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## Music and Technology: A Roundtable Discussion

By Philip Glass, By Morton Subotnick, By Paul Miller (aka DJ Spooky), By John Moran, By Michael Riesman

**Philip Glass moderates a discussion with four composers about digital technology's impact on new music.**

Click on any of Philip Glass' questions to go directly to that topic:



How has digital technology affected your compositional process?

Can you discuss new developments (both positive and negative) of the new technology on the dissemination of new music?

Is it possible to anticipate a reaction (or moving away) from technological dependence in future generations?

Could you suggest some ways which young composers and, to some extent, interested listeners can get a grasp of fundamental concepts of new music technology?

Does new music technology imply a different way of listening?

Admittedly, new developments in digital technology have been largely positive for the composition and recording of new music. What impact can and will this have on how composers and performers make a living?

### Roundtable Discussion

#### Philip Glass: How has digital technology affected your compositional process?



**Morton Subotnick :** I've been working with technology since the late 1950s and trying to develop technological music. Technological music — in my vision — is different from instrumental music; otherwise, there would be no reason to do it. From my standpoint, digital technology is the fulfillment of a lifetime vision. I never expected it to be this good. The effect it's had is to help make what I'm doing more complete. It's really hard for me to say exactly how that change comes because I've been working with technology from the beginning. For composers who had been writing instrumental music, the advent of digital technology is probably having a bigger

overall influence.

**Michael Riesman :** Like many of my generation, I still write music at a desk with a pencil. But what has changed is what I am writing for. I would have to say that the most significant development in digital technology has been the development of digital synthesis and sampler technology. The other developments in the digital realm, such as the CD, DVD, digital signal processing and hard disk recording, are of course useful and convenient, but have not created new ways of producing music as have synthesizers

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and samplers. At present, when composing, I am well aware of the capabilities of the electronic medium and most of what I do involves both synthetic and acoustic sounds.

Digital technology has also affected the compositional process in that it is relatively easy to produce an electronic track, even in an inexpensive home studio, which has the sound of a full orchestra. When I started writing music, the only way to hear a new piece of orchestral music was to have all the parts copied out and get it played by an orchestra. This was no easy undertaking if you were not already a well-known composer. Although it's not going to sound the same, a synthesized orchestra will provide a realization good enough to learn from.

**Paul Miller (aka DJ Spooky):** I think of technology as an extension of what's already been going on for a long while. Compared to the notational symbols of European classical music or the rhythmic patterns of West African music, a computer is a formalization of those same processes. The computer makes all that was formal and structurally oriented become implicit in the basic form of the interface. I think about how John Cage used to just stare at the piano in his silence pieces. The instrument was a jumping off point — an interface that had so many routes available. Cage wanted to highlight that meditational aspect of the creative act. I like to think of technology as being a conduit for the same impulses. It also allows me to work with a wide variety of material at the same time. It's that kind of simultaneity that really distinguishes digital composition from analog — not to mention the actual physical "dematerialization." In other words, I don't need an orchestra; I can simulate one just fine, thanks. So to make a long story short, for me, technology hasn't changed my compositional process, it's just extended it into new realms.

**Glass: Can you discuss new developments (both positive and negative) of the new technology on the dissemination of new music?**



**Riesman:** Well, there's no question that the biggest development in the dissemination of new music has been the combination of the Internet and the hard disk. The CD is of course an ubiquitous digital format, but it does not represent a paradigm shift; it's just a longer and more durable version of the vinyl LP. But the Internet, together with the development of streaming audio and MP3 compression, has introduced new ways of auditioning and acquiring music. It has also made it possible for new music to find an audience more quickly than in the past, when composers were forced to rely on an underground of live performance venues. The

Internet represents freedom of the airwaves. I generally think of this as a positive thing, but I do wonder, in my capacity as a performing artist and producer of recordings, how this freedom may adversely affect the music industry.

**Subotnick:** In terms of getting your music out, the Web and telecommunication clearly makes it much easier because you don't require a publisher. We never sold that many copies anyway, nothing close to pop. Now this technology democratizes the whole thing. Anyone can get their music out person to person. On the other hand, the amount of music that large publishers will handle is going to shrink. So if you have an orchestra piece, for example, you'll be less likely down the line to get it recorded, because you can't do that yourself.

The growth of independent publishing will mean new formats of music that are more self-sufficient: small groups of players and directly created digital music. The impact of the democratization and the reduction of already limited funds for the large companies will probably mean fewer composers will get operas and large pieces done.



