

"Ocarina"

excerpt (pp. 74-95) from *Artful Design*,
Chapter 2 "Designing Expressive Toys"



<https://artful.design/>

DESIGN AND PHILOSOPHY
OF AN EXPRESSIVE MUSIC TOY

OCARINA

A TOYFUL RE-ENVISIONING OF AN
ANCIENT MUSICAL INSTRUMENT,
TRANSFORMED IN THE KILN OF
MODERN TECHNOLOGY!



RELEASED IN 2008 AND DESIGNED FOR THE
IPHONE, *OCARINA* WAS ONE OF THE VERY
FIRST MUSICAL INSTRUMENTS IN THE EMERGING
LANDSCAPE OF APP-BASED COMPUTING.

OF ALL THE THINGS I HAVE DESIGNED, I THINK
OCARINA MOST CONCISELY **EMBODIES**
THE **PRINCIPLES** OF ARTFUL DESIGN.

IT TRANSFORMS THE
PHONE INTO A **FLUTE-
LIKE INSTRUMENT!**

IT'S **PHYSICAL AND VIRTUAL**,
EXPLORING BOTH **MUSICAL**
INTERACTION AND AN EXPRESSIVE
SOCIAL DIMENSION.

FOR ME, IT BRINGS TOGETHER
A NUMBER OF IDEAS IN DESIGN.



FORM AND
FUNCTION

HUMAN-COMPUTER
INTERACTION

ECONOMY
OF DESIGN

AUDIO
VISUAL

MUSICAL
EXPRESSION

PLAY

PHYSICALITY

TOY DESIGN

SOCIAL
DESIGN

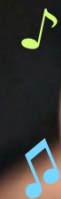
IF THE **GAG** WITH *SONIC LIGHTER* IS THE
ABSURDITY OF A **PRACTICAL** THING THAT COULD
NEVER FULFILL ITS INTENDED PURPOSE, THEN
OCARINA IS THE **OPPOSITE**: A **WHIMSICAL**
THING THAT **CAN** FUNCTION, AS AN ANCIENT FLUTE-
LIKE INSTRUMENT, ON A PHONE! THE **JOKE** HERE, NO
LESS ABSURD, IS THAT IT **ACTUALLY WORKS!**

BLOW INTO THE PHONE TO **ARTICULATE** THE SOUND. **BREATH** IS TRACKED, PROCESSED, AND MAPPED TO **LOUDNESS**.

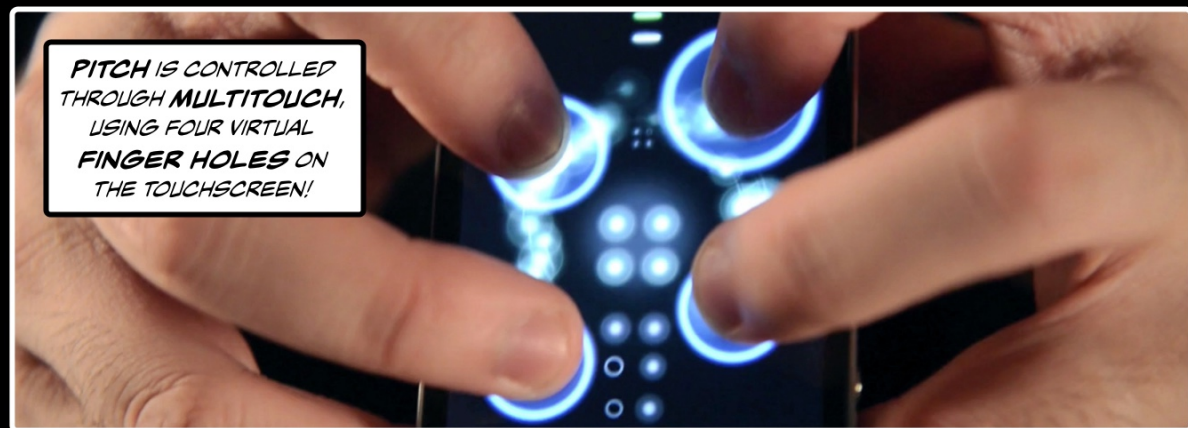
HOLD THE PHONE AS YOU MIGHT A **SANDWICH**, RESTING THE PHONE ON THE **THUMBS** AND **RING** FINGERS, LEAVING THE **INDEX** AND **MIDDLE** FINGERS FREE TO MANIPULATE THE TOUCHSCREEN!

BLOW

IT'S BEST TO BLOW INTO THE MICROPHONE FROM A FEW INCHES AWAY (DON'T **EAT** THE PHONE!)

