

# SEAMUS NEWS

*A publication of the Society for Electro-Acoustic Music in the United States, providing news, interviews, and announcements.*

A Quarterly Newsletter

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## **Per Bloland discusses the genesis and evolution of The Electromagnetically-Prepared Piano (EMPP)**

*SEAMUS Member At Large Per Bloland holds forth on his role in the development of the Electromagnetically-Prepared Piano, including its genesis at CCRMA/Stanford, and his recently-completed residency at IRCAM where he developed a software-based physical model of the instrument. Bloland tells a great story that touches on a number of subjects, including instrument design, collaboration, and the process of applying for his IRCAM residency.*

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## *The Electromagnetically-Prepared Piano: an interview with Per Bloland*

*Composer and current SEAMUS Member At Large Per Bloland discusses the genesis and evolution of the EMPP, from its inception at CCRMA through various stages of development, up through its most recent incarnation as the focus of a research project at IRCAM. Bloland responded to the following questions, posed by the editor, via email.*

### ***How did the idea for the "Electromagnetically-Prepared Piano" occur to you?***

Back when I was serious about my trumpet playing I would, as you might expect, spend many

hours in practice rooms, most of which had pianos. I started to notice and really enjoy the way the high undamped strings of the piano responded to my playing, and began holding down the damper pedal while practicing.

This led to an early piece of mine, *Thingvellir*, for solo trumpet, in which the trumpet plays into a microphone connected to a small amplifier. The amp is placed under a grand piano, as close to the soundboard as possible, and the damper pedal is propped down allowing the strings to vibrate sympathetically. The result is similar to a long-tailed reverb, but has its own quite distinct quality. Luckily at the time I was blissfully unaware of Berio's trumpet *Sequenza*, or I might have scrapped the whole thing. I liked the effect though, and started to think about how to make the whole system louder and improve the detail of control.

*continued on page 3*



FROM THE EDITOR

*I'd like to thank SEAMUS Member At Large Per Bloland up front for his time and thoughtful preparation of the interview that follows. He tells a good story, and I think there are thoughts and details there that will inspire you in your own work, and which might suggest new directions and/or approaches to making music.*

*I also want to thank Tom Dempster for his ongoing commitment to write reviews for the newsletter—there are a couple good ones in his featured section starting on page 13.*

*I have reprinted the SEAMUS 2014 Conference Update from the last issue—the submission deadline has closed, and we look forward to acceptance news and to the conference that approaches. Best wishes as you work to wrap up 2013.*

Steve Ricks

SEAMUS 2014

Wesleyan University, Middletown, CT  
Co-hosts Ronald Kuivila and Paula Matthusen

**Conference Overview:**

SEAMUS at Wesleyan will present 12 concerts in Crowell and Beckham halls as well as 3 late evening concerts in the Memorial Chapel. For nearly 50 years Wesleyan's World Music program has been based on the credo that all of the World's music warrant close study and that any student of music should include a serious encounter with an unfamiliar musical tradition in their education. To that end Chapel concerts will focus on works that in different ways propose alternative understandings of electroacoustic music or engagements with other musical traditions. Resources available for these concerts include performance ensembles ranging from the Wesleyan Gamelan to the recently formed Toneburst Laptop and Electronic Arts Ensemble and the Chapel organ, which provides computer control of registration as well as note events. Proposals for collaborative works and frameworks such as interactive works designed for improvising instrumentalists, 'live coding' performers, and pieces that can be workshopped, rehearsed and performed during the conference with conference participants will be solicited. Emblematic of this last alternative will be a "bring your own object" realization of David Tudor's Rainforest that to be presented in the Zelnick Pavilion adjoining the Chapel as an installation and performance site. Rainforest, based on the image of a chorus of loudspeakers possessing their own unique voices, uses electromagnetic transducers to activate found objects and assemblages of found objects as loudspeakers. Rainforest IV, the version most often presents an immersive environment with many performers, sounds and objects. However, Tudor envisioned an alternative version where a large library of sound material is diffused through the objects but limited to more than two distinct sounds at a time. Contributors to the SEAMUS version will be invited to individually diffuse material, following those guidelines.

(More details on page 11)

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During my first year at Stanford I took a class at CCRMA, and happened to be discussing some ideas with some of the other CCRMA-lites at lunch one day. I mentioned two possibilities – either placing electromagnets over piano strings, or attaching many tiny speakers to the frame at the nut, each pointing to a string complex (the speaker idea, by the way, terrible idea). Steven Backer was there, and became very interested. He immediately saw possibilities for working with electromagnets that had never occurred to me. I had been thinking of the EBow model, in which there is little control over timbre. He realized that supplying the electromagnets with an arbitrary audio signal (rather than using feedback, as the EBow's do) would open a huge range of timbral possibilities. He also knew of another student, Edgar Berdahl, who was working on similar issues at the time, and began discussing the project with him. This led to a fantastic and rather rushed collaboration, the result of which was the Electromagnetically-Prepared Piano (EMPP), version 1.0. I was in the process of working on a piece with a set performance date (an ASCAP/SEAMUS commission, it so happens), and decided that the piece would utilize the yet-to-be invented device. Once we had one electromagnet working I was able to glean some idea of what to expect. It was, nonetheless, all rather speculative until the device was fully built. Which it was, I am happy to say, in plenty of time for the performance.

***What grants, resources, and/or individuals made its creation possible?***

The initial collaboration between myself, Steven and Edgar was the definitive instigation of the project. That first version of the device, created back in 2005, was funded by CCRMA. It carried me through years of demonstrations and performances, and is still in perfect working order. It does have two problems though. First, the rack used to support the electromagnets over the piano strings is difficult to manage. I would often find myself spending two full hours adjusting and tuning the device before a performance. The rack was constructed (mostly by myself – that was one thing technically simple enough for me to handle) from parts purchased at a hardware store, and was less than ideal. The other problem involved power. That first version was designed to avoid melting electromagnets, which would be rather disastrous in the middle of a performance. But this power limitation resulted in a volume limitation. The sound was often quite loud, but it was unpredictable. I occasionally found myself in situations in which full volume was insufficient. At some point I started to hear about the work that Andrew McPherson is doing with his Magnetic Resonator Piano, which is in many ways similar. We began discussing our systems and I discovered that he, having run into the same problem of power, had designed a more powerful amplifier board and matched it with larger electromagnets. He subsequently had one built for me following his design, which I am currently using. The one drawback, as I soon discovered, is that it is now quite easy to melt the electromagnets. Despite the fact that an electromagnet coil melting over a

piano string makes a truly wonderful sound, the cost of replacement is prohibitively expensive. (I should also mention that even if that should happen, and it has only happened once, it's just the coil inside the metal casing that melts. No piano has ever been harmed! Really!)

