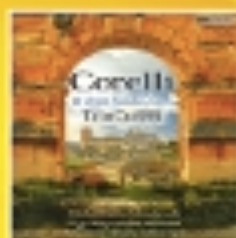


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TODD MACHOVER, VOL. 1

Hypercollaborations: An Interview with Tod Machover

Biographical sketches of composer Tod Machover (b.1953) invariably begin with a quote from the *Los Angeles Times* calling him “America’s most wired composer.” Though likely intended to reflect the very significant role that technology has played in his career, it’s not inaccurate in several other senses as well—nearly all of Machover’s compositions emerge from creative dialog and collaborative environments with other people, and he himself is a rather “wired” personality: an energetic and enthusiastic evangelist for his work and creativity in general. Machover is the son of a computer scientist and a music teacher, and it is perhaps not surprising that his life has involved the synergy of those two fields. Educated at U.C. Santa Cruz and the Juilliard School (with Carter and Sessions), Machover then moved to Paris to work at IRCAM. In 1985, he returned to the U.S. to a professorship at the Massachusetts Institute of Technology’s Media Lab, where he has remained to the present day.

Serving as director of one’s own lab group (within the larger MIT Media Lab) is a unique working situation among American composers. Though it is an academic post, Machover does not teach composition or music courses in the normal manner. Rather, he is responsible for a group of graduate and undergraduate students who are largely pursuing degrees in nonmusical scientific fields, but who focus on projects that relate to music, sound, and creativity. Machover’s lab has been involved in many projects over the years, the most widely visible being the video game franchise *Guitar Hero*, the technology for which came out of the lab. The normal lab projects range from things very explicitly connected to Machover’s own compositions (such as the vast array of devices and robots created for his opera *Death and the Powers*) to the creation of more general computer-based tools (*Hyperscore*), to extreme extensions of musical instruments for computer-assisted performance (Hyperinstruments). Many of the projects also end up linking to nonmusical research areas; an initiative in researching treatments for patients with Alzheimer’s Disease through the use of music technology is a current project. The collaborative nature of this most unusual working environment raises questions regarding the compositional process for a composer of classical music.

“I grew up as a cellist and played classical and rock music in grade school,” Machover recalls. “When I went to Juilliard, I wanted to write instrumental music but became interested in computers while I was there. I was writing quite complex music, and at first the computers seemed like a way to let performers hear what the music would sound like. Before I began working with technology, I never even imagined going to IRCAM, let alone MIT, and thus the thought of ending up in places where there are primarily collaborative projects with other people really snuck up on me. I enjoy the collaborative process, but I also still enjoy very much going off to my studio on my own and working through every detail alone.

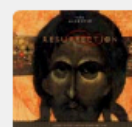
“MIT is not a typical university. It has a more flexible structure. Though it has strong arts departments, it doesn’t have a typical ‘arts school’ dynamic. Even before the Media Lab was founded, the boundaries between disciplines felt fairly fluid. When they asked me to come here, I’d been at IRCAM for seven years and was definitely ready to return to the States. Originally, I thought when I left IRCAM I’d avoid academia and just go out on my own, but MIT seemed like it might be different. And I’ve been here ever since!

“The great thing about the Media Lab is that it has a pretty flexible structure, and professors here are invited to push their work to extremes in the interest of helping to shape the place. It’s a place where the people are really part of the community—professors don’t just fly in to teach lessons as happens at many music schools. The flexibility also allows me to arrange my schedule so that I can work on my own composition projects as they arise. On the other hand, I do try and make sure that what I’m doing has some connection to what is going on here. At times it takes a bit of imagination to think up a problem that interests me that I want to talk to other people about. Sometimes you really just want to be off on your own. But in a lab environment, I often end up talking about a project with students or colleagues at a much earlier stage than one might want to in the abstract. Sometimes it’s uncomfortable, but it often pushes me to discover new ideas that I might not have come to otherwise. I’ve become more used to it, but there are still times when you just have to keep it to yourself.”

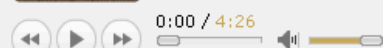
The notion of authorship and compositional practice is quite different for a composer working in such a lab environment. Yet Machover makes very clear that the music he writes is his own; all the compositional decisions are still ultimately made by him, despite the involvement of others at even early stages of the creative process.