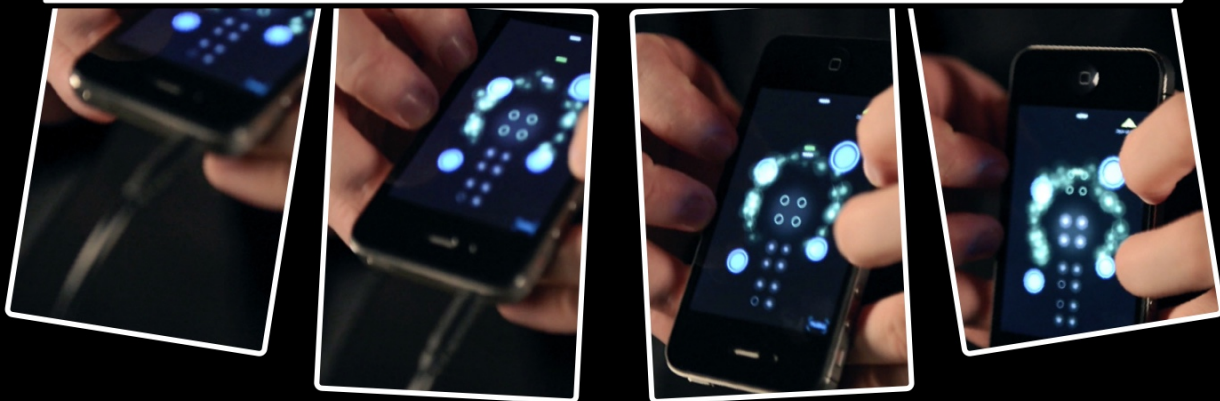


PITCH IS CONTROLLED THROUGH MULTITOUCH, USING FOUR VIRTUAL FINGER HOLES ON THE TOUCHSCREEN!



THE FINGER HOLES **GLOW** AND **EXPAND** ON TOUCH AND **RETRACT** UPON RELEASE, MAKING THE INTERFACE FEEL **ALIVE** AND **ORGANIC**. FUNCTIONALLY, THIS COMPENSATES FOR A **LACK OF TACTILE** FEEDBACK ON A TOUCHSCREEN AND MAKES IT EASIER TO SEE WHAT YOU ARE PRESSING.

TILTING THE PHONE CONTROLS **VIBRATO**, ADDING EXPRESSION TO NOTES (ESPECIALLY THE TAIL OF LONGER ONES) AND AN ADDITIONAL DIMENSION OF **PHYSICALITY** TO THE INTERACTION!



LESS VIBRATO

MORE VIBRATO

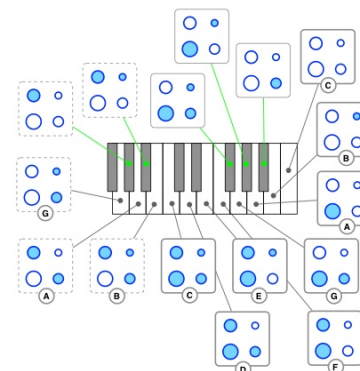


THE DESIGN SKETCH FOR **OCARINA** LOOKS SOMETHING LIKE **THIS** --

IT IS NOT COMPLEX.

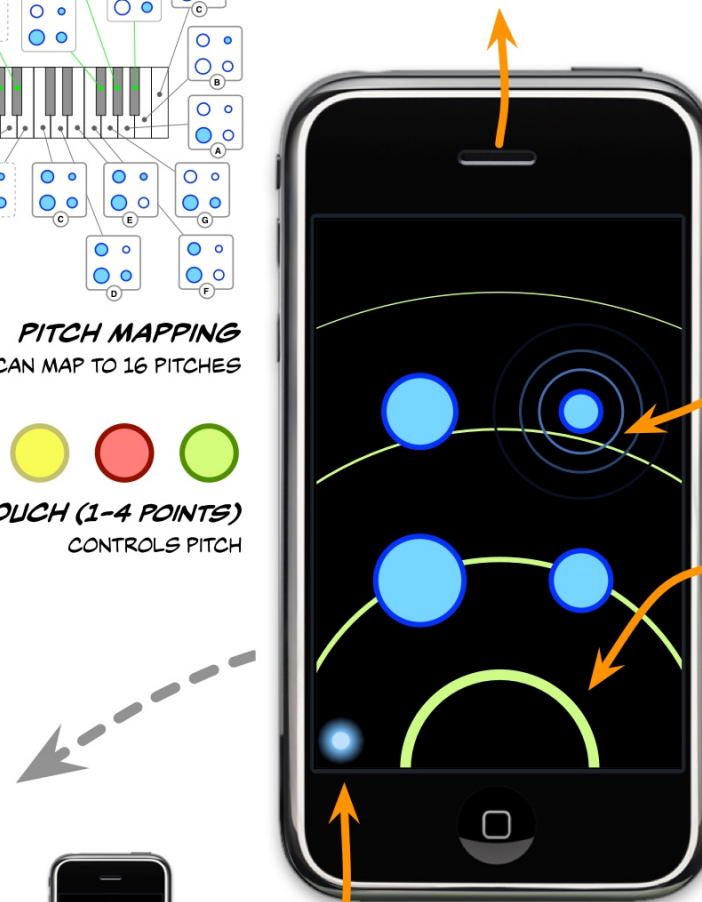


SYNTHESIZED SOUND
DYNAMICALLY GENERATED,
PARAMETRICALLY CONTROLLED



PITCH MAPPING
CAN MAP TO 16 PITCHES

MULTITOUCH (1-4 POINTS)
CONTROLS PITCH

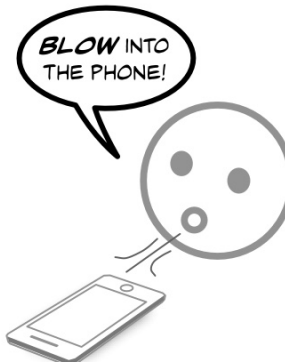


VISUAL FEEDBACK 1
RINGS EXPAND AS FINGERS PRESS DOWN

VISUAL FEEDBACK 2
CONCENTRIC RINGS RADIATE FROM THE BOTTOM, VISUALIZING USER'S BREATH

ACCELEROMETER
VIBRATO AMOUNT (FRONT/BACK)
VIBRATO RATE (LEFT/RIGHT)

BLOW INTO MICROPHONE
ARTICULATES THE INSTRUMENT,
STRENGTH OF BREATH MAPPED TO **LOUDNESS**



REAL-TIME MAP DISPLAY
(ACCESSES GLOBE DISPLAY)
SOCIAL DESIGN FEATURE WHEREBY
USERS CAN HEAR OTHERS PLAY
AROUND THE WORLD!