The problem of the rack was solved last year, when I arrived at my current position at Miami University (yeah, it's in Ohio) and discovered an amazing resource: the Miami University Instrumentation Lab. The name is a bit misleading for a musician, but a chemist would probably understand it immediately – they design and build a variety of devices for laboratories across the campus. I approached them with the inefficiencies inherent in my rack, and they designed and built an alternative system. The improvement still surprises me every time I set it up.

At the risk of delving into the minutia of the project, I thought I might provide some details about these improvements. First of all, when I refer to the rack, I mean specifically the hardware that is designed to suspend the electromagnets (which are metal cylinders about an inch in diameter) above the piano strings. The following might make more sense after referring to some photos.

Details on the new system can be found here:

[http://magneticpiano.com/?page\\_id=79](http://magneticpiano.com/?page_id=79)

and the old system here:

[http://magneticpiano.com/?page\\_id=76](http://magneticpiano.com/?page_id=76)

Both systems rely on a bar that rests on the piano frame, to which much smaller brackets are attached that reach out over the strings. Each electromagnet is suspended beneath its bracket by a bolt. Designing the details of this system is tricky though, as each electromagnet must be adjustable in a wide variety of ways. It must be adjustable: 1) over the full range of the piano, 2) along the length of its string (to some degree, the more the better), 3) in terms of its height, or distance from the strings (the most important one), and 4) in terms of its rotation. The main problem with the first system involved the height adjustment. A long threaded bolt suspended each electromagnet beneath its bracket. These bolts were held in place on the bracket by two opposing wing nuts. To move the electromagnet up or down, one wing nut had to be loosened and the other tightened. Over and over again. And then back again because I probably went a bit too far. It was maddening. The new system has an adjustable finger screw on the top of the bracket that adjusts the height easily without changing the rotation of the electromagnet. A simple twist of the screw and I am done, it's really quite amazing.

***What musical possibilities interested you most with the EMPP, and how did you explore them in the pieces you've composed for it?***

A large part of the appeal lies in the fact that the resulting sounds are fundamentally acoustic. The only source of sound is vibrating piano strings (coupled, of course, with the rest of the piano). As a matter of fact at the time I was writing that first piece, I was growing rather weary of

composing electronic music in general. Fulfilling a SEAMUS commission with an acoustic piece offered the perfect solution! I am well past that weariness now, but am still very much drawn to the re-appropriation of acoustic instruments, especially ones as hallowed as the grand piano. The effect of seeing and hearing the instrument live is much more compelling, I think, than simply hearing a recording. Part of this surely involves the radiation pattern inherent in such a large acoustic system. Another part, perhaps more significant and certainly more difficult to explain, involves our expectations and the way we filter information. We know what a piano does. It's very easy to relax into our expectations about the inherent timbral limitations of such a familiar instrument. The use of extended techniques, for example the wide variety of sounds that can be generated by playing inside the piano, challenges this comfortable familiarity in ways that I find extremely appealing. The EMPP is simply an extension of this process of defamiliarization, but one that has the potential to remove the instrument almost entirely from the realm of "pianistic." It forces us to reconsider the piano for what it is in a physical sense, in all its amazing complexity, rather than rely on our existing conceptions of that which is piano.

The first piece I composed for the device (*Elsewhere is a Negative Mirror*) was for solo piano and electromagnets, the second (*Negative Mirror Part II*) for ensemble and piano with electromagnets. Both followed the same basic plan, and were conceived as part I and II of a set. In

these pieces the piano part is written using more or less standard notation, and the performer plays both on the keyboard and inside the piano, but doesn't physically interact with the electromagnets. The electromagnets are controlled by a computer programmed to move through a variety of "scenes." The performer advances the software through the scenes with a foot pedal, but otherwise has no control over the sounds that result from the electromagnets. In a given scene, there might be 7 or 8 strings actuated at a time, out of the twelve possible. Those strings are simply excluded from the pool of pitches available to the performer on the keyboard, so a key is never struck while its string is being actuated. The result of all this is that the piano essentially has two performers with distinct parts – the human and the computer. These parts are related, but no more so than say the piano and the flute part.

The third piece, *Of Dust and Sand*, was written for alto saxophone and piano with electromagnets. I was interested in having the performer interact with the electromagnets directly, in coming up with a more integrated system. In this piece, the top seven electromagnets are active for the duration, constantly attempted to vibrate their respective strings. The role of the performer is to dampen this vibration using their fingertips. To do this, the performer stands and leans over the open piano frame, pressing on the actuated strings between the nut and the frame. To play the notes indicated in the score, the performer lifts the appropriate finger, allowing the string to sound. The system thus

becomes an anti-piano – a note sounds when a finger is lifted. However the process of damping is imperfect. The electromagnets are powerful enough that sound leaks through even when there is a great deal of finger pressure on the strings. One particularly nice outcome of this setup is that it becomes fairly easy to create gradual crescendos and decrescendos, just by reducing or increasing the pressure, respectively. A piece of paper also lies across the actuated strings, giving the sound a nice reedy quality. The resulting sound is difficult to identify, though I think it is clearly acoustic. It also blends quite well with the saxophone.

***How did you find out about the fellowship opportunity at IRCAM, and why did you think it was a likely possibility to extend your work on the EMPP?***

(it seems that I have answered a slightly different question below, more about what is the Musical Research Residency and how did I learn of it. The second part of your question, about why I thought the EMPP was a good fit for the residency, went into the question after...)

The program was called the Musical Research Residency, though this year they have expanded it to the Musical and Artistic Research Residency Program. It is directed by Arshia Cont, who is involved with a variety of really interesting things over there. My understanding is that the original purpose of the residency was to provide an alternate avenue for composers to become involved with IRCAM, and a way for the people at IRCAM to

reach out to a wider variety of composers. The traditional compositional route through IRCAM entailed moving through the two years of the Cursus, after which one might remain connected in various ways such as proposing a commission. Unfortunately spending the 1-2 years in Paris to participate in the Cursus was never really an option for me. The Research Residency was designed to allow composers such as myself, who may have had no previous direct contact with IRCAM, to spend time in house working directly with the researchers. It's a remarkable program, and really an amazing opportunity to work with some incredible people doing incredible things. I'm not sure how the newly expanded purview will affect the central goals, though it's clearly no longer targeted only at composers.