“There are three basic working methods,” he explains. “I may write or sketch out all the music and then bring it back to the lab to begin discussing the tools I need to realize it. A middle way is imagining the music and the inventions at the same time—while I’m composing it, the technology is also emerging. This was the case when writing for a new kind of instrument, like *Begin Again Again* for Yo-Yo Ma playing Hypercello. I’d try things with him and then go back and work more on the piece. The instrument developed very much in tandem with the composition of the music. Then sometimes—rarely—I design the technology first (like the Operabots for *Death and the Powers*) and afterwards search for the most appropriate music.”

TOD MACHOVER



6 Joyce DiDonato, me...
Too Late



2. ...but not simpler...
iO Quartet / ...but ...

3. Sparkler (excerpt)
Odense Symphony ...

4. Vinyl Cello
Matt Haimovitz, cel...

5. Song of Penance ...
Kim Kashkashian, vi...

6. Too Late
Joyce DiDonato, m...



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Since so many of Machover's pieces involve an active use of technology in their performance realizations (not just composition), the questions of shelf-life and viable longevity of these pieces are significant. Though string instruments have changed since Haydn's era, a modern string quartet can still effectively perform a Haydn quartet with today's instruments. But in 50 years, will the specific computer technology needed for much of Machover's music still be accessible?

"In the '80s and early '90s things changed so fast," he says. "In the early '80s there was no MIDI, so everything regarding musical communication on a computer was programmed from scratch. But since MIDI's invention in the '80s, we now at least have a common protocol for sending musical data. Today's computers are more powerful and portable than one might have imagined back then. With laptops being so full-featured, the processing power needed to run these setups is available anywhere. The major software companies are also so big now that it feels much less likely that they will close down an entire major product line."

"We did everything in my lab on Apple computers, and pieces that I made from the '80s to the mid '90s were often stymied by each software change, since in those days there was little compatibility between operating system versions. Each version upgrade would be a complete change; you'd write something in 1987 and by 1989 you couldn't run it anymore. Things these days (since OS X) are so much more stable and compatible over a period of years."

"But there's no question some of these earlier pieces would now need to be updated in order to be performable today. It's a challenge to raise money to do these projects in the first place, but very few people are interested in putting money into updating pieces. For composers starting out now writing such technology-intense music there is a lot more stability and understanding about these things, since larger companies are often involved in building the underlying technologies. You can create on a well-developed platform whose longevity seems more assured. I've kept a certain number of pieces updated, but there are older pieces that I'd really like to update. I'm hoping that in the coming years, I'll be able to devote some time and resources to update these pieces. The *Hyperstring Trilogy* is a good example. I could make the technological realization of those pieces so much simpler with today's computers and software."

"For example, when we started, we had to develop our own bow for the Hyperinstruments to send all the data back to the computer—the technology components (and software) had to be created by us from scratch. These days, you can purchase a commercial bow that is very similar. They aren't quite as good as ours was in terms of their feature set. You want such a product to be 100-percent reliable so that no data is ever dropped, unbelievably responsive, and you want the software to be able to make assumptions about the data received so that the instrument can know something about how it's being played and react accordingly. So, to use the commercial bow we still had to write our own software. But even the thought that one can buy a product to simplify much of the process was not something we imagined back when we built our own."

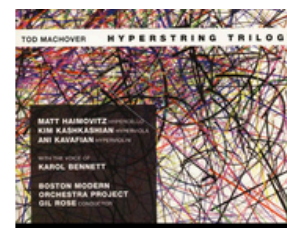
Several of Machover's projects have involved collaboration with lay people and audience members (individuals outside of his lab) in the process of developing musical material. One early project was the *Brain Opera* (1996), a cross between an installation and a concert piece that was written for the inaugural Lincoln Center Festival; in the piece, the audience interacted with numerous physical inventions from Machover's lab to help shape the material for a multimedia performance work. *Toy Symphony* (2001) pursued some of these ideas further. Machover's team developed a series of "Music Toys" that were performed by children along with a professional orchestra. The project also resulted in the development of a major software program, *Hyperscore* (which is now available as a commercial product). *Hyperscore* continues to be a significant part of future projects. Machover's current work-in-progress, *A Toronto Symphony*, is a large-scale orchestral work that will combine Machover's own material with material solicited from citizens of Toronto. They will use the *Hyperscore* software and other methods to share material back and forth with Machover and the orchestra during the composition of the piece. I asked him how he balances his own compositional goals with the material he receives from others.