OCARINA'S DESIGN ADHERES TO SOMETHING I CALL **INSIDE-OUT DESIGN**, WHICH WORKS **OUTWARD** FROM AVAILABLE TECHNOLOGICAL INGREDIENTS, TAKING INTO ACCOUNT THEIR **POSSIBILITIES AND CONSTRAINTS!**

IN THIS CASE, IT IS ABOUT USING EVERYTHING AVAILABLE ON THE IPHONE TO DESIGN A SINGULAR ARTIFACT.

WE CAN APPLY THIS STRATEGY TO **DISCOVER** AND DETERMINE **WHAT TO DESIGN** IN THE FIRST PLACE!

CASE IN POINT:
WHY AN OCARINA?

(I.E., **WHY NOT** A VIOLIN, GUITAR, PIANO, DRUM, OR SOMETHING ELSE?)

THE CHOICE TO DESIGN AN OCARINA STARTED WITH THE DEVICE ITSELF -- BY CONSIDERING ITS VERY **FORM** AND EMBRACING ITS INHERENT **CAPABILITIES**, "AS IS!"

FOR STARTERS, THE **PHYSICAL FORM** AND SIZE OF AN IPHONE IS SIMILAR TO THAT OF A FOUR-HOLE "ENGLISH PENDANT" OCARINA. THE ONBOARD SENSORS (MULTITOUCH SCREEN, ACCELEROMETERS, MICROPHONE) SEEM FITTING FOR THE PHYSICAL INTERACTION OF **OCARINA**.

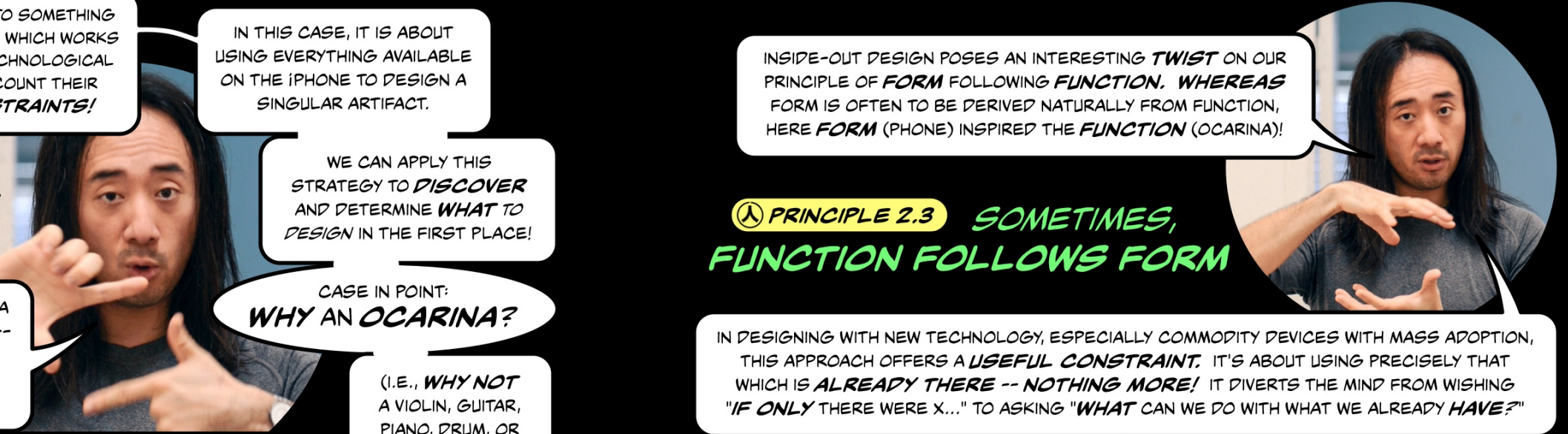
INSIDE-OUT DESIGN REJECTS **BLUNT TRANSFER** (OR "PORTING") FROM OTHER DOMAINS; INSTEAD IT CHAMPIONS AN **ETHOS** OF DESIGNING FROM THE GROUND UP, EMBRACING THE **MEDIUM** AND ITS CONSTRAINTS, AND THINKING AS BROADLY AS POSSIBLE ABOUT ITS **NEW POTENTIALS!**

PRINCIPLE 2.2 DESIGN INSIDE-OUT

OCARINA WAS NOT DESIGNED AS A "MOBILE VERSION" OF AN OCARINA, BUT AS SOMETHING THAT IS ITS OWN EXPERIENCE...