I don't remember exactly when I first learned of the program but I suspect it was through one of the many mailing lists out there. It's still a new program, with its first residency beginning in 2010. As I looked into it I discovered that I knew of couple of the people who had come through it already or were currently there. Ben Hackbarth was in residency the first year, and Rama Gottfried was there while I was applying in 2011. I reached out to both of them to get advice, and they were both extremely helpful, providing me with advice about the current research interests of the various teams and about the general culture there.

***Can you give some specifics about the application process for the IRCAM program? What were they looking for? What specific compositions or information did***

***you send, and why do you think your application was successful?***

Regarding the creation of my proposal, I went through several generations of ideas. I was more or less sure from the beginning that my project would involve the EMPP since that is the most prominent area of my current research. Based on the advice I received and my general sense of the purpose of the program, I assumed they would be more interested in something related to their existing software, rather than say a project involving modifying my physical device. I toyed with several possibilities, such as the creation of a software-based self-tuning system (which would adjust the frequency of the signal being sent to the electromagnet – more complicated than it sounds!), or some kind of elaborate Max patch to allow non-programmers to easily control the device. Ultimately the project I proposed involved the creation of a physical model of the interaction between an electromagnet and a resonating body (an abstract can be found here: <http://www.ircam.fr/1046.html?&L=1>). This had a great deal of appeal to me for a number of reasons. It would allow me to investigate the physics of this incredibly intriguing interaction: an electromagnet exciting a string. I would clearly need to bring the device there in order to be able to measure its response, which would also allow me to introduce it to the IRCAM community. It also allowed me to build on their existing physical modeling software: Modalys. I had some experience programming in Common Lisp, which is the control language for Modalys, and I was eager to jump back in and improve my skills.

I think the project appealed to IRCAM because it fit in rather well with the current activities of the Instrumental Acoustics team.

Adrien Mamou-Mani, for example, is doing research on the physical alteration of traditional instruments, allowing acoustic systems to be transformed electronically – a perfect fit. Joël Bensoam and Robert Piéchaud, on the other hand, focus on the virtual side of instrument manipulation, working primarily with Modalys. I thought it might be interesting to them to examine in detail the physics of an acoustic system involving electromagnets. The creation of a physical model seemed like a perfect way to do this, and I

just happened to have a complex system available for analysis and measurements.

As I developed the proposal the biggest unknown was whether Modalys already incorporated something like an electromagnetic interaction. Being completely unfamiliar with the software, I wasn't sure if my proposal would even make sense in the context of its capabilities. Fairly early on in the process I contacted Joël, who I ended up working closely with over the course of the residency, and asked him about my proposal-in-progress. Joël is a physicist and serves as the primary researcher on the algorithms used by Modalys to

calculate the interactions between virtual objects. His response was very helpful, and conveyed his initial interest in the project. I was of course sure to mention that in my proposal.

For the application itself, I spent some time refining the proposal and working out the details, as best I could, of how the project would unfold. It is necessary to pick a duration for the residency, which is very tricky if one is unsure of exactly how the research will progress. My duration was based more on practical concerns and a desire to be there for as long as possible than on a project-based timetable. I was very glad that I

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asked for as much time as I did (I was there for 5 months), as it takes quite a bit of time to develop these kinds of projects. We did manage to complete the research and develop the physical model, but at the end I felt like we were just getting to the really interesting part. It certainly could have gone on for longer and continued to be productive.

I'm sure the project proposal itself is important in the success of one's application, but I know there are other factors. At the time I applied I was asked to submit a Curriculum Vitae, a work plan, and two samples of prior work. They are understandably eager to select people with the skills and motivation to complete the project they have proposed, and I know they evaluate the prior experience of the applicants to get a sense for their chances for success. Selecting which samples of work to submit is always challenging. I knew I wanted to submit at least one electromagnet piece, and *Of Dust and Sand* is both the most recent and in my opinion the most successful. The second submission was less obvious, though in the end I did submit another piece with electromagnets, *Negative Mirror Part II*. As I recall this decision was based more on the aesthetics of the piece than on its use of electromagnets.

***IRCAM has a strong reputation as a sort of Mecca for electronic music, and yet may be mysterious and impenetrable to people from the outside--can you describe your experience in working there? How has it been? Would you encourage other composers to pursue working there? What should composers know about or prepare***

***for to be competitive in applying for opportunities there?***

I would absolutely encourage anyone who is interested to work there. My experience was really amazing, both in terms of the research with which I was directly involved and the connections I made, within and outside my immediate team. Having access to their knowledge base was a remarkable opportunity. I found everyone to be extremely friendly and very helpful. That being said, it is daunting to enter such a complex and potentially mystifying environment. My French is very limited, which in many ways was not a problem as the people I was working with could speak English quite well. Nonetheless it did make it somewhat more difficult to navigate the system, and to understand what was expected of me in general terms. The specific expectations were clear, but there are so many intangible factors that come into play when dealing with what is essentially a micro-society. Not to mention the larger society of Paris, with all of its complexities of interaction.

I'm not sure how representative my personal experience is of these residencies, but I can certainly explain a bit about the trajectory of my stay. As I mentioned, my project lasted for 5 months. We arrived in the first week of January, and I got started at IRCAM in the second. My first tasks were to learn Modalys, re-learn Common Lisp, and generally get to know my way around. I also gave a kickoff presentation in my 3<sup>rd</sup> week there, which was a general way of introducing myself and my work to everyone. It wasn't really until after the presentation that we

started planning out the details of the project.

I did have a moment of concern early on. As I told my new colleagues about my project, and especially after my kickoff presentation, a number of people suggested that Modalys could already do exactly what I was proposing to implement, through the use of something called a force connection. If that were true I would have a great deal of free time over the course of my residency, but that didn't seem like a good way to spend my time. It turned out that there was a fundamental difference between the force connection and what we were creating, called the induction connection, but it took a while to be sure!

The first thing to do was take measurements. There were a couple of issues that Joël wanted to investigate right off the bat. First, according to his calculations, when an electromagnet was placed over a string and a signal of a given frequency introduced to the electromagnet, the string should vibrate at twice the frequency – an octave up. In my system there are permanent magnets on the sides of the electromagnets, which Steven Backer and Ed Berdahl added for the purpose of cancelling this effect, causing the string to vibrate at the same frequency as the input signal. Joël wanted to measure the specific additional effects of intruding the permanent magnets. Second, he was intrigued by the fact that a string under the influence of an electromagnet in a grand piano will vibrate both vertically and horizontally. The same is true when it is struck by a hammer, but in that case there is inevitably some lateral



motion introduced by imperfections in the mechanical system. Electromagnets, on the other hand, are theoretically incapable of exerting a horizontal force – the string should just vibrate up and down. The trick is the piano body, which creates an incredibly complex system of interactions. In an effort to examine a string in isolation, meaning removed from the complexities of a piano, a different suspension system was necessary. Alain Terrier, whose title is “Technician” but is involved in a variety of research there, came to the rescue. He built a monochord out of steel girders that would theoretically provide fixed termination points, unlike the bridge of the piano which is designed to vibrate in sympathy with the strings. We tested it again, and strangely enough it continued to vibrate in both modes. For a minute we thought we had discovered some new type of interaction. But then we attached a couple of heavy clamps to anchor the girder to the table, further reducing the vibration of the anchor points, and we were left with almost no horizontal vibration.