"For the newest Batman movie," he says, "Hans Zimmer sent out a website saying 'I'm doing the score, and if you send me sounds that you can do with your voice, I'll put them in the movie.' I'm not sure what he did with them, but I suspect that before he even asked, he knew the result he was going to achieve from those materials. By the time you got to the end, no audience member was necessarily going to hear his or her individual sounds. That's often the challenge with these collaborative projects that I've been doing now for many years. The natural tendency is to develop a large-scale plan into which the other material fits. With the *Brain Opera*, I took the material that was generated, and then I put it where I wanted it. I learned a great deal from that project in terms of how to set up a large-scale collaborative environment. In *Toy Symphony*, a tool like *Hyperscore* gave participants—children in that case—much more control over shaping results."

"There's a certain kind of collaboration that I've learned to do at the Media Lab. I like setting up environments where I bring people at all different levels together to realize a shared vision. *Death and the Powers* was a perfect example. We had world-famous people working right next to undergraduate interns. I didn't admit anybody to the project who wasn't considered an equal. What I'm trying to do in Toronto is to set up an environment to collaborate on a large scale. We've invited anybody there to participate in the process, as a member of the team rather than as an anonymous voice."

I asked Machover if there was any danger in these compositional systems glossing over the technical foundations that are actually needed to write music.

"It could be that something like *Hyperscore* won't even be necessary in 10 years. But it feels like right now there is such a gap in terms of what a professional musician can do in creating music and what someone in the general public can achieve. Even sequencing programs like Digital Performer still require quite a bit of background. There's no style constraint with *Hyperscore*, either. You can do anything you want to, but you don't have to use traditional notation. What I hope is that people get quickly to the point of working with interesting musical material, and that the material becomes personal to them. *Hyperscore* is visual; it looks the way it sounds, but it's not totally literal; you are composing with self-constructed melodies, harmonies, and rhythms rather than simply drawing pictures on the screen. This allows people to think of *Hyperscore* as a notation language, not a painting program. I want people to get excited about what composition is. There are people who hit a wall after making a few pieces, and they never get much better than that. There are people who have a fair amount of musical intuition, but never really knew it before. My real desire is that somebody might get hooked through *Hyperscore* and then be inspired to learn and develop further, even beyond what's possible within the program. I look at it as a tool to get people passionately interested in making things. In terms of its connection with audiences, what I'd love to do is to be involved in making experiences that cause people to listen more passionately and completely. We've made many tools in the last 20 years. The tools for professionals are one thing, but with the tools for audience our goal is to increase people's awareness of how exciting and profound music can be."



Machover: Hyperstring Trilogy

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Machover's most recent large-scale project was the opera *Death and the Powers*, which premiered in 2010 after more than 10 years of work. The libretto by Robert Pinsky concerns a man (Simon Powers) who wishes to live forever by downloading himself into a large-scale computer environment. The opera involves a tremendous amount of technology, including onstage robots, an interactive musical chandelier, and a staged "environment/set" that reacts in real time to the performers. When Simon has downloaded himself into the system, his character does not appear on stage in a normal manner. The singer (James Maddalena) performs the remainder of the part backstage, hooked into a computer system that translates his actions into the onstage set/environment.

"*Death and the Powers* started out simply with a commission from a group of patrons in Monaco who wanted an opera that would 'change the way people thought about opera' and attract a different Monaco opera audience," Machover says. "There were no more specifics than that, and my initial ideas dealt with mortality, legacy, and how you pass on who you are to future generations. Going 'beyond multimedia' became part of its focus—how the physical environment might enhance rather than detract from (as in current arena-rock concerts) the human presence. It turned out that there was so much about the story and technology to develop that most of that was created before I'd written a note. So, I realized at one stage that we had all these instruments, we had a libretto, we had an infrastructure, but nobody had heard a note of music! The project wasn't going to go in the right direction until I just stopped everything and went off to write the music itself.

"The bad and good things about opera are that, while it is often a constrained form within traditional opera companies, it's also a very lively form right now. There are opera companies of all sorts, from the small and scrappy to the huge and polished. Many of them are really taking a chance on adventurous ideas. I think there's been broader thinking in opera in these past years as compared to orchestras."