...THERE IS SOMETHING **DISARMING** ABOUT ENGAGING AN EVERYDAY DEVICE IN AN ENTIRELY **DIFFERENT MANNER...**

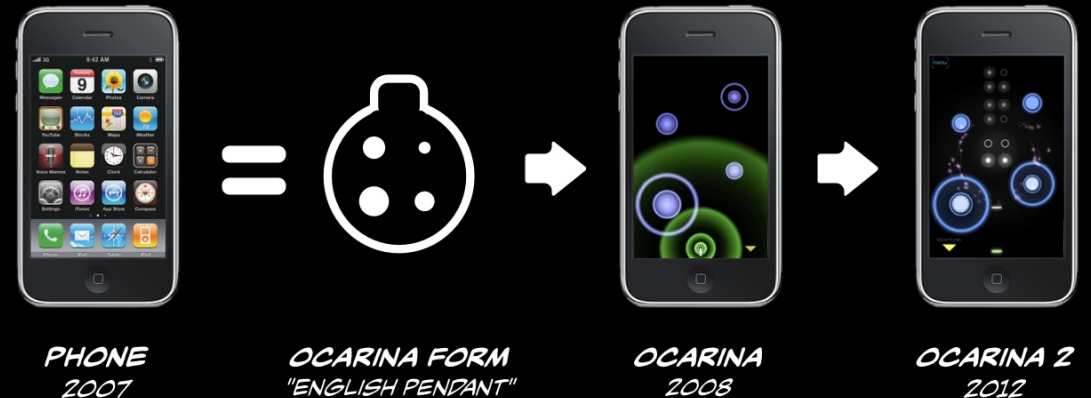
...AND BY **APPROPRIATING** TECHNOLOGY IN UNCONVENTIONAL WAYS, WE CAN IMBUE A SENSE OF **PLAY AND DELIGHT.**



INSIDE-OUT DESIGN POSES AN INTERESTING **TWIST** ON OUR PRINCIPLE OF **FORM FOLLOWING FUNCTION**. **WHEREAS** FORM IS OFTEN TO BE DERIVED NATURALLY FROM FUNCTION, HERE **FORM** (PHONE) INSPIRED THE **FUNCTION** (OCARINA)!

PRINCIPLE 2.3 SOMETIMES, FUNCTION FOLLOWS FORM

IN DESIGNING WITH NEW TECHNOLOGY, ESPECIALLY COMMODITY DEVICES WITH MASS ADOPTION, THIS APPROACH OFFERS A **USEFUL CONSTRAINT**. IT'S ABOUT USING PRECISELY THAT WHICH IS **ALREADY THERE -- NOTHING MORE!** IT DIVERTS THE MIND FROM WISHING "IF ONLY THERE WERE X..." TO ASKING "WHAT CAN WE DO WITH WHAT WE ALREADY **HAVE?**"



PHONE 2007

OCARINA FORM "ENGLISH PENDANT"

OCARINA 2008

OCARINA 2 2012



THIS PARTICULAR OCARINA FORM CAN BE TRACED BACK TO **ANCIENT CULTURES**, WHERE OCARINA-LIKE INSTRUMENTS PLAYED AN IMPORTANT ROLE IN TRADITIONS OF SONG AND DANCE.

埙
XUN

OCARINA IS SIMILAR IN FORM TO THE **XUN***, ONE OF THE OLDEST CHINESE INSTRUMENTS, DATING BACK **7000 YEARS!** THE MAIN DIFFERENCE IS THAT THE PLAYER BLOWS **ACROSS** THE TOP OF THE XUN, WHEREAS A PLAYER BLOWS **INTO** THE OCARINA. AND THE SOUND OF A XUN IS TYPICALLY MORE **SOLEMN** AND **MOURNFUL** THAN THE OCARINA SOUND.

*PRONOUNCED: "SHEE-YU-EN" ROLLED INTO ONE SYLLABLE

ONCE THE **FUNCTION** WAS DETERMINED (IT'S AN OCARINA!), MY FOCUS WENT BACK TO THE **FORM**: AN OPPORTUNITY TO CONSIDER AUDIO, VISUAL, AND PHYSICAL INTERACTION DESIGN IN CONJUNCTION.



I WANTED TO CRAFT **OCARINA** AS A WHIMSICAL, **MAGICAL** ARTIFACT -- REFLECTED IN THE **BREATH** MECHANISM, ITS **LOOK AND FEEL**, AND IN THE AESTHETIC EQUIVALENCE BETWEEN COMMUNICATION DEVICE AND INSTRUMENT.

ONCE AGAIN, THERE IS A COMMITMENT TO **NOT ADORN** THE ARTIFACT. THE AESTHETIC STATEMENT IS NOT "THIS SIMULATES AN OCARINA" BUT RATHER...

...THIS IS AN OCARINA!

EVEN THE **NAME** "OCARINA" REFLECTS THIS ETHOS OF PHYSICAL DESIGN AND DELIBERATELY AVOIDS THE COMMON EARLY NAMING CONVENTION OF PREPENDING APP NAMES WITH "i" (E.G., iOCARINA). IT IS AN **ARTICULATION** OF THE DIFFERENCE BETWEEN "EMULATES" AND "IS"!

