

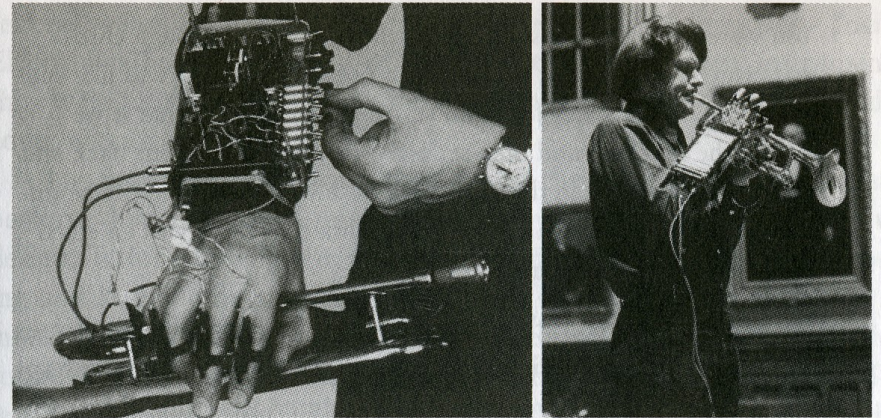
Dan Wilcox

robotcowboy?

Influences

Gordon Mumma

cybersonics

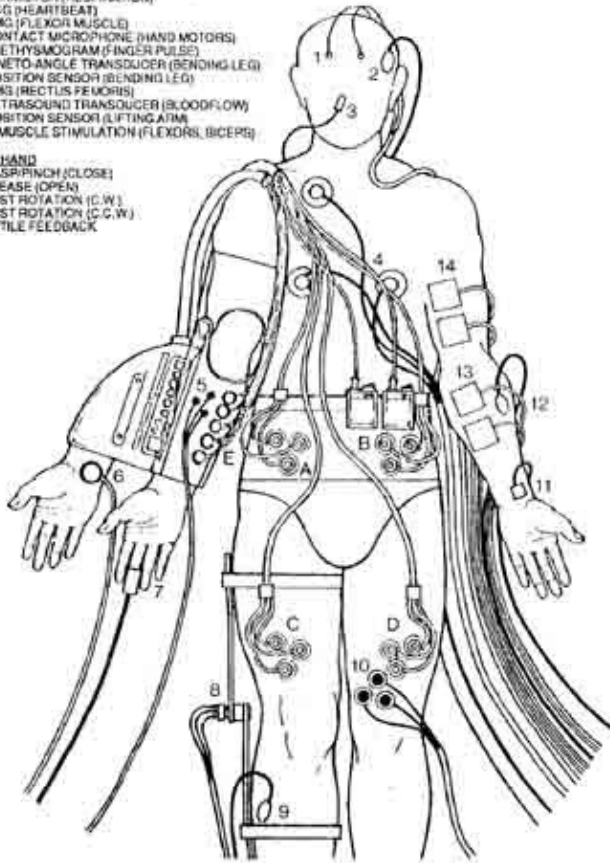


Cybersonic performance by Gordon Mumma during a Sonic Arts Union concert at Brown University in New York City, 1973. The work is Ambivex which uses electronics to modify and generate sounds triggered by a cornet. Left: Closeup of Mumma's equipment for Ambivex. Photo courtesy of Gordon Mumma.

Influences

1. EEG (BRAINWAVES)
2. POSITION SENSOR (TILTING HEAD)
3. THERMISTOR (RESPIRATION)
4. ECG (HEARTBEAT)
5. EMG (FLEXOR MUSCLE)
6. CONTACT MICROPHONE (HAND MOTORS)
7. PLETHYSMOGRAM (FINGER PULSE)
8. KINETO-ANGLE TRANSDUCER (BENDING LEG)
9. POSITION SENSOR (BENDING LEG)
10. EMG (RECTUS FEMORIS)
11. ULTRASOUND TRANSDUCER (BLOOD FLOW)
12. POSITION SENSOR (LIFTING ARM)
- 13, 14. MUSCLE STIMULATION (FLEXORS, BICEPS)

