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THE HUB: PIONEERS OF NETWORK MUSIC



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PREFACE

Ludger Brümmer

1 Tim Perkis and John Bischoff, "The League of Automatic Music Composers 1978-1983," August 2007, <http://www.perkis.com/wpc/leagueCDnotes.pdf>.

When the jury selected the Hub as the winner of the Gi-ga-Hertz Prize in 2018, they were particularly struck by the innovative force that has emerged from the group's work. The music of the Hub cannot be heard in isolation as a sound event. Simply listening to the music is almost not enough to recognize the potential hidden within it, to gauge the artistic dimension and to understand the richness of the ideas.

It is therefore not surprising that the Hub worked with techniques for which a set of terms was only developed decades later. Terminology is only necessary when certain aspects develop greater meaning. The working methods used by the Hub became trends with a time lag, whereas they were part of the group's innovative routine as early as 1986. Thus, the Hub can certainly be described as an avant-garde in electronic music. Tim Perkis, himself, described the music of the Hub as "a cybernetic and revolutionary cousin to jazz."¹ He meant, specifically, the fields of net music, hardware hacking, circuit bending and live coding, for which the Hub provided the blueprints. Each of these aspects offers its own sound-aesthetic and media-technological universe of possibilities. Accordingly, the wealth of ideas inherent in the works of this group is potentiated.

Of course, these ideas of the Hub did not emerge in a vacuum. One has to think about the (historical) contexts and discourses in order to understand the sources of sound-art projects and their development. Here, the place of action is technology-savvy California, the universities of the Bay Area and some of the American composers working there, such as John Cage, Henry Cowell, Lou Harrison or Harry Partch; but especially the group from which the Hub emerged, the League of Automatic Music Composers, a formation that existed from 1978 to 1983. Unlike the League, however, the Hub still exists today and its members can represent their heritage accordingly. They can be the mouthpiece of the time; communicating issues, ideas and solutions. They can represent the historical dimension and thus point to their importance for contemporary music.

This book is about this current legacy. For what the composers of the Hub have developed is as current and fresh at present as it was at the moment of its creation. More clearly, there are artistic levels in their oeuvre that cannot be comprehended by musicians of present and future generations by simply listening to the recordings. There is also a need to replay, understand and translate the conceptual scores in order to experience the achievements of the Hub and to be able to transfer them into one's own practice. For example, Scot Gresham-Lancaster's piece *Stuck Note* has already been reinterpreted and performed by various network bands.² For this reason, it makes sense to document the concepts and improvisation instructions underlying the compositions and, thus, not only make them available for scholarly re-use. They can also stimulate lively music-making or function as a blueprint for new concepts of group compositions. In addition, the practice of appropriating and continuing the compositions enriches the reception of the works, which can be heard either on CD or online using the QR codes in this book. Furthermore, this publication includes extensive commentary by experts and companions of the Hub, as well as short essays by musicians and musicologists, which are intended to enable the phenomenon of the Hub to be classified and to provide an orientating context.

All this is done under the premise that the works of the

² Wikipedia, "The Hub (band)," June 2, 2021, [https://en.wikipedia.org/wiki/The_Hub_\(band\)](https://en.wikipedia.org/wiki/The_Hub_(band)).

Hub should remain alive in order to be an inspiration for young composers. They are intended to encourage improvisation in groups and motivate musicians to seek and exploit sonic conceptual possibilities outside of well-trodden aesthetic paths. In addition, many of the concepts can be realized with new digital instruments and software environments. Software such as Sonic Pi, Chuck or Super Collider for Live Coding, hardware such as the Raspberry Pi environments and laptops connected to hubs offer a much more comfortable technical foundation for the tasks of the working concepts presented here than those conceived and used by the Hub.

It remains a major concern to bring musicians and composers, both nascent and emergent, out of their current contextual and aesthetic stereotypes to reveal the diverse sonic imagination that the Hub has been working with since 1986. Like any music that can be reinterpreted, these works can be re-adapted to the sonic and technical possibilities of the present and, like the current interpretation of classic works by Johann Sebastian Bach on a modern grand piano, enriched with the possibilities of these instruments. Here, the hardware infrastructure in the form of mini-computers with open operating systems, new controllers, networks with cable or wi-fi offers tremendous possibilities to reinterpret the Hub's ideas and, as the Hub has also demonstrated itself, to be inspired by concept and technology. Something that I personally took away from the Hub's music is that beyond the perfect form, the perfect sound, there is a music in which communication with others, playfulness in technology and constant amazement are possible.

Finally, I would like to thank the Hub and all the contributors for their work, especially Cecilia Preiss for her patient efforts to keep things balanced and in context, as well as Gino Robair for bringing patiently all the texts to perfection.