**John Moran:** People talk a lot about how the Internet will make every composer's music accessible. But still, in today's media-environment, I'm not sure how non-commercial artists can compete with the amount of advertising dollars that the large corporations can put towards blocking out individuals. The head of Sony Classical once told me, with utter self-assurance, that unless I started scoring music for Hollywood movies, I would die unknown, and no one would ever hear my work. I thought that

was very inspirational — maybe he was right.

**Glass: Is it possible to anticipate a reaction (or moving away) from technological dependence in future generations?**

**Miller:** Technology, barring some mega catastrophe, is pretty much here to stay. I think of this kind of thing as existing on an evolutionary scale — it really is a first step in transforming the species. Everything from DNA sequencing to space flight to making movies — these all point to the same sense of the environment as information that's constantly changing. Future generations won't have a "dependence" on technology. They will have technology as a core aspect of their existence — as much as the languages we speak, the air we breathe and the food that we eat are all aspects of technology. I think of these kinds of "systems" as abstract machines in the same vein as the philosopher Gilles Deleuze and Felix Guattari dealt with these issues as interpretive frameworks for thinking. Whether it's drum machines or aboriginals playing didgeridoo in the Australian desert, the thing holding them both together is the machinery of culture as an organizing system. In that context, yeah, technology is a lot broader than someone just sitting down and using whatever computer is around. The dependence is basically part of the process of being human.

**Riesman:** I don't think there will be a reaction because there is no dependence. There will always be the human voice and the sound of string, wind and percussion instruments; acoustic music has not gone away nor will it ever. As a performer, I never cease to be pleasantly surprised that audiences show up at concerts. I harbor a fear that eventually they will stop coming and that one day I'll do a concert and no one will show up. But this fear has not yet proven realistic.

**Subotnick:** It's here to stay and no one's going to move away from it, any more than they moved away from automobiles. On the other hand, when digital technology and the computer came in, we tried to do everything with them. Well, as it turned out, some things are better not done on-line. What will happen is not a falling away from technology as such, but, once the love affair is over, we will start saying, "I still like making coffee better in a pot." Certain older technologies will come back into play because they actually work better, not because we're turning away from technology. It's the freedom to do things one way *or* another. In the midst of the explosion of e-mail, for example, there's a thriving company in France now making fountain pens. That doesn't mean people are turning away from e-mail, it means that some people say it's pretty great to write with a fountain pen.

I see what's happening as a kind of golden age, in the sense that finally there aren't going to be any major new options, so instead of looking at what's down the line, we can look at what we've got in the world and see what we'd like to do with it. We should now be taking a personal responsibility to make the technology everything we think it can be, rather than just taking advantage of it to get our music out.

**Glass: Could you suggest some ways which young composers and, to some extent, interested listeners can get a grasp of fundamental concepts of new music technology?**



**Miller:** I think that young composers need to think about the world around them. It's an environment made up of wireless networks, cellular relays, hybrid systems, rootless philosophies, immigrants from countries on the verge of transformation, etc., etc. Too many people are looking backwards to the 12-tone stuff and the Wagner stuff. (It's amazing how many movie soundtracks sound like really heavy-handed treatments of Wagner's overtures.) The "fundamental concepts" of new music technology are just as much a part of this world as, say, Palm Pilots or laptop computers. In the industrialized countries, your

average child understands video games, how to use a telephone and how to navigate the urban superstructure. They are a part of the quotidian, constantly updating landscape in which they live. Composers, maybe, should check out what the kids are up to. It's a real eye opener.

**Riesman:** The fundamental concept can be expressed in one sentence: anything we can hear can have a digital representation and be stored and transformed and reproduced, subject to the limitations of the input (microphone) and output (speaker) devices. Beyond that, there are books and there is the Internet, and there are schools with programs in music technology.

I think for a composer, it's not necessary to understand the concepts of the technology. He or she can just make use of it in the most appropriate way. The same goes for interested listeners. The technology has gotten pretty inexpensive and it is not beyond the means of many to have hands-on experience with it, and doing so will provide the most rewarding level of understanding.

**Moran:** I think that the same way composers like Rimsky-Korsakov and Stravinsky began expressing "realistic" ideas with music (for example, thunder or a bird singing), composers can express the nuances of very specific events, in ways that are at once musical and realistic. I think that the implications of the idea are extremely interesting.

