piano.

Brian Sears's new work, "Live in the Breath" for Trumpet and Live Interactive Electronics, was performed this week by Sam Wells at the SPLICE summer Institute. This performance, as well as 17 other participant pieces capped off a week of classes, concerts and workshops that made up the inaugural season of SPLICE. Faculty Keith Kirchoff, Elainie Lillios, Adam Vidiksis, Christopher Biggs, Per Bloland, Richard Johnson, Sam Wells, and David Wetzel led a few dozen composers and performers in an inspiring week dedicated to the creation and performance of electroacoustic music and multimedia. Feedback from the participants was universally positive, and with this week being such a huge success, the future of SPLICE and its unique offerings looks very bright!

Kyle Shaw's new work for piano and electronics, Locomotion, was performed by Keith Kirchoff on Saturday, 11 July at the SPLICE institute at Western Michigan University. Several other premiere performances were given that day as part of SPLICE's week long festivities. Altogether, the institute included 8 concerts; several classes, workshops, and lectures; private and group lessons; and invigorating discussions of aesthetics and techniques. SPLICE's first go-round was an excellent opportunity to get to know and work with some incredible artists in an intimate setting. Many, many thanks to Christopher Biggs, Keith Kirchoff, Richard Johnson, Per Bloland, Elainie Lillios, Sam Wells, Adam Vidiksis, and David Wetzel for an amazing week!

Adam Vidiksis recently returned from serving on the faculty of the SPLICE Institute at Western Michigan University, where he led daily workshops in SuperCollider, performance masterclasses and lessons, and gave numerous performances, which included his own works, and those of Elainie Lillios, Per Bloland, and Shaun Cayabyab. He was joined by fellow SPLICE faculty member, Keith Kirchoff, in the premiere of Vidiksis's new work, *Local Equilibrium Dynamics* for piano, percussion, and live computer processing. Other recent performances include a new commission from Renegade Theater for interactive audio entitled *Cognition Condenser*, which was premiered at the Barnes Foundation in Philadelphia in July, a concert performance by Bowerbird, which included a new work for chamber ensemble and electronics, called *We Begin Everywhere*, as well as a performance of Vidiksis's *Things that Live in the Whirligig*. Vidiksis recently performed in collaboration with guitarist Quinn Dougherty original works for guitar, percussion, found sounds, speech, and live computer processing. Vidiksis also performed a set of his works on Joo Won Park's album release party at <fidget>, as well as a performance of *Whirligig* at NYCEMF this June. Vidiksis will lead his electronic music ensemble, BEEP, in a concert of works by Temple University composers at the New York Electronic Art Festival at Harvestworks later this month.

[photo by Keith Kirchoff]



Adam Vidiksis with Elainie Lillios and Per Bloland after Vidiksis's solo recital at the SPLICE Institute at Western Michigan University

Benjamin D. Whiting's pentaphonic fixed media composition, *Melodía sin melodía*, received its world première at this year's SEAMUS National Conference at Virginia Polytechnic Institute and State University, and received further performances at the Sonorities Festival of Contemporary Music - "Fractured Narratives" at the Sonic Arts Research Centre at Queen's University in Belfast, Northern Ireland, and at NYCEMF at the Abron's Arts Center in New York City. The piece is scheduled to be performed at this year's TIES at the Wychwood Theatre in Toronto, Ontario; at ICMC at the University of North Texas in Denton, Texas; and at EMM at the Kansas City Kansas Community College in Kansas City, Kansas. Whiting participated in the inaugural session of the SPLICE Institute at Western Michigan University in Kalamazoo, Michigan, where his piece for harp and electronics, *Dreamscape No. 1*, performed by harpist/composer Jennifer Ellis, received its world première. His quadraphonic fixed media piece *Under Lock and Key* was released in its stereo reduction on the University of Illinois Experimental Music Studios *Transient Images* album, and was quadraphonically realized at the CMS South Central Regional Conference at Northeastern State University in Tahlequah, Oklahoma, and at N_SEME at Bowling Green State University in Bowling Green, Ohio. Whiting's stereo fixed media composition, *FL*, was performed at this year's TUTTI festival at Denison University in Granville, Ohio, and at the CMS South Central Regional Conference.

Maurice Wright's *sweet, picturesque* for piano, electroacoustic sound and projected video, was performed as part of the New York City Electroacoustic Music Festival by Australian pianist Siang Ching Ngu (pictured below.)

from the electronic medium. Do you think the need for or drive towards movement in laptop orchestra pieces comes from this same impulse, or is it something different?