The next step involved making what seemed like thousands of measurements of the string response under a variety of inputs. Joël and I would get together to determine what he needed to know in order to develop his master algorithm, and I would lock myself in the lab with the monochord and record its responses. This kind of experimentation was completely new to me, and it took a while for me to get it right. Often while running the experiments some minor detail would nag at me (should I keep adjusting the height

of the electromagnet? It adds another variable to the experiment, and I’m not keeping track of it at all, but I’m sure it’ll be fine...). Sure enough, when I presented the results to Joël, he would ask about that very thing. It seems rather obvious in retrospect, but it turns out that when running an experiment you can’t just change variables and not keep track of those changes. So then I’d have to run the tests all over again. It was actually rather fun, though certainly tedious. I did get much better at it, though I occasionally felt like I was wasting a great deal of my time and his. But Joël was always very encouraging, and never seemed bothered by having to offer me that kind of guidance.

In the meantime, I was doing research about the many complex interactions that go into creating the distinct sound of a piano. I knew that before long Joël would have an algorithm for me to work with, and that I would need to compare the sonic results of that algorithm with my own knowledge of how an electromagnet should sound in a piano. My task during that time was to try to replicate as many of the physical interactions in Modalys as was practical. It’s very easy to create a string in Modalys, but pretty much impossible to replicate a piano. Dealing with the bridge alone is incredibly processor intensive – it is just one piece of wood, but it interacts with hundreds of strings as well as a large soundboard with its own set of modes. The strength of those couplings, and thus the rigidity of the bridge, is rather difficult to measure exactly. This factor determines the strength of the couplings between the 2-3 strings of a pitch complex, and their

interactions are incredibly complex as well. So I set about the hopeless task of building a piano. That part of the project alone was fascinating. René Caussé, the head of the Instrumental Acoustics team, and Adrien Mamou-Mani offered invaluable assistance with this, as well as many other aspects of the project.

Once Joël had arrived at an initial algorithm, Robert Piéchaud implemented it in Modalys, creating a branch of code for me to work with. Robert and I then ran through a testing cycle to catch any bugs that might be lurking in the code. Once it was stable, I then ran the same experiments on the virtual string as I had on the monochord. In some ways this was easier as it was much more controlled. In others it was just as challenging. Modalys takes into account interactions that aren’t always obvious to the user, and it can be incredibly difficult to truly isolate a given factor.

The big question that loomed throughout this work had to do with the usefulness of the final results in Modalys. Was it in fact going to sound any different than the force connection I mentioned above? If not, the project wouldn’t have been a waste of time since Joël had learned a great deal about the physics of electromagnets, and I had learned an incredible amount about every aspect of the research. But it certainly would have been disappointing. I have a very strong memory of sitting at my desk the night before my exit presentation, which would be open to all of IRCAM and the general public. I had the final algorithm from Joël, and had tested it in a variety of ways. The time had come for me to

generate some example audio files. As I did this, I decided to compare the results generated using the new algorithm to those generated with the old force connection. They sounded the same! It was one of those sleep-deprived moments of panic when so much work seems (momentarily) to be for naught.

Of course I kept experimenting into the night and uncovered a variety of ways in which is it quite different indeed, and even managed to come up with some beautiful sounds. The trick was to increase the strength of the electromagnets until the displacement of the string was well outside the reasonable range, at least for a piano. Because the force exerted by an electromagnet is so dependent on its distance from the object under its influence, introducing a large variation into that distance significantly changes the resulting vibration pattern. When a string is displacing by say 6 inches, an initial sinusoid can be

distorted in ways that can be fairly unpredictable over time. I still have a good deal of experimenting to do with the induction connection to fully exercise its capabilities, but at least I'm confident that the results can't be replicated with a force connection!

Perhaps that is an overly verbose explanation of my project, but I thought it might be interesting for others to hear some details about how such a thing might unfold. I would like to offer one final piece of advice to those considering applying for the residency – do lots of homework. Look into what types of research are currently being conducted. There is quite a bit of information on the website, but of course it is difficult to tell how current it is. Also do as much listening as possible. There is certainly a wide range of aesthetics that is represented at IRCAM, but like any institution it is not infinite. I also recommend contacting the

relevant researchers before the application is complete to see if a given project might be of interest to them. As with any initial contact with busy professionals, be as concise and articulate as possible – consider it as part of your formal application. It really is a terrific opportunity; I'm thrilled that I had the chance to spend the time I did over there. I would highly encourage anyone interested to give it a go and apply!

For anyone interested in more information on the EMPP, I am in the process of creating a website, which can be found here:

<http://magneticpiano.com/>

I plan to post the Common Lisp code I wrote for Modalys one of these days, but that may take a bit of time to get together. In the meantime there is still much to be found there!



## SEAMUS 2014

**Description of (Some) Specifics:****Sound Installations and The Open Window**

**Sound installations** will run from 2PM to 6PM throughout the conference, and will be featured as destinations on daily sound installation tours. Proposals should include a description of the installation, a clear designation as to what specific aspects are needed within the installation space (e.g., darkness, public space, preferred dimensions of a space, etc.), equipment necessary to realize the installation identifying any equipment the host must provide. Diagrams and media documentation (sound or video recordings, photos) and diagrams are highly appreciated.

**The Open Window** is a collection of collaborative frameworks that explore structured juxtapositions of individual sound works in contexts primarily outside of the concert hall. The initial collection of "Open Window Units" achieve this through requesting submissions that adhere to a shared conceptual model (*The Musical Singularity*), that intervene into the same public context (*The Non-aggressive Music Deterrent*), that serve as pooled resources shared by multiple works or performances (*Rainforest*) and that are composed to be freely overlapped with one another (*Rock's Role (after Ryoani)*). We invite submissions that contribute to each of these frameworks. In addition, we are happy to consider proposals for additional Open Window Units that enable conference participants to

collaborate in the creation of a new musical work.

