

No Secrets in Cyberspace

BY BEAN

THOSE ON THE CYBERSCENE in the early '90s may remember Jaron Lanier, a wild-looking pioneer of the virtual reality movement. After coining the term "virtual reality," Lanier became a full-time visionary, spokesperson, and developer of the tools of the virtual trade. Now, Lanier has a whole new bag of tricks, and his passion for virtual, ethnic, and classical instrumentation should garner enough attention to turn the music community on its ear.

Lanier's performances feature an array of ancient and futuristic instruments that breathe new life into the genre of ethno-tech. Using piezo pickups through a Roland GI-10 guitar pitch-to-MIDI converter, Lanier plucks a Chinese Gu Zheng (the ancestor of the koto) with unbridled delight. He runs it through a Waldorf Miniworks 4-pole filter and a Digi-Tech Studio Vocalist harmony processor, creating a phantasmagorical soundscape.

The resonance of the filter drives the Studio Vocalist, creating a chord cadence as part of each note's decay. Integrating the pitch-shifting features of the Vocalist, Lanier can add vibrato, change intervals, or create harmonic progressions while retaining the natural harmonics of the source signal.

Ascension Bird. Perched atop Lanier's head is Ascension Bird, a 6-axis magnetic tracking device that Lanier connects to SGI Maximum Impact and Octane workstations. This unit is similar to a

Polhemus device used for motion capture and 3-D digitization in VR worlds, but it is slightly more stable in performance. (Lanier's system also includes a series of Macintosh computers that connect to the sensors via an Opcode Studio 5 MIDI interface/patch bay/processor.)

Ascension Bird works in a multiunit configuration called Flock of Birds. Used with a series of transmitters and receivers and VPL's *Body Electric* software, this system creates 3-dimensional virtual environments where objects can be linked and rendered in real time. For example, Lanier's face is glommed onto a slithering insectlike creature reminiscent of *Alice in Wonderland*. (*Body Electric* is a MAX-like programming environment specialized for virtual reality applications. At present it is not commercially available, but it may be available soon for non-commercial academic distribution.)

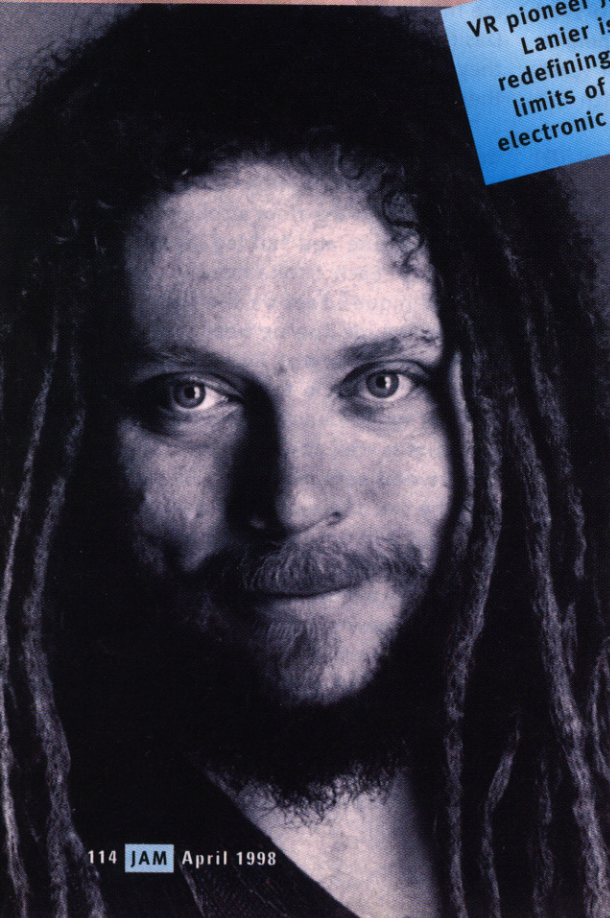
Sensitive to the slightest movement, Ascension Bird has a life of its own and slides across Lanier's face, projecting its travels up and down its circuitous route onto the entomological image.

Virtual flute lathe. An exotic collection of acoustic wind instruments shares the microphone input of the Roland GI-10. Lanier plays a Celtic rosewood flute while a 3-D virtual lathe of animated wood expands and contracts and spoon-shaped metallic arms bang into each other in the virtual world behind him.

In an acoustic twist, the colliding models trigger a Yamaha Disklavier grand piano via MIDI. The result is a diatonic accompaniment to the flute. Sound complex? Lanier claims this process is relatively simple compared to some of his older virtual music worlds, such as "Sound of One Hand."

Cyberpolitics. In another composition, Lanier controls the movements of

VR pioneer Jaron Lanier is redefining the limits of live electronic music.



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Senator Twoface, a virtual cigar-puffing puppet, directly from the Disklavier. Designed by BIGTWIN (Web www.users.interport.net/~bigtwin), the senator's face responds to various intervals and chord changes and turns into Pig Newton on his backside. "It's fun to control him and figure out viable music at the same time," says Lanier.

To counterbalance the sinister senator, Lanier introduces Vernon Reid as Guitar Bugman. Presented live and onscreen via Sony projectors, Guitar Bugman's role is to overshadow the red-faced performance-animation character with his processed electric guitar riffs.

Inklings in infrared. Just to prove that there's still a bit of humor in cyberspace, Lanier plays a little "air" piano with the Interactive Light Dimension Beam. (The Dimension Beam was reviewed in the July 1996 **EM** and was further discussed in "Tech: Hacking the Hydra" in the November 1997 *JAM*. Visit Interactive Light online at www.interactivelight.com for more information.) Later, he turns the music off and conducts a visual symphony of geometric imagery using a Buchla Lightning II controller.

The Lightning II (reviewed in the August 1996 **EM**; Web www.buchla.com) uses infrared sensors to track two batons' movements and translates the positional information into MIDI messages (such as Pitch Bend, Volume, and Modulation) that Lanier uses to control both musical and visual interactions. With a potential range of motion as large as twelve feet high by twenty feet wide, the Lightning II provides plenty of room for gestural activity.

Drone morphology. Depending on Lanier's roster of special guests, a variety of instruments from all over the world weaves in and out of his orchestral web, including Persian- and Pygmy-inspired vocals, clarinet, balafon, guitar, violin, oboe, banjo, didgeridoo, and kora.

Lanier himself brings a veritable smorgasbord of instrumentation from around the world to the stage. With his affinity for wind and string instruments from Asia, Lanier might be found playing anything from a Ba Wu (a Chinese flute/reed instrument) to a Seljefloyte (Lapp Arctic flute). An East Indian drone might transport the listener off into a field of stars where floating letters morph with each pitch bend of a soprano sax.

If we stay tuned for more, Lanier (who can be reached at www.well.com/user/jaron) may turn into a cuttlefish, and then again, so could you. ◆