PC: I learned a whole lot from Dexter Morrill. We began working together right after I arrived at Stanford in the mid 80's, on would become the Cook-Morrill Trumpet. He had done computer music (tape), mostly computer+singer/player, and a set of tape+sax movements working with Stan Getz. Based on the success of those, he got an NSF grant to create an interactive trumpet interface/system for Wynton Marsalis. I was fortunate to work with him on this, doing the hardware electronics design and software. Anyway, he told me, (I'm paraphrasing here from my memory) "There's something special that happens when a human performer takes the stage. It's an age-old heroic role, and the audience recognizes that. The danger, fear, and sweat are part of the drama. I've been in many computer music concerts where there are a series of tape pieces, very good ones. But the minute a human takes the stage to perform (with tape), the entire energy of the concert hall changes."
I've always remembered that, and have pretty much taken as much risk as possible, live, in every piece/performance I've done since. The human can add humanity to the computer, while the computer can augment the human beyond what could ever have been dreamed. I think it's a lovely marriage.

IB: Absolutely! Music performance has always been an embodied (theatrical?) experience both for performer(s) and audiences. Studies have consistently shown that equally compelling musical performances with purposefully constrained physical presence are perceived as inferior to those that exhibit emotion through gesture and amplify actions through full body movement. In today's laptop ensembles, this need for gestures and choreography is further exacerbated by gestures that are synonymous with activities people commonly associate with mundane and uninteresting (e.g. typing an email, browsing the net, etc.) and for this reason I believe laptop orchestras have to work twice as hard to distance their choreography from such potential pitfalls and affirm their own unique approach to gesture-based communication. Finally, there is something to be said for clarity. If there is one thing I learned throughout the exhilarating L2Ork journey, it is that audience appreciates when they can make some sense of what each person is doing and how they are doing it. Audience wants to understand--not all of it but enough to be engaged beyond the initial curiosity. I believe this clarity is critical as it sets the foundation towards differentiating correct actions (notes, sounds, textures) from mistakes (something I believe is an essential component of even the best of performances--celebrating our own humanness, our own imperfection; and yet its excess can be indicative of an inferior performance), which in turn improves understanding and ultimately sets the stage towards that longitudinal goal--recognizable virtuosity. This is not to say I advocate demo-like straightforwardness, but rather seek balance between foreignness and clarity.

SR: Is it time to let the word(s) "laptop" and/or "orchestra" go with these ensembles, since they seem to transcend and transgress the implications of one or both words in so many cases? How has the ensemble evolved and how do you see it continuing to evolve over the next ten years?

DT: I don't think so. I knew the name was destined to be anachronistic when we first came up with it, but the notion of an "orchestra" is old and will continue for ages, and laptops have been remarkably persistent. an "orchestra" can be lots of things, and I like how combining the words is provocative, and not boring the way, say, "digital music ensemble" is (apologies to those who prefer DMEs!). Anything interesting transcends and transgresses its given names and definitions, I think. Ok, that was a bold pronouncement, but I'll leave it.

How has it evolved? Well, that's a big question. I do think we have developed a more sophisticated sense of what is most interesting, but it still feels wide open, like there are loads of possibilities that we have yet to consider. Jeff

Snyder's most recent PLOrk concert was an eye opener for me; who would have thought doing covers of Medieval songs with a laptop orchestra would be a good idea? And it surely was, as the concert demonstrated.

I think a bigger question is whether laptop orchestra should be really *all* about laptops/computation, or whether they should be part of a larger musical structure. Maybe it really should be a laptop *section* within an orchestra or ensemble? I don't think there is a yes/no answer to this — I still find some laptop-only pieces quite interesting, but I'm finding that the majority of pieces that I'm interested in use laptops within mixed ensembles. Put another way: is a laptop orchestra sort of like a bell choir? Some of the early laptop orchestra pieces felt that way to me, and while bell choirs are fine, I think there are reasons they are, um, niche.

IB: I personally don't mind these words at all, as they help explain the roots of an idea, an idea that is truly different from that of a traditional orchestra. On one hand, with the technology so quickly evolving the "laptop" part will inevitably (and already has) metamorphose into something else. On the other hand, "orchestra" seems more universal and I don't think it will disappear as quickly as the former, if ever. It may be substituted by a close relative, a synonym such as ensemble, or a choir. Either way, just as we've had iPhone and iPad ensembles, there will be others, yet the core premise will remain the same--an ensemble of performers using novel technology with unique affordances. More so, I think what laptop ensembles need today is not more experimental technology (even though I also look forward to the time when I won't have to carry, touch, or move anything anymore to make a sound, kind of like singing, except a lot more flexible). Rather, I believe we need profound pieces of art that validate the ensemble not for its educational, collaborative, technological, engineering, research, outreach, mindfulness, etc. potential, but for its intellectual and emotional impact that rivals that of greatest pieces of art (music) ever created, be it historical masterpieces, or hits from today's mainstream scene that will become tomorrow's evergreens. On some level, continued experimentation (as exciting as it is) helps permeate the lack of emotional clarity as audience is often so enamored by the technological "wow" effect, they completely miss the art part.