PREFACE

Peter Weibel

In 1986, when personal-computer technology was still in its infancy and the so-called ARPANET project (developed in a military context and the precursor of today's World Wide Web) was winding down, American musicians John Bischoff, Chris Brown, Scot Gresham-Lancaster, Tim Perkins, Phil Stone and Mark Trayle founded the Hub, one of the earliest network-music ensembles. In the same period, in 1989, the ZKM | Center for Art and Media was founded in Karlsruhe which, from then on, was also dedicated to networks. This is evident from its first major museum exhibition, curated and directed by Peter Weibel, which bears the name "net_condition".

The Internet and the new infosphere, consisting of enormous amounts of data, have led to a new way of thinking and a new way of practicing—network thinking and networked collective productions. Nowadays, social life is based on networking. Individuals, households and entire cities are permanently connected via telecommunicative processes. It is therefore only logical that complex systems and collaborative processes between people and media also take place in the field of art. The Hub can justifiably claim to be the pioneers of network music.

Music is traditionally created in dialogue between a person and an instrument or between several people and their instruments. This way of creating music can arise from the fixed notation of the score, or it can take the form of free improvisation, as in jazz, in which the musicians react to each other. In both cases, musicians are connected both mentally and acoustically. A radical change in this line of tradition happened with the advent of the computer, when algorithms and networks became the basis of musical composition. Now the musicians have an additional, physical connection. Creative music becomes networked music. The Hub is one of those groups that shaped this new interactive and participatory way of creating music between a collective and a computer.

In fact, the Hub was named after the central micro-computer that not only links the musicians and their devices, but also has an influence over the indeterminate musical outcome. Humans and computers are in a permanent communicative process while the music evolves. Accordingly, the computer is an equal component of the collaborative and interconnected musical ensemble, which is why the Hub's interactive conceptual art can be described as an early artistic human-computer interaction.

Human-computer interaction strongly influences digital media art: This becomes evident in current discourses on artificial intelligence and generative art projects, which consider the computer as an integrative component of artistic creation. The ZKM is at the center of these negotiations and reflects this 'being with the media' in groundbreaking exhibition formats and innovative artistic works.

The Hub recognized the potential of these collective modes of production as early as the late 1980s and they continue to set standards today with their compositions, which are created interactively in the moment of performance.

With this book, the ZKM publishes the first monograph on the work of the Hub and gathers the scores – equally historical documents and playing instructions – for the first time. Accordingly, the publication writes a history of network music and understands itself as an instruction manual for future projects of networked (sound) art.

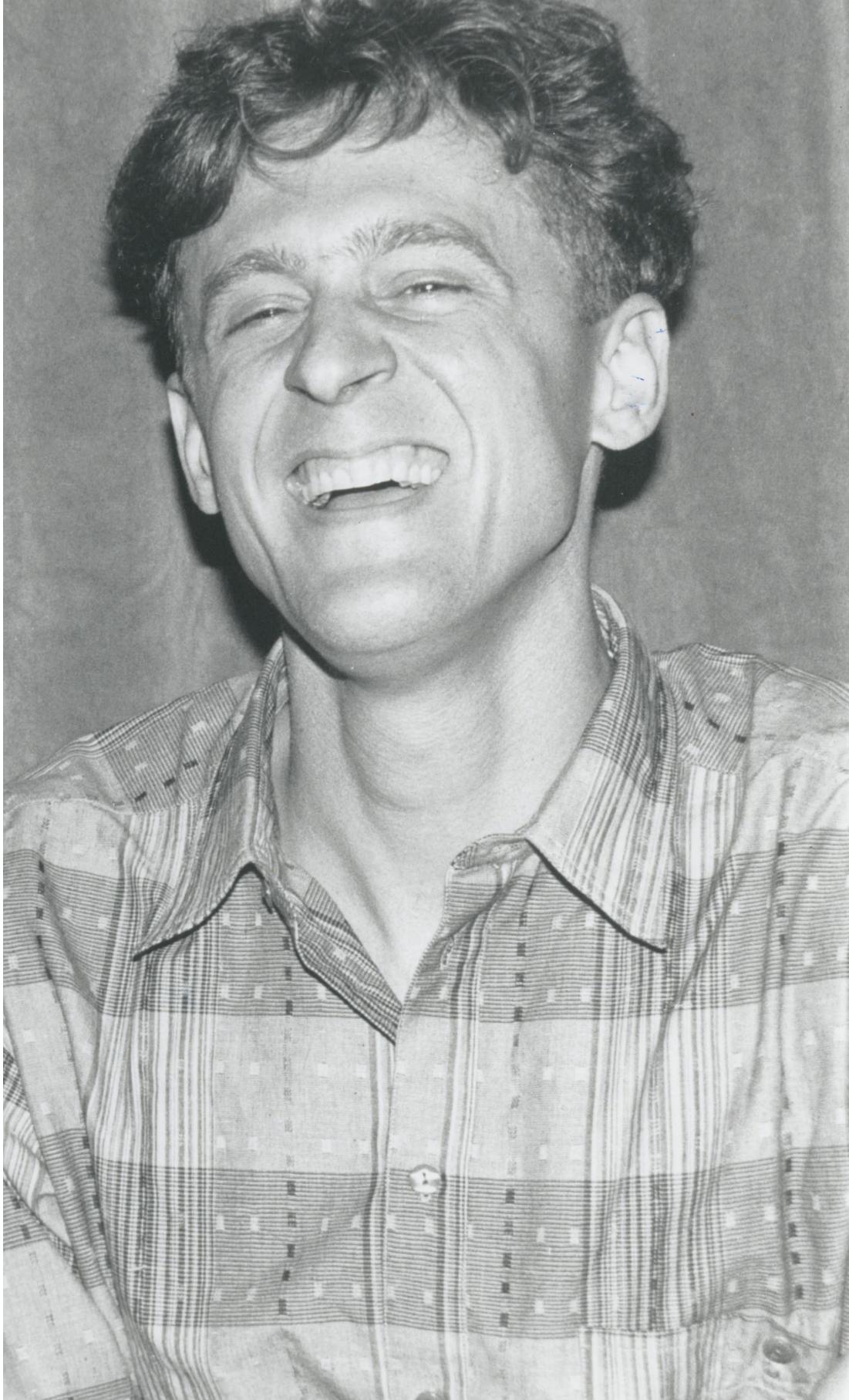
DEDICATION: MARK TRAYLE (1955–2015)