PRINCIPLE 2.4

TAKE ADVANTAGE OF PHYSICALITY
ARTFULLY BLEND THE PHYSICAL WITH THE VIRTUAL

THE **BUTTONS** ARE DESIGNED TO FEEL **RESPONSIVE** AND AS **PHYSICAL** AS POSSIBLE ON A FLAT TOUCHSCREEN -- HENCE THEIR ANIMATED EXPANSION: AS IF PRESSING SOMEHOW **FLATTENS** THEM.

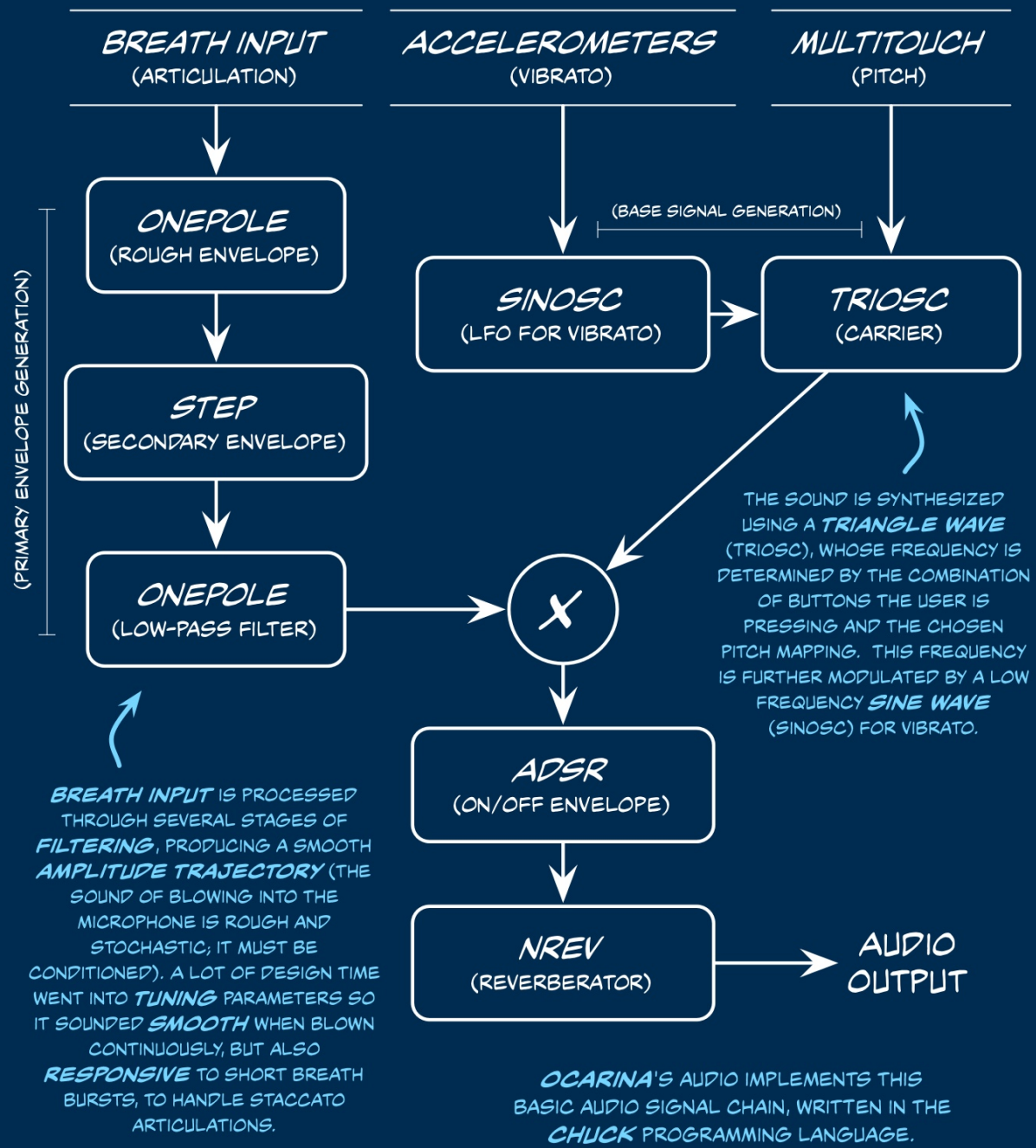


TRANSLUCENT **GREEN WAVES** SMOOTHLY WASH OVER THE SCREEN IN RESPONSE TO **BREATH** BLOWN TO PLAY THE INSTRUMENT. THEY LOOSELY REPRESENT SOUND WAVES AND THE EXCITATION OF THE INSTRUMENT. THEY ALSO SIGNIFY A **TRANSFORMATION** FROM THE **PHYSICAL** TO THE **VIRTUAL**.



THE SOUND OF **OCARINA** IS **GENERATED** IN REAL TIME, USING A SET OF AUDIO SIGNAL PROCESSING ELEMENTS, CONTROLLED FROM INPUT FROM THE MICROPHONE, ACCELEROMETERS, AND TOUCHSCREEN!

THIS IS A **BLUEPRINT PAGE**. YOU'LL FIND OTHERS LIKE IT SPRINKLED THROUGHOUT, CONTAINING **CODE** AND DOMAIN-SPECIFIC **TECHNICAL** INFORMATION.