Consequently, I see L2Ork continuing to dig deeper in search of that compelling artistic experience, that compelling piece of art that not only validates the genre's unique affordances, but also stands on its own. I look forward to that 50th piece that stands a much better chance of being truly amazing than the 5th or even 20th. As such, I see continued work within the aesthetic, programmatic, technological, and aspirational constraints (e.g. affordability, malleability, homogeneity) in pursuit of this depth, while concurrently experimenting and developing cutting-edge technology L2Ork may come to rely upon in 10 years.

PC: Nah. We've got a few more years with laptops, or at least with people knowing what that means.

Also, the charm of an "orchestra" of homogeneous instruments—Koto Orchestra, Accordion Orchestra, etc.—is fairly indisputable. Except in the case of a Laptop Orchestra (or Mobile Phone Orchestra, iPad Orchestra, or other), the instruments change with each piece, only the visual appearance stays the same.

JS: I'm not sure if the time to forgo the "laptop orchestra" name is approaching. I already treat the group at Princeton as more of a "live electronics ensemble" and less of a necessarily computer-based group. It still seems to have a gee-whiz factor necessary for press people to come and report on our shows; the silliness of the word combination seems to attract their interest. And I think the "orchestra" part of it helps music departments understand and support the idea of an electronic music ensemble, so it's useful on that front.

MS: SLEE had always included a selection of acoustic and other electronic instruments in addition to the computers. I think the term "laptop orchestra" is constantly becoming less descriptive of actual performance practice. I think that

SLEE has gravitated toward a greater diversity in instrumentation over time and overall expressiveness has benefitted from this expansion.

I think that the future will likely include innovative and intuitive control surfaces, and better connectivity with easier setup. I also think computer based ensembles will begin to attract composers who are ready to really grapple with the possibilities inherent in the instrument, resulting in a new wave of literature for computer performers to draw upon.

SR: I'm interested in starting a computer ensemble at my school--I know other colleagues who are also interested. We have a lot of collective experience here with our email panel (you)--what advice would you give me? Are there some basic questions I should answer or steps I should take to get things going?

DT: Here are some questions to consider:

1. What are the pedagogical aims of the ensemble?
2. What are the musical aims?
3. What are the "research" aims?
4. Where will the music come from? students in the group? outside? you as the leader?
5. Related: who will do the technical development? students? you?
6. Will it be part of a course, or a standalone ensemble?
7. What kinds of students can you reasonably expect to have in the group, and what are their strengths likely to be? what kind of commitment will you have from them? how often will you meet to work/rehearse, and for how long? will you have advanced students (even grad level) mixed with beginners? what kind of technical and musical expectations (prereqs?) will you have for them?
8. What's in it for you!?

One of the things I've really enjoyed about the LOrk phenomenon is seeing how each person/institution answers these questions in different ways. For instance, Ico's group is quite remarkable I think, and really makes sense given the combination of Ico and Virginia Tech. or David Code's group at Western Michigan, set within a large music school; again, very different than how we do it at Princeton, and in the right ways, reflecting the nature of their departments/schools, and the interests of the directors.

Another thing, though: I do think that LOrks are uniformly time and energy consuming! My sense is that the more it is a collective effort, with students really vested in the ensemble, the better it will be. This comes down to really basic things, like who sets stuff up. One thing that we did well with PLOrk from the beginning was build stations that each player was responsible for; the setup became super efficient and after a week or two we as directors didn't have to plug in a thing! Well, maybe that's not true, but it really was remarkable how PLOrk setup would just happen, once we had it pretty well streamlined, with everyone involved. But, more broadly: the more the members can feel like it is *their* group the better.

IB: I would advise asking yourself first what you wish to create and how do you want to go about getting there. If it is a musical ensemble with an educational outreach--look for solutions that will make such an outreach feasible. If it is a homogenous environment, look for ways to make this not only possible in its first iteration but also sustainable. If it is a particular piece of software, look for ways to support the desired environment, etc. In other words, consider a balance of aesthetic and practical constraints. At this point, I believe there is ample literature that will assist with a number of these concerns, and you may find a lot of your questions already answered.