The current collection of Open Window Units are:

**The Musical Singularity (concert works)**

The Musical Singularity will focus on works specifically involving organ and electronics. The Memorial Chapel's organ has MIDI control of registration as well as note events, so preference will be given to works which investigate these capabilities. Recordings and/or scores/MIDI sequences of works are requested although a proposal and score can suffice. Works roughly ten minutes in duration are preferred.

**The non-aggressive music deterrent (collaborative installation in a public space)**

The title is taken from an article by Jonathan Sterne describing the public diffusion of recorded music to structure the use of public space. Middletown's own example is an extensive parking garage that is accompanied day and night by light classical music. We have arranged with the owners of the parking garage to replace this sound design with others during the weekend of the conference. We invite submissions of works, collections of works, or other programs of material to be diffused through this system. Individual submissions may be of any duration ranging up to 24 hours.

**Rainforest, a bring your own object realization (performed installation)**

The series of pieces by David Tudor entitled Rainforest are based on the

image of a chorus of loudspeakers, each with its own distinct voice. These speakers are typically made from found objects and assemblages of found objects selected for their resonant properties and activated with an electromechanical transducer (the Rolan Star transducer is traditional, but piezoelectric elements and automobile "bass shakers" can also serve). (See "David Tudor's Rainforest: an Evolving Exploration of Resonance" by John Driscoll and Matt Rogalsky in *Leonardo Music Journal* December 2004, Vol. 14, Pages 25-30 for a more detailed characterization of the piece.)

A version of Rainforest based on contributions by conference goers will be presented in the Zelnick Pavilion adjoining the Chapel as an installation and performance site. Rainforest IV, the version most often performed, presents an immersive environment with many performers, sounds and objects. However, Tudor envisioned an alternative version where a large library of sound material is diffused through the objects but limited to more than two distinct sounds at a time. Contributors to the SEAMUS version will be invited to individually diffuse material, following those guidelines. Contributors will be given rehearsal time to develop their own diffusions. Evening performances of these diffusions will be recorded and replayed as an installation during the day.

Submissions should provide a photograph of the object proposed and an audio recording of a short performance that reveals the musical potential of its resonant properties.

**Rock's Role (after Ryoanji) (a "group show" of sound works)**

Rock's Role explores the possibilities open to sound works that embrace, rather than eschew, the leakage and overlap that is an inescapable attribute of the physics of sound. Ryoanji is a celebrated Zen garden consisting of 15 stones on a field of raked sand. It is also the title of a series of pieces by John Cage composed as musical transliterations of that garden. In Cage's understanding, the basic emptiness of the garden intensifies one's experience of the 15 large stones found within it. In the music, the "stones" are solos for different

instruments (bass, trombone, flute, voice, etc) performing glissandi between chance determined microtonal pitches. The raked sand is enacted with a slow, irregular pulse just slightly louder than the solos.

Rock's Role (after Ryoanji) observes the same distinction between discrete and continuous elements but generalized to the full range of possibilities available through electroacoustic techniques. Sound works can be submitted as either "sand" – a long recording that provides a discrete, irregular articulation of time "rocks" – a collection of individual *objets*

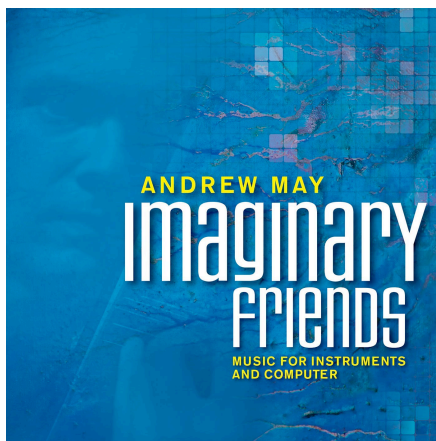
*sonores* of varied duration and continuous internal structure that can be freely overlapped with other such sounds.

Contributions to the project will be given distinct spatializations within a collection of fifteen loudspeakers arranged in the manner of the stones in the Ryoanji garden. The overlap and sequencing of contributions will be randomly determined within constraints based on each contributions duration, transparency, and overall prominence relative to other contributions.





## Recording Reviews by Tom Dempster



### *Imaginary Friends*

Ravello Records RR7861

#### The Music of Andrew May

Dating back as far as 1995, *Imaginary Friends* reveals a longstanding relationship between digital, experimental, and acoustic realms, all intersecting with Andrew May. A 2012 release, *Imaginary Friends* (Ravello Records RR7861) traces May's work from about 1995 to 2005, from his the twilight of his student days to when he took over as the director of UNT's Center for Experimental Music and Intermedia. The album is also a retrospective in miniature of the Who's Who of Multimedia Performers, featuring Erika Eckert,

F. Gerard Errante, and Elizabeth McNutt, among others, giving persuasive and powerful turns on the collection.

The work *Vanishing* directly uses poetry by Ralph Waldo Emerson, and May speaks of the impactful influence transcendental ideology and the work of Ives has on his own composition: in truth, the work on this disk is not easily categorizable - and, fulfillingly, we get to hear May's manifestation of something of the sublime as we move through his chronology. May's music in general - particularly as we hear more recent pieces on this recording - occupies a space somewhere between Klee paintings, Calder mobiles and wire sculpture, Risset soundscapes and timbral evolutions, and something of a Varèse-like collage and liberation (there's plenty of tambourine).

Shannon Wettstein brings *Shimmer* to life and generously illuminates the occasionally dizzying (yet delightful) texture of the piece. This 2002 work, kaleidoscopic and coloristic, gives the appearance of a chaconne with a slow-motion harmonic underpinning that, on account of the constant gentle

flashes of light, gets obscured and may not exist at all. May brilliantly orchestrates timbre with a rich palette, consumed by twirling sound objects and gestures, all while Wettstein robustly unfurls the work on the piano, moving slowly from aggravated hyperactivity to delicate reflection, never competing with May's clear desire for a kinder, gentler singularity and simultaneity.

F. Gerard Errante appears on *Chant/Songe* ("singing/dream," and a bit of French wordplay), and where Wettstein leaves off with luminosity, Errante picks up with a sylvan quietness. The notion of the dream state, or an in-between realm, is a constant thread in May's music, and *Chant/Songe* is no different: a spacious, wide work, the clarinet moves about between liquid layers and reduced, yet haunting, textures and gestures from the computer. Perhaps one of the more dialogic works on the album, *Chant/Songe* nonetheless is closer in character to a conversation and slow camera movement of a Tarkovsky film than a hyperaccelerated observation-of-all things. Calling this sombral work introspective would be impossible, though: Errante gives a steady and powerful performance, with a heat

and anxiety just beneath the idyllic surface of much of the work.