Machover's four operas cover a range of subjects and characters. Besides *Death and the Powers*, there is *VALIS* (based on the futuristic novel by Philip K. Dick), *Resurrection* (on the novel by Tolstoy), and *Skellig* (a children's opera based on the book by David Almond). (*Brain Opera*, previously mentioned, is arguably an opera in some respects, though it differs even more than the others from traditional expectations of what the genre usually means.)

"I've chosen different stories for each of the operas, because they appeal to me in different ways," Machover says. "But the human stories at the core are fairly similar—mainly the question of how do you decide that action is still possible when the world is so complex around you, how do you make a community, and how do you find the will to continue when things get difficult. All the operas are in some way about those questions. I love words, and I love stories, and I do think that I've tried to find a form of expression that suits each. I always seem to find more similarities between the operas than other people do."

Machover's most traditional opera is *Resurrection*, a "grand opera" that was premiered in 1999 by Houston Grand Opera. It tells the story of a nobleman who spends his life seeking redemption for a sin committed years earlier: an affair he had with a maid sent her into a life of prostitution. *Resurrection* may well represent Machover's language at its most instantly accessible, with a score that blends his characteristic hyperactivity with lush postromanticism. To some degree, this comes from the 19th-century Russian subject, but also likely from the context of writing an opera for a traditional opera house. One of *Resurrection*'s most memorable parts is the ending, in which a big tune worthy of Broadway brings the work to an emotionally affirmative conclusion in the midst of a grand treatment for soloists, chorus, and orchestra.

"Working on *Resurrection* with David Gockley of Houston Grand Opera was a wonderful process," Machover says. "He gave me a hard time and really wanted to be involved at every stage. He'd push back on things when he felt it was necessary. My original ending was far more dark and complex. I remember in the last few weeks of rehearsal, they told me that the rhythmic textures were too hard to perform well, and so I had to simplify. The original ending was thus much more ambiguous than it ended up. As you know, in my music I very often create juxtapositions between these complicated and simpler textures. The original ending of *Resurrection* was like that. The forces pulled apart and the orchestra submerged the melody within a very complex texture, much like the last movement of *Jeux Deux* [Machover's 2005 concerto for Hyperpiano]. In my original conception, I wanted the protagonist to feel like he was repeating the melody because he was trying to convince himself, but that you as the listener weren't totally sure at the end whether it would work out. I usually end things with a bit of a question mark."

The role of technology in *Resurrection* is also different from the other operas. Machover uses a traditional orchestra that also includes very integrated parts for synthesizers.

"What is sophisticated about that opera from a technology level is the orchestration, particularly the combination of acoustic and electronic orchestration. There are a great many things that happen that would not be possible with just one or another; there are many acoustic tricks. Technology has nothing to do with the Tolstoy story, so I did not have any intention of drawing attention to the techniques I was using. Writing the piece brought out the side of me that uses electronics from a purely instrumental perspective, to add punch to the bass and subtlety to the high range and to add some timbral glue and sound combinations that are not otherwise possible."

In recent years, with only rare exceptions, Machover has written pieces that involve technology. I wondered if this was a spiraling circumstance, where he would only be asked for these sorts of pieces because it's what he's known for doing.

"I do think that's true to some extent," he says. "Though in the last few years, I think there have been more people interested in my music just for its own sake, and so they'll ask me to do whatever I want to do. I'm doing a flute concerto right now for Carol Wincenc. I'm not sure at the moment if it will have a technological component. There have been more orchestras as well asking for pieces recently."

Whatever the next directions his work takes, there's no question that Machover will continue to remain a distinctive and unusual presence in the world of composition. The word "unique" is overused, but it certainly applies to Machover. No other composer has a career or a catalog like his. It's also hard, if not impossible, to think of another classical composer whose work and research have been so connected with other disciplines and endeavors. Though he spends his days working in the high-tech environment of MIT's Media Lab (with its new 2010 building), Machover's home and writing studio are located on an 18th-century farm in Waltham. And he makes clear that for all the technology in his life and work, at the end of the day he is at heart a composer who is still rooted in tradition. Like any compelling artist, the creative mix of past, present, and future are in a constant, ever-shifting dialog.