Phil Stone

Viewed in one light, the Hub is a group of inventors. All of us have designed and built our own systems, in both software and hardware — competence with a soldering iron was as necessary as the ability to code in the early days of the band. Even in this context, Mark Trayle's creativity stands apart. His hack of the Mattel Power Glove, as well as his transformation of the mundane act of swiping a credit card into a musical performance, are prime examples, but the Hub pieces he designed also had that same 'new angle', inventive aspect. His specs yielded some of the most revelatory pieces, often from quite simple premises. Mark had a knack for finding the essence of a thing, then manipulating that essence in a way no one but he would ever conceive of. His pieces enhanced the synergy of our collective-but-divergent voices in a unique way that often turned our always-separated timbral expressions into a comprehensible, unified sound.

Mark's music is a noise of variable focus where sudden condensations of tone provide structure and non-tones act as excitors and embellishers. His Hub pieces juxtapose the clarity of an idea with the messy assortment of group response. We can hear the singularity of concept throughout but always within a context of diverse actualization. He creates a formality that invites play, and we can hear the two qualities evolve in poised balance. He reminds us of an 18th-century European composer in the transparency of his musical texture and his workman-like ease. He was a fan of Joseph Haydn, in fact.

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Inventiveness alone doesn't explain the appeal of Mark's music. Another essential element is humor. Experimental music has its deadly earnest component; it can take itself very seriously, indeed. The best, however, can provoke joy and even laughter: a sonic Zen koan shooting like an arrow to the essence of the thing; Mark hit that bullseye again and again. As a bandmate, he kept us laughing and loose, and he made the hard work of rehearsal or the stress of touring seem easy and fun.

Joining the faculty of the California Institute of the Arts in 1996, Mark made important contributions to the development of the Experimental Sound Practices Program there as well as serving as Co-chair of the Composition Program for a number of years. He also played often as an improvisor with personalized electronics as his instrument, using hacked electronic circuitry, physical controllers, and table-top electric guitar, all processed by home-brew software. His palette matured gradually from the sounds of monster trucks and video-games to delicately balanced frameworks of resonated and distorted noise. He extended his work with the Hub in starting network bands in LA and collaborating internationally. Mark's strength as a teacher shows in the love that his students and peers have for him, and he brought the same spirit of adventure, inventiveness, and humor to teaching that he brought to our band.

The Hub by its nature is a form of digital glue that changes with every piece. Each of Mark's contributions added a unique voice to the realm of possibilities for our unpredictable interconnections. Mark is present every time we gather together, and we will never stop missing him. We dedicate this volume of scores to his memory.

—Phil Stone, Davis, California, June 2021
(with input from John Bischoff, Chris Brown, and Scot Gresham-Lancaster)