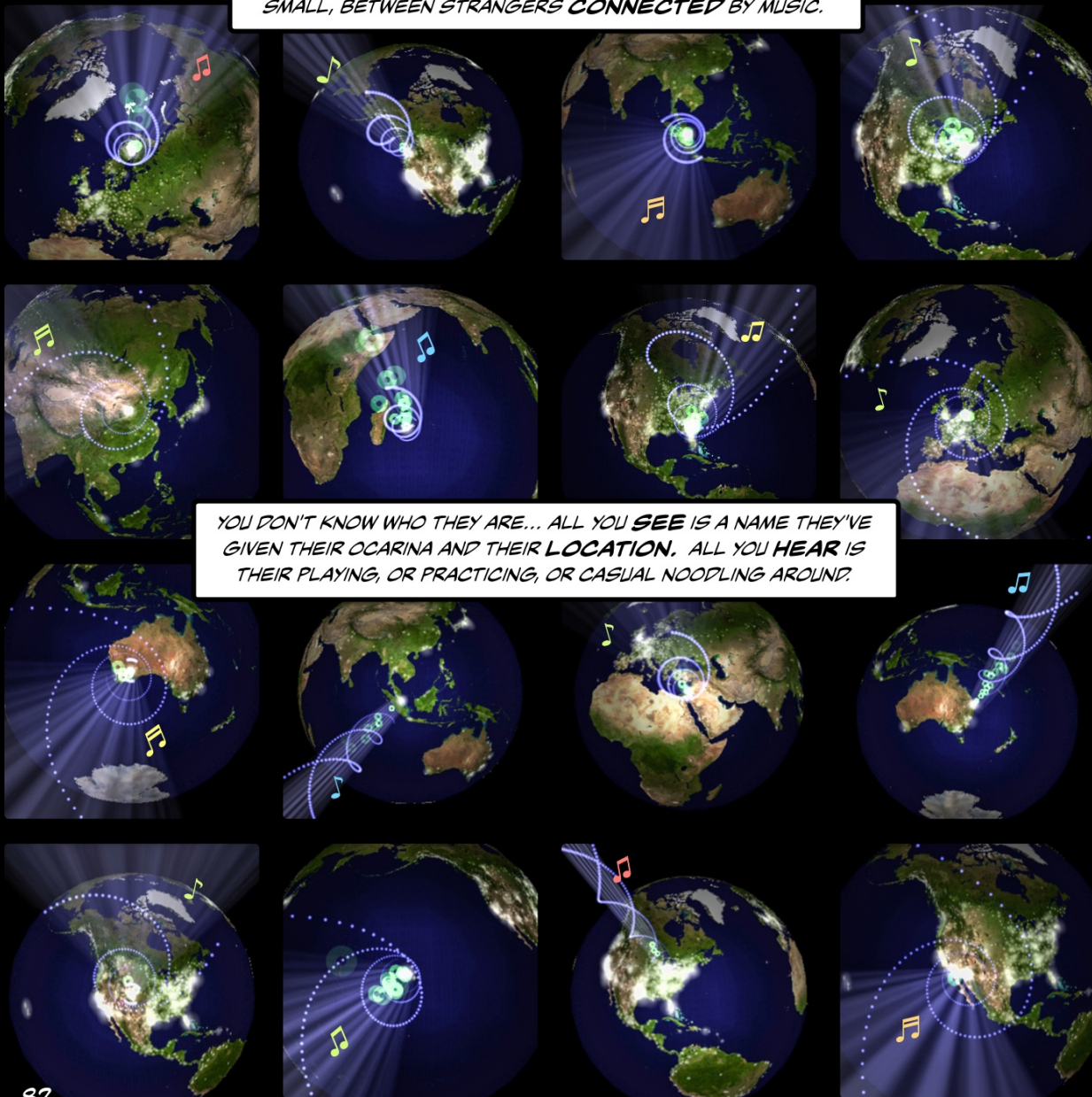


OCARINA HAS ANOTHER DIMENSION THAT GOES BEYOND AN EXPRESSIVE TOY -- A SORT OF WINDOW TO THE WORLD...

...WHERE YOU LISTEN IN AS OTHERS PLAY OCARINA FROM ANOTHER CORNER OF THE WORLD...

...DESIGNED TO PROVIDE A SENSE OF WONDER, HOWEVER SMALL, BETWEEN STRANGERS CONNECTED BY MUSIC.