FEATURE REVIEW by David DeBoor Canfield

MACHOVER *Light*.¹ *Soft Morning, City*.² • ¹Peter Eötvös, cond; ¹Ens Intercontemporain; ²Jane Manning (sop); ²Barry Guy (db) • NEW WORLD CRI 506 (53:05)

MACHOVER *Begin Again Again*.¹ *Song of Penance*.² *Forever and Ever*.³ • ¹Matt Haimovitz (Hypercello); ²Kim Kashkashian (Hyperviola); ³Ani Kavafian (Hyperviolin); ^{2,3}Gil Rose, cond; Boston Modern O Project • OXINGALE 8.559349 (64:38)

MACHOVER *Sparkler*.³ *Interludes 1 & 2. Hyper-Dim-Sums*.² *But Not Simpler*.² *Jeux Deux*.^{1,3} • ¹Michael Chertock (Hyperpiano); ²iO Qrt; ³Paul Mann, cond; Odense SO • BRIDGE 9346 (66:44)

Tod Machover has forged a career as a composer who seeks to integrate technological advances in music-making with live human interaction, believing the latter to be an indispensable component. He is the creator of the family of Hyperinstruments using computers to augment their musical expression. Inventor Raymond Kurzweil wrote of him, "Tod Machover is the only person I am aware of who contributes on a world-class level to both the technology of music creation and to music itself. Even within these two distinct areas, his contributions are remarkably diverse, and of exquisite quality." Ample confirmation of Kurzweil's views is supplied among the works spanning the years 1979–2011 on the three CDs under review. Their consistency lies both in their excellence and in their variety, and they give a good overview of the output of this innovative musical thinker.

The Bridge CD is devoted to Machover's recent works, all written within the last decade or so. *Sparkler* was written on commission from the American Composers Orchestra, and combines acoustic instruments with live electronic sounds. The tonalities of the acoustic instruments are not at all dissonant or difficult to absorb—they are, indeed, intended to be an evocation of the many moods of childhood—but when the more dissonant electronic sounds make their most obvious appearance some time into the work, the synthesis seems perfectly logical and natural. The electronics are supplied by three keyboard synthesizers, two of which are devoted to precisely notated parts, while the third triggers intricate timbres. It also sends instructions to the integrated computer system, which analyzes the sounds coming from the orchestra in real time, converting them into sounds that differ from one performance to the next. The result is what Machover refers to as a Hyperorchestra, the logical extension of his prior inventions, the Hyperstrings and Hyperpiano.

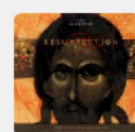
The disc's following four works all involve string quartet. The two brief interludes, *After Bach* and *After Byrd*, are gentle exercises that evoke the spirits of the composers cited. Both of them involve electronic manipulation by the composer of recordings of the quartet. *Three Hyper-Dim-Sums* is a livelier affair in three brief movements. Its composer created it using his own Hyperscore system, developed to aid nonprofessional composers in their ability to write music. The simplicity of these pieces is direct and appealing, and enhanced by the refined and elegant playing of the iO Quartet. Machover's major quartet work here is his *But Not Simpler*. The title springs from Einstein's observation, "One should always make things as simple as possible, but not simpler." Indeed, this is *not* a simple work, either in its tonal or rhythmic structure. Short motivic figurations are tossed about among the various instrumentalists, which are seldom doing the same thing at the same time. The effect of this substantial work is to draw the listener into its sonic web.

The Bridge disc closes with *Jeux Deux* for Hyperpiano and orchestra. This is a work of hyper-virtuosity, seemingly effortlessly tossed off by pianist Michael Chertock and the Odense Orchestra under the secure leadership of Paul Mann. The piano used is a Yamaha Disklavier Grand, augmented with Hyperinstrument software designed by Mike Fabio at the MIT Media Lab. I don't know all what is going on in this electronically augmented performance, but I can certainly affirm that it is a wonderfully breathtaking experience, and may well make my 2012 Want List (yet to be compiled as I write this review).

