ELECTROMS SOUND



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A USER'S GUIDE TO THE FUTURE

JOHN FOXX / THOMAS DOLBY / MARTYN WARE / EMIL SCHULT / JEFF MILLS / ALEKS KROTOSKI / GAZELLE TWIN / CHRIS WATSON / J WILLGOOSE ESQ / ARP

RAISE THE BAR

Hosted by Georgia Tech in Atlanta, the **Guthman Musical Instrument Competition** – referred to by The Guardian as "The Pulitzer of the new instrument world" – is a truly unique event that gathers together the most forwardthinking musical inventors from around the globe. We caught up with some of this year's finalists, whittled down from hundreds of submissions, to learn about their madcap designs. And, trust us, they really are mad as hatters

WORDS: ISAAK LEWIS-SMITH

















THE FRONT

A ABACUSYNTH ELIAS JARZOMBEK

> Featured in Electronic Sound last year, the Abacusynth is a playful and accessible instrument that teaches the user about the fundamentals of synthesis and timbre, helping them to visualise the process of sound manipulation via spinning and sliding blocks. Motivated by a desire to build an instrument that could easily be interacted with, Elias says he drew the on skills he picked up at NYU's Tisch School of the Arts to create this incredibly imaginative sound machine.

Elias' advice to budding instrument makers

"It might sound obvious, but start with the thing that is most crucial to your instrument. In my case, I knew nothing would work if the spinning action wasn't fun, so I started there and spent the most time developing that interaction. Also, sometimes there's no way to know the correct approach until you just make something that works – then you can iterate and refine it from there. Oh, and always use cardboard first!"

B CHAOS BELLS LIA MICE

UNITED KINGDOM

Measuring a whopping two square metres, Chaos Bells is made up of 20 pendulums, augmented by an embedded accelerometer which generates bell tones and drones. In development for over 18 months, it's Lia Mice's response to the synth companies who only produce small desktop instruments, and it brings a real theatricality to electronic music.

Lia's advice to budding instrument makers

"I recommend finding and joining a community. This could be as part of a makerspace, a group of friends or a community organisation. Designing digital instruments is a multidisciplinary artform, requiring broad knowledge in a wide range of areas, including sculpture, coding, woodwork, 3D modelling, metalwork, physics, acoustics... the list goes on. If you can't find a community to join, start your own."

C GRILLOPHONE STEFAN LICHERI VENEZUELA

Inspired by the notion of upcycling, Stefan Licheri's Grillophone turns the humble grill into a powerful instrument. Resembling a lyre, the strings and playable bars are strummed, struck and amplified akin to an electric guitar. It can also be played in any tuning system, thanks to its changeable fretboards, and is capable of hooking up to synths and DAWs, opening up its sonic potential even more.

Stefan's advice to budding instrument makers

"Be curious, experiment and don't be afraid of failure. It doesn't matter how crazy the idea might sound – just go for it."

D HITAR ANDREA MARTELLONI, ANDREW MCPHERSON & MATHIEU BARTHET UNITED KINGDOM

The HiTAR transforms the guitar into an augmented electronic instrument, which reacts to specific gestures and hits. DSP engineer Andrea Martelloni says he took inspiration from new expressive keyboard controllers, where particular finger motions produce multidimensional variations of sounds. Andrea has been working on the HiTAR since 2019, but says it only made its first "bong" last September. Here's to it having many more.

Andrea's advice to budding instrument makers

"The best way to begin designing instruments is to start from the aesthetics and the practice that you want to enable, then figure out the technology later. The purpose of a musical instrument is to find a place in a studio, stage or bedroom, and so it needs to find its way into a genre or a community. Then, when many people start experimenting with it, the musical revolutions slowly start happening. I've taken this idea partly from Craig King, one of the judges at Guthman, and I think it's really solid advice!"

E THE TERPSICHORA PRESSURE-SENSITIVE FLOORS IRAN SANADZADEH & SENASTIAN COLLEN

SEBASTIAN COLLEN AUSTRALIA

Translating movement into music, this stunning instrument invites users to control sound by redistributing their body weight over a tangram of pressure-sensitive panels. Inspired by Australian dancer Philippa Cullen's original set of pressure-sensitive floors from the 1970s, Iran Sanadzadeh's initial design was completed in 2015, and she has been improving it since then alongside musician Sebastian Collen.

Iran's advice to budding instrument makers

"Even if it doesn't really work very well, keep playing it. Slow down your expectations of a result and refine the instrument. You can't plan all the possible discoveries of the new instrument – some of the best things will come out from practice and being playful. Lastly, if you think it's cool, it is."

F ACTIVE SHOULDER RESTS (ASRS) FOR VIOLIN VIOLIN ASR PROJECT

The Active Shoulder Rest, the brainchild of polymath Seth Thorn, is an augmented variation of a popular violin accessory. It couples with the acoustic instrument and actuates it through vibration, essentially allowing a violinist to transform their instrument into a synthesiser. It can also be hooked up with DAWs or effects pedals of the musician's choosing.

Seth's advice to budding instrument makers

"It's important not to be the only judge of your work, but to let others try it. I sat on the ASR for a long time. I didn't really understand what it could do for violinists until I got it out there, and that changed the way I was using it."

6 KANCHAY_ YUPANA// PATRICIA CADAVID H COLUMBIA/SPAIN

Combining ancestral technologies with contemporary electronics, the Kanchay_Yupana// is a tangible sequencer inspired by the Andean Yupana, an ancient counting system similar to an abacus. Users arrange seeds on a board equipped with light sensors. The sensors detect the position of the seeds and send realtime motion data to a virtual drum machine, which in turn generates patterns that transform live into different rhythms.

Patricia's advice to budding instrument makers

"Practice and experimentation are essential to developing a project. People should look beyond the hegemonic examples and into their communities for creators with other types of experience and cultural backgrounds. And never postpone experimenting – sometimes the most wonderful experiences come from the imperfection of practice."

H SENSOR 32 KARL GERBER GERMANY

> Sensor 32 is a multidimensional contactless instrument made up of 32 proximity sensors, allowing the user to affect sound output by simply waving their hands and feet. Imbued with an innate performative element. Munichbased Karl Gerber calls his innovative machine "a moving landscape", and was motivated by wanting to help audiences make sense of electronic composition. For this, his first-ever instrument, Karl says he drew inspiration from the theremin, as well as the work of Max Matthews and Christina Kubisch.

Karl's advice to budding instrument makers

"He who makes what everyone else makes, gets what everyone else gets. Be original and authentic."

For more on the Guthman Musical Instrument Competition winners, go to guthman.gatech.edu