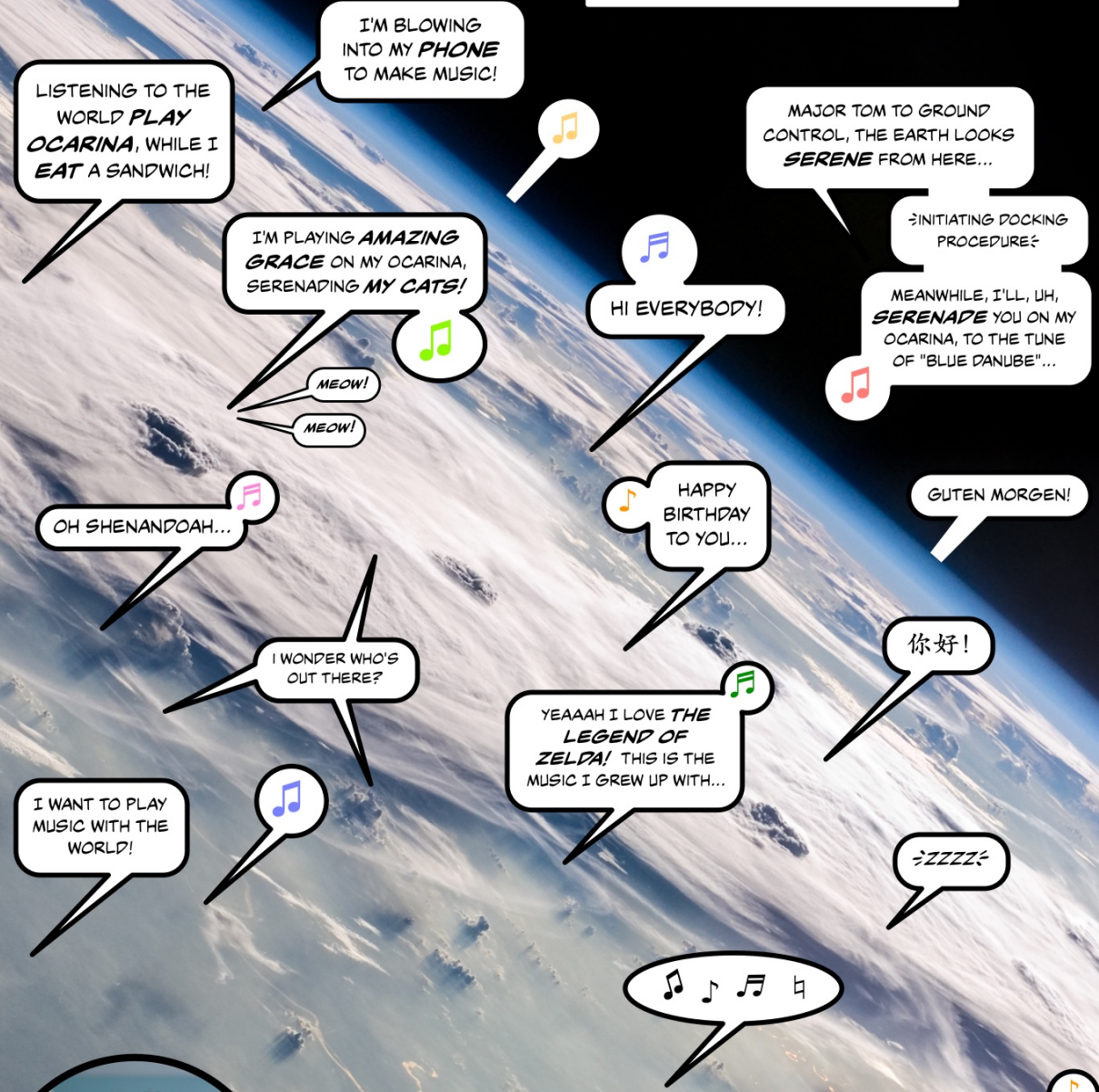
YOU DON'T KNOW WHO THEY ARE... ALL YOU SEE IS A NAME THEY'VE GIVEN THEIR OCARINA AND THEIR LOCATION. ALL YOU HEAR IS THEIR PLAYING, OR PRACTICING, OR CASUAL NOODLING AROUND.



OCARINA MAY BE THE FIRST INSTRUMENT THAT LETS ITS PLAYERS LISTEN TO ONE ANOTHER PLAYING AROUND THE WORLD...

...A SMALL BUT AUTHENTIC SENSE OF CONNECTION, THAT THERE IS "SOMEONE, SOMEWHERE OUT THERE"... ALSO DOING WHAT YOU ARE DOING.

IT MAKES YOU WONDER WHAT PEOPLE ARE UP TO RIGHT NOW...



LISTENING TO THE WORLD PLAY OCARINA, WHILE I EAT A SANDWICH!

I'M BLOWING INTO MY PHONE TO MAKE MUSIC!

I'M PLAYING AMAZING GRACE ON MY OCARINA, SERENADING MY CATS!

MEOW!
MEOW!

MAJOR TOM TO GROUND CONTROL, THE EARTH LOOKS SERENE FROM HERE...

INITIATING DOCKING PROCEDURES

MEANWHILE, I'LL, UH, SERENADE YOU ON MY OCARINA, TO THE TUNE OF "BLUE DANUBE"...

HI EVERYBODY!

HAPPY BIRTHDAY TO YOU...

GUTEN MORGEN!

OH SHENANDOAH...

I WONDER WHO'S OUT THERE?

你好!

YEAH I LOVE THE LEGEND OF ZELDA! THIS IS THE MUSIC I GREW UP WITH...

I WANT TO PLAY MUSIC WITH THE WORLD!

ZZZZZ



PERHAPS AS A NOD TO MARK WEISER'S VISION, THERE IS SOMETHING CALMING ABOUT LISTENING TO THE WORLD PLAY, AS IF WE ARE FLOATING AMONG THE STARS AND LOOKING BACK ON OUR HOMEWORLD...

JINGLE BELLS, JINGLE BELLS...



OCARINA'S GLOBE AIMS FOR A KIND OF **TRANSPORTIVE** EXPERIENCE, SOMETHING BEYOND WHAT A TRADITIONAL OCARINA COULD DO...