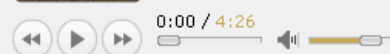
The Oxingale CD is devoted to Machover's *Hyperstring Trilogy*, with major works each for Hypercello, Hyperviola, and Hyperviolin. In each of these works, its composer puts the performers through a gauntlet of technical possibility—the demands placed on the performers scarcely let up in these extended works from beginning to end. If that is not enough, each is required to control and manipulate the computer-generated sounds. The whole concept of virtuosity would seem to be redefined in this music, and each of these performers—Matt Haimovitz, Kim Kashkashian, and Ani Kavafian—convincingly negotiates these demanding scores. The virtuosity is not only for the performers, however. This music required a virtuoso composer to make it cohere, and the music leaves an indelible aural effect upon the ear in its colorful writing, swirling figurations, and immediacy. Kudos must also be extended to Gil Rose and the Boston Modern Orchestra Project, who are also more than equal to the demands of the music.

All of the electronic sounds in these three works (*Begin Again Again*, *Song of Penance*, and *Forever and Ever*) are inherent in the instruments themselves, nothing being on tape, but everything generated at the moment of performance. Essentially, the performer and computer "listen" to each other and create a new kind of chamber music. This approach is certainly pathsetting, and suggests many new possible directions for the music of our computer-dominated era.

TOD MACHOVER



6 Joyce DiDonato, me...
Too Late



1. **Jeux Deux (final...**
Michael Chertock, ... 1
2. **...but not simpler...**
iO Quartet / ...but ... 1
3. **Sparkler (excerpt)**
Odense Symphony ... 1
4. **Vinyl Cello**
Matt Haimovitz, cel... 1
5. **Song of Penance ...**
Kim Kashkashian, vi... 1



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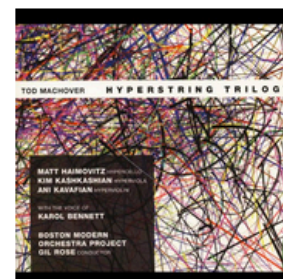
The CRI reissue contains, not surprisingly, the oldest works among the three discs, given that it was originally issued on LP. Machover considers that the two works featured here (*Light* and *Soft Morning, City!*) were culminating points in the music he had written up to that point in 1980. Given that computers were far from being home devices in 1980, these works must be some of the earlier to be written employing them. Machover used the 4A and 4C machines of Luciano Berio, adding to the first work the sonority of a large instrumental ensemble.

Light takes its title from a quote by English fantasy writer Rider Haggard: "Occasionally one sees the Light, one touches the pierced feet, one thinks that the peace which passes understanding is gained—then all is gone again." This quote has generated the atmosphere and expressive content of the work, which develops a complex polyphony from multiplaned layers of the basic melody. Added to the 14-piece ensemble are two separate computer-generated four-track tapes that are used to elaborate the musical structures. The work is dense and dissonant, and will require repeated hearings to absorb even some of its intricacies.

Soft Morning, City! is more direct in its appeal, and easier to comprehend on a first hearing. Its text is drawn from the final monolog of Joyce's *Finnegans Wake*, the melancholy and moving swansong of the book's primary female character, Anna Livia Plurabelle. Machover's setting takes the form of an elaborated aria, characterized by long melodic lines punctuated by short interjections of a quickly changing character. The double bass undergirds the soprano and adds harmonic definition and melodic counterpoint as a sort of musical commentary, while the computer tape serves to amplify, mirror, and extend the musings of Anna Livia. Through the use of a large PDP-10 computer, the composer has sometimes merged the sounds of soprano and double bass into one musical image. The sound from the remastered CRI LP, though, is noticeably inferior to that of the digitally recorded CDs.

I like the CDs in the order in which I review them. The recent works on the Bridge CD seem to me to veer into masterpiece territory, achieving a synthesis and fluency of styles that yield a remarkably personal voice. The older works on the CRI recording would seem to be a bit more constrained by the straitjacket imposed by the musical trends of their era. I do like them—they're imaginative within these constraints—but I do not hear a lot in them that elevates them above much of the other similar music of the day. Thus, if you're unfamiliar with Machover's work, start with the Bridge CD, and if that one appeals to you, try the other two discs as well. **David DeBoor Canfield**

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...but not simpler...