*Ripped-Up Maps* and *The Twittering Machine* date from 1996 and 1995, respectively, and mark May's earliest ventures into interactive composition. *The Twittering Machine*, for flute and computer, is May's first foray into the medium - stopping short of a full apologetic, May writes in his liner note that "the computer part used software that is now outdated, running on a computer far less powerful than modern machines." Beyond the problems and issues of digital ecology (or archaeology), *Twittering Machine* and *Ripped-Up Maps* - by virtue of the limited technology of the time - do reach a listener as sparse, spare, and far less rich and stratified than May's later works. The works are indeed a little less focused, little more jagged, and perhaps more exploratory, but a first-time listener will likely still find both works effective and entertaining. McNutt sells *The Twittering Machine* very well, and we the changes and revisions in approach and compositional philosophy are evident in *Ripped-Up Maps*, a revised (in 2011) work that tightens up the looser improvisational and formal ends in *Twittering Machine*.

*Retake* features Elizabeth McNutt in an adventurous piece with an interesting, if not downright cool, premise: recursive redux of sections before moving on, all based on a third actor - a pre-recorded improvisation. Which, of course, can be recreated, altering much of the outcome of the work. This 2001 work straddles the median between May's earlier, pared-down work and his later (on this disk) voluminous and cascading layers. Like *Vanishing*

(the last track on the disk), *Retake* is a transportive work involved with an internal sense of transformation, alternately glacial and crystalline, earthy and diaphanous. Perhaps it is McNutt's intuition as a performer as much as it is May's composition, the work's pacing is immensely satisfying.

Despite being composed five years apart, *Wandering Through the Same Dream* and *Vanishing* could be the prologue and epilogue of a grander opus. *Wandering Through the Same Dream* (2005) for two clarinets and computer, is perhaps May's onliest (to borrow old words) yet most influence-telling work. Verging on yet never crossing into the realm of something ritualistic, May's panache for dialogic interaction bumps elbows with his variegated and vivid gestures. A simplified percussion setup consisting of tambourine and other gadgets, called out by the computer, is something of a proto-march - reminiscent of a Whitsuntide procession that evolves into Varèse sleepwalking. The work - very clearly programmatic of somnambulation - is indeed sonically peripatetic, and floats without too much straggling. *Vanishing* - for a pre-recorded vocalist and a small chamber ensemble - opens with much of the same material in the abstract as *Wandering*. With no vocalist on stage, May designed the work to allow the instrumentalists on stage equal attention without the undue focus being cast upon a dramatic singer. Yet, the work retains its sense of cinematics and theatrics by virtue of form - May shifts timbral and instrumental emphases to propel the piece. The text, by Ralph Waldo Emerson, inspired numerous other works by May, and includes

the lines: *When thou dost return / On the wave's circulation, / Behold the shimmer, / The wild dissipation, / And, out of endeavor, / To change and to flow, / The gas become solid, / And phantoms and nothings / Return to be things.*

It is indeed fitting that May's music, and every work on this disk, seems to graciously allow things to become phantoms of sound, with worlds and gestures melding into one another, sonic spheres merging and colliding, but never fracturing. Transformation is the constant; transcendence is the goal.



## Dartmouth College Contemporary Music Lab (DCML)

### *no-input output* (digital/internet release)

A May 2013 digital release, *no-input output* ([dcml.bandcamp.com/album/no-input-output](http://dcml.bandcamp.com/album/no-input-output)), features members of the Contemporary Music Lab (CML) at Dartmouth College engaging in a number of (generally structured) improvisations, mixing and matching analog and digital resources. Under the direction of Nathan Davis and Ryan Maguire, a motley assortment of percussion, pre-recorded electroacoustic works, electric guitar, cello, and viola da gamba unite in unexpected ways. Relying primarily on gradual, churning background textures and

the occasional drone or tiered drone texture, the album moves in various directions, but stays pretty close to its own familiar territory.

The opening piece “Eva” jumps into a Black Keys meets Lee Ranaldo meets Merzbow guitar passage, dissolving into a smoother, burnished (yet thin and restrained) underlying texture that slowly opens up into fuller spatial and rhythmic domains, taking on qualities reminiscent of various Montréal-based soundscape-heavy indie bands. Make of that what you will – but the materials remain compelling, and the pacing never seems to lag.

The album’s penultimate track “tomorrow” is likely the strongest creation on the album, due in large part to the believability and attractiveness of space and environment. There is an appealing movement between timbres and envelopes, creating a propulsive motion against a backdrop of stable drone-oriented textures. The soundworld here is the most consistent and coherent on the album, with a robust and unified economy of sounds and textural direction. Sonic evolutions seem more intuitive, better-paced, and the least purely-impulsive while maintaining positive degrees of spontaneity. The entrance of the guitar a few minutes from the end adds another wonderful layer to the highly texture-driven motion, and immediately forces the pitch and rhythmic asteroids in the piece to

coalesce around something more final and immediate.

The track “arpemonex” begins ambiguously and enigmatically, with pitchless low-frequency textures occasionally pushed out of the way by a cello’s open A string. Tuned gongs and bowls appear in quiet gestures as though waves of sound, and indeed, the piece feels oceanic and expansive. There are many great textures and colors – and many overall keen and serendipitous moments – but the piece seems like it is wandering, adrift at sea. There are arrivals, perhaps inexplicable, to moments of great consonance and diatonic gentleness – arrivals that depart almost immediately. “arpemonex” builds to a solid peak and terminates with fragmentary recall of the opening materials, and on repeated hearings is more satisfying than an initial trial.