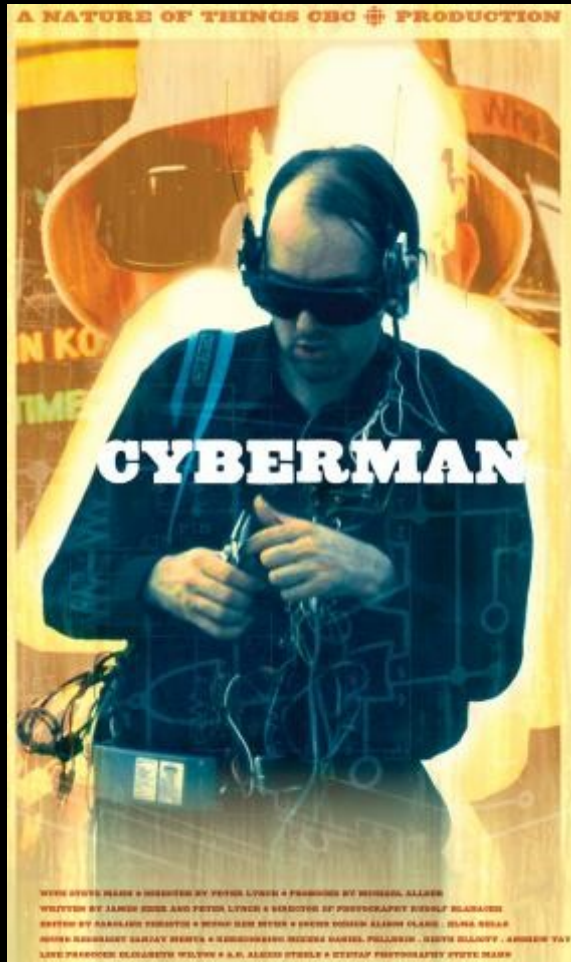
THIRD HAND
A. GRASP/PINCH (CLOSE)
B. RELEASE (OPEN)
C. WRIST ROTATION (C.W.)
D. WRIST ROTATION (C.C.W.)
E. TACTILE FEEDBACK



stellarc
cybernetics

AMPLIFIED BODY/ THIRD HAND

Influences



Steve Mann

wearable cyborgs



Influences



DEVO

performance art
/
irreverent
commentary

Music Evolution: Live → Electronic

live music & the live musician

|
v

recorded music & the recorded musician

|
v

electronic music & the recorded musician

|
v

electronic music & the live musician

My views on . live. and . electronic. MUSIC

. live MUSIC.

- . music historically, instrumentally based around live performance

. electronic MUSIC.

- . music historically, instrumentally based around electronic/computer sound synthesis

* NOTE

These are broad generalizations yes, but I do not feel like nitpicking into genre territory. Most of the following statements have numerous examples but, I feel, are true in a very gross sense. If you do not agree, deal with it for now and assault me later.

. Relates to Instruments

portable instruments & a mobile/outside environment



static instruments & a fixed/stage environment



huge computers/synths & a fixed/stage



portable computers/synths & a mobile/outside

Live vs Electronic

Live Music

- performance important
- Physicality
- obviously strong in the live arena

Electronic Music

- performance not important
- Physicality . removed.
- Weak in the live arena

My Background

- Working with my hands
 - Movement
 - Visual aesthetic
- Energy/live performance
 - Audience interaction/participation
 - Sweat/blood/heat
 - Warm/human

Laptop Performance Background

- Less emphasis on physicality, more on production
- Small movement
- Less energy
- Audience interaction?
- Sweat comes from the audience
- Cold/machine

Live Show Entropy

Entropy:

'a measure of the amount of energy in a physical system that cannot be used to do work' wikipedia

Entropy in a live performance:

Feedback of emotional/physical energy between performer and audience

My Problem

- Moving from traditional live → solo laptop computer music
- Loss of people/stuff
- Loss of physicality/mass
- No loss of sound range/amplitude
- Disproportion between sound and physicality
- Physical limiting factor of the laptop
- wall between audience and performer
- Tied to computer → do its wishes

Possible Solutions

- Visual/projects to fill void
 - * distracting
- Add people
 - * has not happened
- Go solo - traditional
 - * not interested

My Solution

- Loss of people
 - * become larger than life through character
- Loss of physicality
 - * go mobile, fill up the space
- No loss in sound
 - * not a problem

My Solution

- Disproportion between
sound/physicality

* remove link to laptop-I am the
sound generator

* cyborg: cold computer is combined
with warm human

* cold computer half is tech/sound

* warm human half is
guitar/voice/body

- most important

* direct control visualization!!!

My Solution

- Wireless link between mobile system cuts the wall.
- Freedom from the laptop
 - * make it conform to MY wishes
- Visualizations
 - * shrink distracting screen
 - * place it on the performer
 - * place emphasis on performer

Tech

- Xybernaut MA IV wearable computer
 - * 233 Mhz 160MB RAM
 - * Wireless network link
 - * All manners of i/o:
 - HID, mouse/key, usd, etc
 - * Output to screen

- IBM T-43
 - * P4 fast, lots of RAM
 - * wireless link
 - * can run all manners of modern sound software in realtime

Software

- Win / Linux
 - * Linux on MA IV
 - * Win or Linux on T-43
- Linux brings customization and efficiency for slower MA IV
- C/C++ as well as PD, etc
- Main sound suite initially FL Studio 6

Why computer over custom hardware?

- Easy extensibility
- Cross platform development
- Portability
- Hardware done! (rugged too)
- Faster, generally
- Higher level software abstraction
- Cooler, physicality
- Energy optimized
- Easy to use display (VGA)
- Wireless easy (802.11b/g)
- Availability, cost (free)

Questions?