One thing I would advise considering that may have not been given much attention in the conversation so far is ensuring some form of homogeneity and ability to quickly distribute updates in the middle of a rehearsal, something that scales gracefully with a growing ensemble. For instance, in L2Ork we use local git in conjunction with a visual front-end and IP-centric station assignment which allows for easy swapping of laptops that break in the most inopportune moments. Git environment also allows for

syncing simple bug-fixes within seconds... etc. This will vastly diminish time overhead with general maintenance and with it the potential of a mental burnout.

PC: Along the lines of what Dan said:

1) If at all possible, try to craft your ensemble so that it's a for-credit course. We were very lucky (actually Dan was very foresighted and persistent at accomplishing this). Make the students responsible for a lot, and they will respond.

2) Be ready to lose lots of hair, and sleep, and (spend) some money. But it will be worth it.

JS: I came into directing PLOrk after Dan and Perry had worked extremely hard in getting the idea off the ground. Two years ago, I made the decision to make PLOrk no longer part of a course, so that I had more freedom with the direction the group would take, and so that I could keep the group smaller and more manageable while not limiting the class enrollment too much. PLOrk is now a separate extracurricular, which means I don't have any grade power to hang over the students heads, but it also means I can just kick a student out if they are missing rehearsals or not pulling their weight. It also means I can have a lot more continuity of membership, so there are more experienced students in the group who can go much further both artistically and technically. I was lucky that the momentum was already there for PLOrk, and I could easily keep the ball rolling. I think Dan and Perry are right, though, that when starting one out it really pays to have a course credit situation to keep the students dedicated. One thing I might recommend -- with the kind of thing we do, we've found that numbers of members from 4-12 works OK, but more than that starts to get really hard to deal with. Sideband has settled into this range comfortably, and I've been trying to keep PLOrk on the smaller side lately to make that possible. But, of course, this depends on what you want to do with the group.

There are some great pieces that you can try to play with any sized group easily, such as Paula Matthusen's *Lathyrus* (mentioned earlier), and Jason Freeman and Akito van Troyer's *LOLC*. Both of those pieces also don't require any special input controllers. I've had great luck creating some simple improvisation instrument software, such as a joystick-based instrument that can sample incoming audio and manipulate it, and then passing these instruments out to members to use in group improvisation exercises. One thing I've really found is that, as Perry says, the more responsibility you give them, the more the students give back. For the last two years, I've tried to focus almost exclusively on pieces collectively composed or arranged by either the full ensemble or subgroups of the ensemble. This is more work, since you have to help them compose each piece, build the instruments, and learn to play the music they created. You also have to be prepared to pick up a lot of slack whenever anything goes wrong. However, the students are much more engaged when the work they are presenting is their own. I think that ownership and pride really brings the music to life.

Also, remember that there is no fixed model for what an electronic music ensemble should be. I think standardizing these ensembles would be pointless. Make up your own idea of what would be interesting to do in the context of *multiple people making electronic music together*.

MS: Make sure all hardware and software is standard for each member of the ensemble. Test everything regularly. Expect issues with any software update. Have a contingency plan for crashes. Maintain the machines regularly. Invest in quality audio and MIDI interfaces. Think through monitoring from an ensemble perspective. Good luck!

In conclusion, some thoughts and responses by Paula Matthusen:

Thank you so much for including me in this discussion. I've been a fan of PLOrk, Sideband, and L2Ork for some time, and am honored to be included in the fine company of Dan, Perry, Ico, and Jeff. Many of what they have outlined have been concerns of mine both musically and technically, so I hope to provide a brief account of some of my reactions and hope to not repeat too much what has already been eloquently said!

My own history with laptop ensembles began in 2007, when I was living in Berlin and was commissioned by the Berlin Laptop Orchestra to write *lathyrus*. The piece is a structured improvisation, with a number of different possible endings. Some endings are desirable, and others are not (or are in some ways destructive, though technically possible). This necessitates that the ensemble negotiate the paths they take together, and come to a consensus as part of the challenge of concluding the piece. In doing this, the group is forced to reroute the piece at different moments, which any member can cue.