FEATURE REVIEW by **Carson Cooman**

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 **MACHOVER** *Sparkler*.³ *Interludes 1 & 2. Hyper-Dim-Sums*.² *But Not Simpler*.² *Jeux Deux*.^{1, 3} • ¹Michael Chertock (Hyperpiano); ²IO Qrt; ³Paul Mann, cond; Odense SO • BRIDGE 9346 (66:44)

These three albums provide a generally representative cross section of American composer Tod Machover's instrumental music. Not included are any of his operas, the area of his work that has received the most attention in recent years. My favorite Machover piece, the superb opera *Resurrection*, is available in a recording on the Albany label. A recording of his newest opera, *Death and the Powers*, should be released by the end of 2012. Other discs of instrumental music are available on the Bridge label.

The CRI album (reissued through New World Record's rehabilitation of the CRI back catalog) contains two of the earliest works still in Machover's worklist. Both were written near the beginning of Machover's years working at IRCAM in Paris. *Light* (1979) is a work for large ensemble and two computer-generated tapes. *Soft Morning, City!* (1980) is for soprano, double bass, and electronics, with a text from James Joyce's *Finnegans Wake*. Both are representative of preoccupations that continue in Machover's music to the present day, most especially the relationship between simple material (usually a melody) and very complex surroundings. There is no question that these two works are not nearly as immediately accessible to a listener as Machover's later music, but *Light* especially is a piece with a very convincing musical argument. Though pop and rock music had been a part of Machover's earlier years, the influences from those musical worlds did not begin to emerge as overtly in his work until his later IRCAM years (and subsequent return to the U.S.). As such, his more recent music would generally be considered more accessible to most listeners, with a more luminous harmonic palate.

The Oxingtonale album is titled *Hyperstring Trilogy*—three compositions (1991–93) written for the Hyperinstruments developed by Machover and his team at the MIT Media Lab. Hyperinstruments are described as technologically enhanced instruments that “enable the performer's normal playing technique and interpretive skills to shape and control computer extensions to the instrument, thus combining the warmth and personality of human performance with the precision and clarity of digital technology.” *Begin Again Again* is a cello solo originally written for Yo-Yo Ma; *Song of Penance* is a concerto for viola, computer voice, and 17 instruments; *Forever and Ever* is a concerto for violin and chamber orchestra. The trilogy as a whole is loosely inspired by Dante's *Divine Comedy*. These pieces have all been rapturously received in live performance and on recording, though I have never warmed to them as much as to other works of Machover's. For my ears, they tend toward the overly discursive side of his output, where the melodic and textural ideas feel like they are going in many directions at once and the result is more tiring than compelling.

The most recent album's title piece is based on a quote from Albert Einstein: “Make things as simple as possible, but not simpler.” Though the pieces were written separately for different commissions and occasions, the album was assembled conceptually as a total listening experience; Machover even wrote two purely electronic interludes that actually bleed from one piece into the next. *Sparkler* (2001) is a festive overture that was originally part of Machover's *Toy Symphony*, a large-scale collaborative orchestral adventure involving professional orchestras and children. The work can stand on its own and uses a typical Machover conception of creating an elaborate and hyperactive context for a simple melody. The orchestra contains several electronic keyboards, and the entire orchestral sound is also run through real-time computer processing. *Jeux Deux* (2005) is a concerto for Hyperpiano, a piano (Yamaha Disklavier) extended by software to respond in real time to the player. For example, something the pianist plays may trigger the piano/software to play additional music. It is also a very characteristic score for the composer, and a strong single piece introduction to many of the things he does frequently. The *Hyper-Dim-Sums* (2004) are three short string quartet movements written by Machover as a proof of concept in writing with the Hyperscore software developed by his lab for composing music visually. *But Not Simpler* (2005) is one of his few non-technological pieces of recent years, a restless and engaging full-scale, single-movement string quartet.