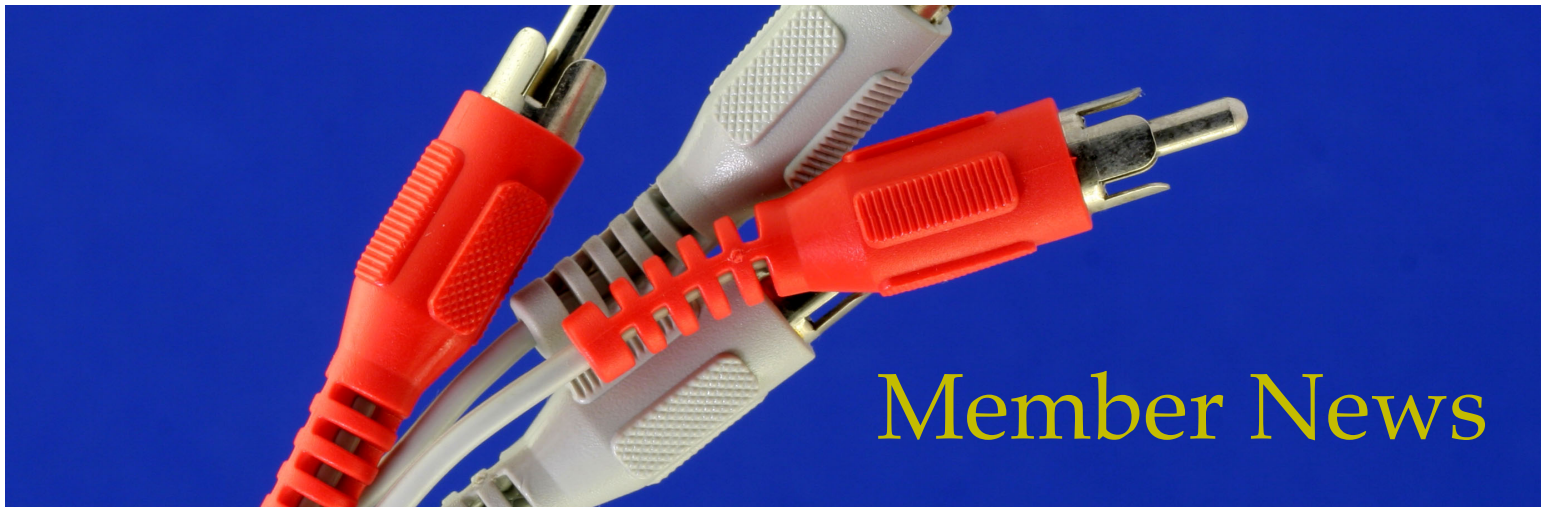
The other three works on the six-cut album are quite similar in their soundworlds and approaches, with some rather long (14+ minute) improvisatory works that stay married to quiet background ideas and elements as monoliths rising out of the textures – or, as in “if else,” block structures of the quiet-background versus suddenly-full, suddenly-loud dominate. There is some flirtation with the glitch sensibility, for better or worse, but this primarily becomes an element and not a focus; in some passages, there is the distinct sensation that the performers are exploring the capabilities of an Eventide before

settling on a few key techniques.

The guitar’s usage is questionable – aside from the album’s opening overt manipulations and distortions of the guitar, the instrument’s use in the majority of the album is restrained – almost dignified. I do not get the sense that there are clear bridges (pardon the pun) between the soundworlds of a largely-unmodified guitar and a heavily-manipulated guitar, and in some cases (the notable exception being in “tomorrow”), the addition of the guitar seems perfunctory.

Make no mistake, however: there are a lot of wonderful moments in the album and some flashes of vivid, mesmerizing colors amid some striking and gorgeous textures. “tomorrow” enshrines and distills all of the concepts and spaces of the album to a greatly rewarding under-eight-minute jaunt. Despite the reservations about “if else,” for instance, there is an architectonic splendor that unfolds in slow motion. Despite there being a uniformity of spaces and techniques that seems to work against the album, particularly with regard to variance of the artificial environments, there is a driving compulsion to see each piece through and to be taken wherever the performers and the pieces lead. No matter how reluctantly at some points, *no-input output* succeeds in guiding a listener through a rich realm of sounds, and is indeed worth investigating.

- Tom Dempster



## Member News

**Jon Appleton** and Paul Botelho gave a concert of their own and collaborative works at DOM in Moscow, Russia (<http://dom.com.ru/eng/events/2512/>) on October 28 and at the International Festival/Competition SYNC 2013 (<http://www.yeams.ru/en/festival/sync2013>) at the Ural Conservatory of Music in Ekaterinburg on November 3.

**Brian Belet's** *Summer Phantoms: Nocturne* (piano and electronics) will be performed at Electronic Music Midwest 2013 by the festival's featured performer Kari Johnson on October 25, in Kansas City, KS. (<http://www.emmfestival.org/>)

**Julius Bucsis** had his compositions *I Am Who Am I* (fixed media) and *Blue* (fixed media) accepted into Soundwalk 2013 held in Long Beach, California in October. *Blue* was also accepted into Electroacoustic Barn Dance 2013 held at the University of Mary Washington in Fredericksburg, Virginia in November. *Some*

*Writings of Spring* (fixed media) was accepted into Lewis University's Fall musicBYTES 2013 concert held in Romeoville, Illinois in September. *Yellow* (fixed media) was accepted into the 2<sup>nd</sup> International Csound Conference held at the Berklee College of Music in Boston in October.

News for **Kyong-Mee Choi**:

*Open Arms* for orchestra and electronics will be premiered on the Amidst Lush Plantlife, Chicago Composers Orchestra 2013-2014 season at the Garfield Park Conservatory in Chicago, IL on January 19, 2014. This piece is commissioned by the Chicago Composers Orchestra.

- *Tender Spirit II* for DVD was selected for the 14<sup>th</sup> International Society for Music Information Retrieval Conference (ISMIR) on November 4-8, 2013. This piece will be also presented at the following events: Electro-Acoustic Barn Dance at University of Mary Washington, Fredericksburg, VA on November 7-9, 2013; the Electronic Music Midwest at Kansas City Kansas

Community College, Kansas City, KS on October 24-26, 2013; the SoundWalk 2013 in Long Beach, CA on October 5, 2013; the CEMICircles Festival at Merrill Ellis Intermedia Theater, University of North Texas School of Music, Denton, TX on October 4, 2013.

- *It only needs to be seen* for guitar and electronics will be performed by Timothy Ernest Johnson at the New Music at the Green Mill, Chicago, IL on October 27, 2013.

- *Ceaseless Cease* for clarinet and electronics will be performed by Esther Lamneck at the Clarinet Faculty Recital at New York University, New York, NY on October 16, 2013. This piece will be also published at the EMM (Electronic Music Midwest) CD series.

- **Aucourant Records** published the **SORI CD** features eight original compositions for instruments and electronic sound by **Kyong Mee Choi**. (SORI means "sound" in Korean.) Participating artists are **Winston Choi, Sean Darby, Shanna Gutierrez, Timothy Ernest Johnson, Michael Holmes, Craig Hultgren, Esther Lamneck,**



and **Kuang-Hao Huang**. The project was supported by the grant from the Illinois Arts Council.

- **Inner Space** for cello and electronics was performed by Geoffrey Gartner at the 2013 International Computer Music Conference (ICMC), Perth, Western Australia on August 11-17, 2013. The recording of **Inner Space** performed by Craig Hultgren was published at the 2012 SEAMUS CD volume 22.