Dan Iglesia also adapted a version of it for tablets, which he beautifully documented here: https://vimeo.com/95623734

There's some video documentation of PLOrk playing the piece online here: https://vimeo.com/28276883

The group was not networked for the Berlin performance, so as a result, they developed a series of internal cues. When I moved to Miami and started the laptop ensemble FLEA (FIU Laptop & Electronic Arts) Ensemble, the piece stabilized into its current form, and has since become one of my most performed pieces (and I'm thrilled to say that in addition to FLEA, and Toneburst [the laptop ensemble I currently direct], that the piece has been performed by PLOrk, Sideband, MICE, Arazzi Laptop Ensemble, among others). What I enjoy about seeing each of these different incarnations is how the internal communication varies from group to group – there's always someone who wants to interrupt first, or occasionally I've seen mutiny occur. Other times, people go for the destructive endings I never thought they would go for.

So, this relates in part to your question about movement. The availability and succession of cues is specified within the printed score, though the hand signals and internal communication evolved naturally. This was in part a necessity – when FLEA started it was very DIY, and had to perform with a variety of speaker configurations, shifting membership of the group, and a wide range of types of laptops. Keeping things as barebones as possible meant we could pop up wherever space and time allowed, and the brave ensemble members definitely earned their sea legs in terms of technical troubleshooting as well as being in a variety of performance environments (I think this is highly valuable pedagogically as well). Part of what I like in seeing the different ways in which movement is considered in this discussion is how physical gesture articulates possible modes of musical, spatial, and even social engagement. I've felt similar moments of joy (in both "thrilling and disturbing" forms) in watching structured improvisatory pieces like Zorn's *Cobra* – the communication system might be somewhat mysterious to the audience members, but the jockeying that takes place between the ensemble and conductor is part of what is exhilarating about each performance.

I think an intriguing part of this discussion is that the relationship to the screen is part of what is negotiated. As the number of screens in our daily lives miniaturize and proliferate, we are simultaneously envisioning new ways of musically integrating and/or stepping away from them. Composer Juraj Kojs wrote a piece that Toneburst performed called *Ms. Warp*, which calls for striking the laptops with different physical instruments, creating canons and internal contrapuntal sections throughout the piece. The screen and any controllers are largely bypassed. The piece is intensely physical, and relies most heavily on the internal microphone of the laptop. In so doing, the various architectures of the laptop are revealed, creating instrumental variance amongst an otherwise homogenous ensemble.

The things I have come to prize most through work with the laptop orchestras are the ways in which each composer and performer envisions what may be possible through sonically engaging with one another with the technology taking varying degrees of an interloping presence. I think each person asks on a very basic level "I wonder if X is possible…" Seeing the questions and scenarios each composer and performer negotiates is exciting.

That being said, in terms of starting a laptop ensemble, developing the

community and "sweat" ethic I think is extremely important, as has already been mentioned. Each person in Toneburst becomes familiar with the technical set up and is accountable for managing different parts of rehearsal. This builds pride and community within the ensemble, and on a very practical level means that when something does go wrong in rehearsal/concert (which it will), there are more hands on deck to address the situation.

I've started two laptop ensembles now with amazing musicians and students at two different universities – first FLEA (now directed by Jacob Sudol) at F.I.U., and now Toneburst at Wesleyan. In both cases, I chose the name ensemble rather than orchestra. I have nothing against the name orchestra, though I was enticed by the flexibility the word ensemble implied. In both cases, keeping "electronic arts" part of the title next to the word "laptop" has been important. The name Toneburst references David Tudor's landmark piece by the same name. Part of what is so intriguing about this earlier performative legacy of live-electronics is that it was often without screens, gestural, and took on various levels of structure and improvisation. I think similar curiosities and excitement exist and will continue to evolve in these newer ensembles.

Image from a recent PLOrk concert

SLEE performing Terry Riley's *In C*

Recording Reviews by Tom Dempster

Tom will return with his next wave of excellent recording reviews in the Fall 2015 issue. He's busy composing and enjoying a residencies in Italy and other locations. To arrange for him to receive your materials, email him directly at: tjdempster@gmail.com

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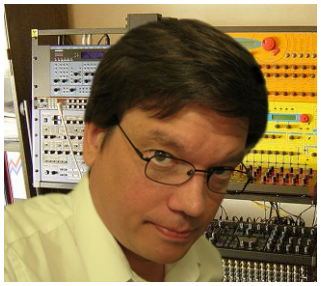

"SEAMUS now includes paid advertisements in the Newsletter and the Journal. Please consider advertising your departments/programs, festivals, and publications. For rates and other information, contact Christopher Cook at: christopher.cook@cnu.edu"

About the SEAMUS Newsletter

The newsletter is a volunteer effort made freely available as a public service to the electronic/computer music community from the SEAMUS website at: www.seamusonline.org.
Please direct any comments to:
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All ideas regarding content are welcome. Please let us know if you'd like to participate in its production.