Machover's music attempts to strike a balance between the simple and complex, and he very often succeeds. My favorite two works of his remain the opera *Resurrection* and the mammoth early piano work *Chansons d'amour*, but there is certainly music to enjoy in these albums. **Carson Cooman**

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FEATURE REVIEW by Robert Carl

MACHOVER *Sparkler*.³ *Interludes 1 & 2*. *Hyper-Dim-Sums*.² *But Not Simpler*.² *Jeux Deux*.^{1, 3} • ¹Michael Chertock (Hyperpiano); ²iO Qrt; ³Paul Mann, cond; Odense SO • BRIDGE 9346 (66:44)

The 2001 *Sparkler* is a tone poem for orchestra using live electronics that are both cued by the orchestra and process its sound in real time. (In all cases I am trying to describe this based on what I hear and Richard Dyer's excellent notes; nevertheless some technical subtleties may elude me, and apologies thus are issued in advance.) The two *Interludes* (2006/2011) seem to be electroacoustic pieces that take fragments of Bach and Byrd played by the Ying quartet (with which the composer originally collaborated on a series of works) and mix/process them to create dreamy, complex, yet compact textures. The *Three Hyper-Dim-Sums* (2004) are products of the Hyperscore program, which is explained in the interview above. *But Not Simpler* (2005) is a big, dense single-movement (and all-acoustic) string quartet. And finally, *Jeux-Deux* (2005) is a true concerto, but for Hyperpiano and orchestra, the former being a Disklavier, an acoustic grand that is connected to computer software so as to allow a two-way flow of information with the keyboard.

Machover is subtle and ingenious in the way he uses technology. He tends to let it sneak up on the listener. I was intrigued by the way *Sparkler* seems first to have a slight shiver in its upper registers that could just be *tremolo* harmonics, but over time it becomes clearly an electroacoustic haze that contributes to both the texture and harmony of the piece. I frankly like the fact that it isn't showy, and as a result it sounds like a quite natural new orchestral sound. The string quartet works are more of a mixed bag for me. The two interludes tend to get thick pretty quickly, and I don't feel they add much to our sense of the originals. The *Hyper-Dim-Sums* are full of fancy and a certain wit (and I like the middle movement's little waltz), though they do sound a little more made-to-order. But the string quartet is a rich work, buzzing with activity, packed with telling detail. I thought immediately of its relationship to Elliott Carter, one of Machover's teachers, in its multiplicity and focus on particular pitch intervals in different sections; only after reading the notes did I see that Machover himself realized the connection, though only after having finished the piece!

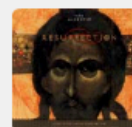
But for me the major work of the program is the concerto. Each of its movements has a distinct character. The first is a rollercoaster, especially when running through cascades of computer-driven arpeggios and glissandi. The second begins as a sweet childlike melody, but moves into far darker regions with repetitions of a dark clangorous chord, which in turn usher in ever more noisy and ambiguous clouds of sound. The finale is cheerful, having a folkdance quality, though it too becomes wilder by the end. Overall it's a very satisfying work, full of engaging detail and imaginative coups.

A couple of thoughts in conclusion. Machover states that he wants his music to reflect modern life, in what I read as its variety, information saturation, mutability. I think overall he succeeds, though I also feel at times the music is so constantly self-altering in a sort of feedback loop (a "dancing landscape" in complexity theory) that one can lose any central musical argument. I suspect the composer would argue that that's just the point, and perhaps with time it will sound far clearer. Quite possible. But I also can't help but feel that he has a very active and brilliant mind that is always going on warp drive, and sometimes it could use a little more deep breathing for contrast.

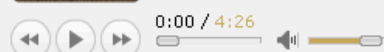
The other thought is about the performative nature of the technology, especially in the concerto. I'd love to see this piece live or on video (*Jeux Deux* is available at youtube.com/watch?v=f8dZoESOs6E, but I haven't had a chance to view it), as the superhuman gestures and textures the piano execute when triggered by the player bring up an interesting question on the nature/need for virtuosity. How does Machover compose music that will reassure any audience of Michael Chertock's mastery, while still showing off the capacity of this new instrument? I suspect he succeeds in this, but it would be nice to actually *see* the division of labor. I can't know otherwise. In lesser hands this could easily fall into a sort of karaoke. Not a criticism here, since the recorded results are exciting, just a caveat.

All performances are first-rate, and there's no sense of anything left out from the composer's intentions. Machover's music has a bright, freshly colored surface that's not traditionally tonal, yet feels connected to an aesthetic that goes back to Impressionism. He has a good musical sense of how to use these new resources to create results that are much more than just a tech demonstration. Recommended as an example of how the Holy Grail of interactivity continues to progress and redefine performance practice in this century. **Robert Carl**

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Too Late



1. *Jeux Deux (final...)*
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2. *...but not simpler...*
iO Quartet / ...but ... 1
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