- **REFORM** for flute and percussion was performed by Due East (Gregory Beyer, Erin Lesser) at the Chicago Composers' Consortium/Due East Concert, Flatiron Building, Chicago, IL on June 26, 2013.

- **Water Bloom** for two pianos and eight hands was performed by **Jeremy Brown, Richard Deering, Nadia Lasserson, and Craig White** at the **Piano 40's** London concert at Purcell Room, Southbank Centre in London on April 8. This piece was also performed at the Clara Schumann Music School in Dusseldorf, Germany on May 10.

- **It only needs to be seen** for guitar and electronics was performed by Timothy Ernest Johnson at the New Music Ensemble Concert at University of Chicago, Chicago, IL on May 5, 2013.

News from **Jack Jenny**:

The Otterbein University Electro-Acoustic Workshop presented its annual spring recital on May 8 in Riley Auditorium on the Otterbein campus. This year's event featured unique interdepartmental collaborations with the poetry class of Prof. Terry Hermsen in the

English Department and the film class of Prof. Jonathan Johnson in the Art Department. The Electro-Acoustic students incorporated film and poetry in both fixed media projects and interactive projects all with a video aspect in addition to the music. The class was taught by Dr. Jack Jenny of the Music Department.

**Scott Miller** premiered This Strange Fine-Tuning of our Universe with flutist/improviser Anne La Berge at KISS 2013 in Brussels, Belgium. The performance took place in a 70+ speaker acousmonium at L'Espace Senghor, with spatialization of real-time generated stereo audio performed by resident spatializationist Annette Vande Gorne. Miller and La Berge then went on to perform a concert with members of the ensemble MAZE at STEIM in Amsterdam. This fall, Miller is performing throughout Minnesota with his new electroacoustic ensemble Fifth Column ([www.fifthcolumn.scottmiller.net](http://www.fifthcolumn.scottmiller.net)).

**Charles Nichols** recently joined the faculty of the Department of Music, and the Institute for Creativity, Arts, and Technology, at Virginia Tech. In September, his collaboration with choreographer Amy Ragsdale, *Posture*, for computer-processed sound accompanying dance, was presented at the University of Rome, Tor Vergata. In October, his collaboration with video artist Joan Grossman, and composer Eric Lyon, an installation titled *This Edge I Have To Jump*, will premiere during the opening week events of the new Center for the

Arts at Virginia Tech (<https://www.artscenter.vt.edu>). In November, violist Brett Deubner and the Missoula Symphony Orchestra, under the direction of Darko Butorac, will premiere his concerto, *Nicolo, Jimi, and John*, for amplified viola, interactive computer processing, and orchestra, three movements, based on the virtuosity of Paganini, Hendrix, and Coltrane.

**Timothy Roy's** *Wunderkind for toy piano and computer* was awarded First Prize in the "Prix Destellos" International Competition of Electroacoustic Composition and Visual-Music, mixed media category. The work was presented at the Toronto Electroacoustic Symposium in August and will be performed at Transylvania University's Studio 300 Digital Art & Music Festival and the Bowling Green New Music Festival in October. <http://fundestellos.org/pageone.htm>

**Adam Vidiksis** performed his work *synapse\_circuit* for found percussion objects and realtime computer processing at the Toronto Electroacoustic Symposium this August. Vidiksis will be performing new works for percussion and electronics at the Philadelphia book release of Douglas Khan's new text, *Earth Sound Earth Signal*. His recent piece for fixed media, *Stria [feather] remix*, is an examination of John Chowning's classic 1977 work. It will be premiered at the International Csound Conference this fall at Berklee College in Boston. Earlier this year, Vidiksis successfully defended his dissertation and completed his

doctor of musical arts degree at Temple University. His research explored novel live audio processing in PureData, and included a symphony-length work for full orchestra and realtime audio processing, entitled *Transfigurations*. Vidiksis has taken an interim full-time position on the composition faculty of Temple University's Boyer College of Music and Dance this year, where he is teaching undergraduate and graduate courses in theory, composition, orchestration, and computer music. He also directs the newly-formed laptop orchestra, the Boyer Electroacoustic Ensemble Project (BEEP), and conducts the Temple Composers Orchestra.

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Adam Vidiksis preparing *synapse\_circuit* at the 2013 Toronto Electroacoustic Symposium

SEAMUS member **Adam Vidiksis** (news items for Adam are above) submitted the following review of a new theater work for robots, singers/vocalists, and laptop performers called **GALATEA RESET** that was presented at Temple University this past September:

On Friday, September 20, three robots, five singers, a chorus and 5 laptops took to the stage at the Conwell Dance Theater on the Temple University campus in Philadelphia. Created by Dr. Rolf Lakaemper, associate professor of Computer Science, and Dr. Maurice Wright, Laura Carnell Professor of Music at Temple, the 90 minute work recounted the story of Acis, Galatea and Polyphemus, and then entwined it with the story of Pygmalion and Galatea, touching on an assortment of other myths along the way.



ACIS (photo by Bill Herbert)

In the interest of full disclosure, I should note that Maurice was once my dissertation advisor, and that my voice appears in the work with that of Dr. Anne Neikirk, in a hypothetical "instruction film" that purports to explain how the characters of Act I (set in ancient Greece) end up in Philadelphia in the present day in Act II.

The robots are small research machines, modified to accommodate a stage that supported a laptop, an amplifier and a loudspeaker, and the upper part of the costume, while still allowing the laser rangefinder to peek through. Each robot was outfitted with variably colored lights, which contributed to the machine's "character." Sculptor Sandra James created the ingenious robot costumes from fabric, fur and Plexiglas, and patched them up as needed after a few inadvertent collisions with the sets and each other.

The music data, lighting information, and robot motion commands were all transmitted to the robots through programs written in PureData, which also created all of the computer sound in real-time. A fifth laptop projected still images, movies and supertitles via PureData/GEM.

The machines presented challenges for the singers, who had to tailor their blocking to accommodate characteristics of the robots'

positioning systems. But the singers looked and sounded unfazed, and delivered their parts with precision and flair. Perhaps my favorite part is the exchange between human Galatea2, sung by Melissa Mino, and the robot Polyphemus. He is bored and wants Galatea2 to sing something "light and amusing," but she embarks on a three-verse setting from Ovid's *Metamorphoses* that details the creation of the world.

GALATEA\_RESET has a website: [www.mauricewright.org/Galatea.htm](http://www.mauricewright.org/Galatea.htm), and a FaceBook page.



GALATEA enters (photo by Bill Herbert)

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