**Glass: Does new music technology imply a different way of listening?**

**Riesman:** No. There is only music, and there is only listening. I don't believe there are different ways of listening; there are only different delivery mechanisms and different levels of attention. Unless someone can invent a delivery technology in which we don't have to use our ears anymore... Now, that would be a different way of listening for sure.

**Miller:** Not to me. Humans have a certain perceptual architecture — the basic structure is the basilar membrane of the ear, the sense of gravity and balance that we have comes from there, and the frequencies that we can or cannot respond to come from there too. Beyond that, I've always been an optimist — I don't think we've engaged how much we can hear. We're conditioned to accept the social ramifications of the various technologies as "constants" in the environment, but they're just as open to fluctuation as the societies that generated them. All of which points to the fact that it's not so much new ways of hearing that are needed, but new perceptions of what we can hear.

**Moran:** In as far as digital sampling goes, one can find musical expression in anything. Of course, some people are going to say "that sounds like noise," but people have always said that about new music. I think that in general, people are becoming pretty open to what new music can be — until they want to make money, or course.

**Subotnick:** Many of us in the world are still listening to older music. Because of the technology of recordings, the past has permanently blended with the present. I don't think there will be as big a change in concert hall music but rather in music that exists only in the loudspeakers and on the computers.

In this area, digital technology has become totally democratized because of how cheap it is now. Compared to buying a piano and taking years of piano lessons, you can buy an incredibly good computer at Radio Shack for \$500 and be equipped to create music. This in itself is a huge change. Making a complex statement musically has never been more possible or accessible. On the other hand, until recently, anyone writing with instruments has had a similar musical background and training. Now, you can do all of this without a musical background and so the kind of music that's being made is going to be different.

The people making the music are coming not out of Beethoven and Brahms, but out of pop music. Their bias to history is completely different. We tend to think that avant-garde music always grows out of fine art music. The irony is that today, at the electronica festivals, they are producing soundscapes and noise, the kind of raw stuff that you would associate with the Futurists from the beginning of the last century. But they've come out of the pop music and techno world. The worlds are separating now because of these different contexts of music making.

**Glass: Admittedly, new developments in digital technology have been largely positive for the composition and recording of new music. What impact can and will this have on how composers and performers make a living?**

**Subotnick:** I don't see a big problem. The big opera companies and orchestras are not going to disappear from the concert world, and the potential to make a living isn't going to diminish much. There is going to be a lot more opportunity from the composer's standpoint as they move into technology. I've had people study with me who ended up making music for cartoons for Nickelodeon. They've gotten big jobs to make a living, and they're still making their music. That's new to us. Philip had to drive a taxi cab. Now there are a lot of opportunities for the composers who have adequate technological chops. The instrumental composers are always going to be in the same boat. My advice to young composers is to stay connected to technology. Not necessarily for their own music, but for the chance of broadening the possibility of making a living, and therefore being able to stay in the music world. Without knowing the technology that's going to be hard to do.

**Moran:** When I was a very young man, I was writing works for both synthetic instruments, and also orchestra. After investigating the costs and logistics of even getting an orchestra to rehearse a piece, I quickly turned to the idea of creating the orchestra passages with digital samplers — it was the only thing I could afford. I think if I hadn't gone that route, I would still be struggling to even hear those first pieces.

**Miller:** I see a lot of talented people waiting to get noticed, and I see a lot of talented people putting their material on the web for free. Both categories of people aren't making that much money. They do it for the love of the music. I like that position, but I hate being broke... I think that there will be a lot more opportunity to work in an environment where basically everything you do is like shareware. That's already happening, but if you're on the cusp of this, it can be difficult to make a living doing it. At the end of the day, people have to be creative about how they look for gigs that pay: composing music for cell phone ring tones, for movie soundtracks, for TV commercials, to Web site jingles... you name it. The world definitely needs a lot more new music. People just have to figure out how to make it all work for them in a way that lets them make money. That's where I think new composers need to explore — especially to make money from music that might not be commercial in the "normal" sense. A lot of times I go on line and I see that my music is available everywhere as MP3 files and I'm not making any money off of that. As soon as you put music out there, someone can copy it and it's gone, so the main thing is to figure out alternatives. I try to diffuse what I do into a lot of different contexts and platforms. That makes for a lot of multi-tasking, but it certainly beats being broke.

*If you would like to respond to this roundtable, please write to [letters@andante.com](mailto:letters@andante.com).*

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