THROUGH TECHNOLOGY, **OCARINA** ASPIRES TO SOMETHING **HUMAN** THAT **ISN'T ABOUT TECHNOLOGY AT ALL.**

YOU LISTEN TO THE WORLD, ONE PERSON AT A TIME, THE SOUND REPRODUCED WITH CLARITY, LIKE A SMALL VOICE.

A **LIGHT COLUMN** INDICATES THE **LOCATION** WHERE THE MUSIC COMES FROM.

IT COMES FROM A FEW SECONDS AGO, OR ANOTHER TIME IN THE RECENT PAST.

TWO STREAMS OF BLUE PARTICLES **SPIRAL** OUT OF THE EARTH IN A **DNA-LIKE DOUBLE HELIX.**

EACH NOTE BECOMES A **GREEN CIRCLE** FLOATING INTO THE STARS...

THERE IS SOMETHING OF THE **UNIVERSAL** IN THE WAY IT MAKES YOU FEEL **LONELY** AND **CONNECTED** AT THE SAME TIME...

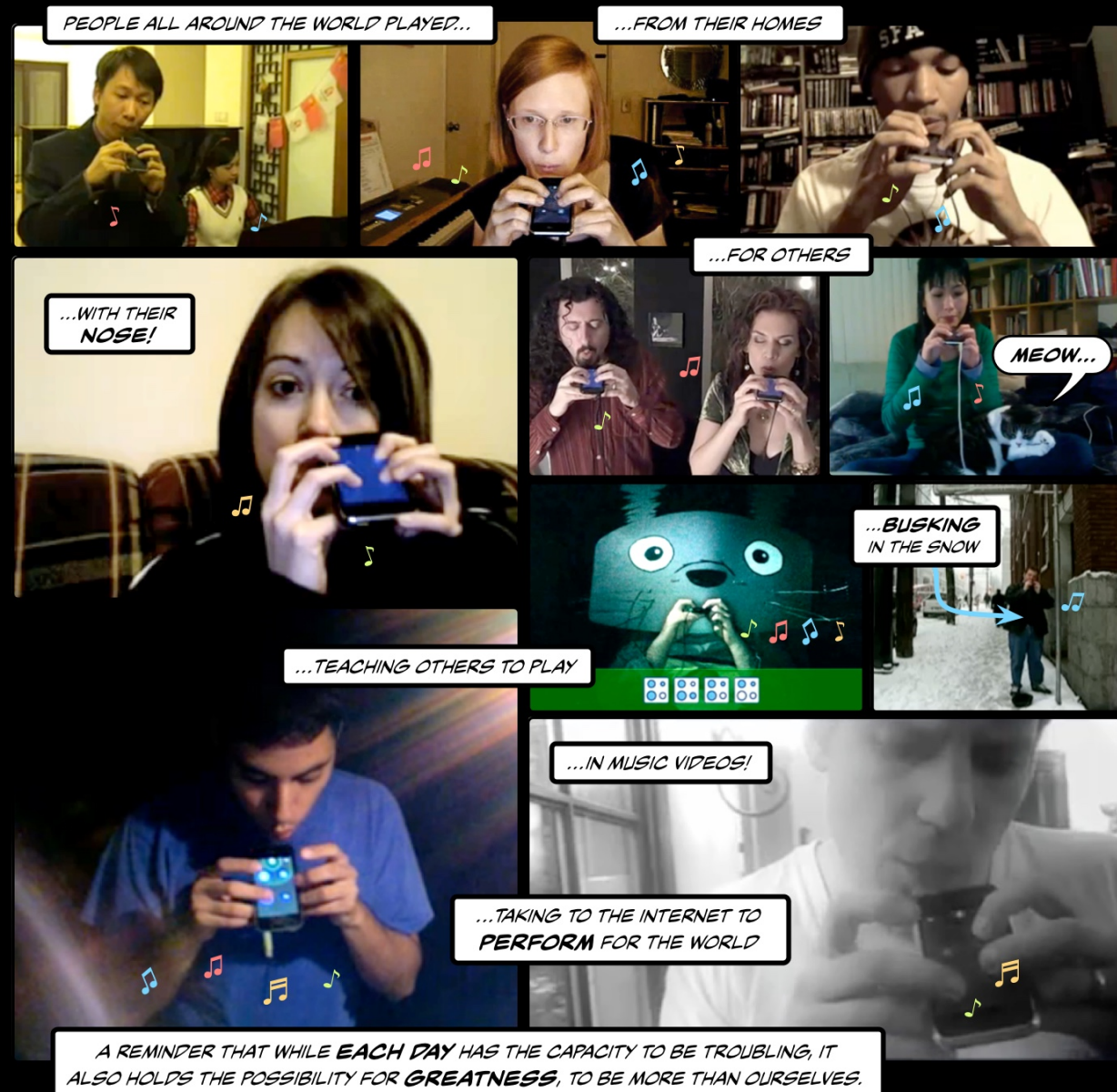


PRINCIPLE 2.5

DESIGN WITH TECHNOLOGY, TO TRANSCEND TECHNOLOGY



MORE THAN **2 BILLION** BREATHS HAVE BEEN BLOWN INTO **OCARINA.**



PEOPLE ALL AROUND THE WORLD PLAYED...

...FROM THEIR HOMES

...FOR OTHERS

...WITH THEIR NOSE!

MEOW...

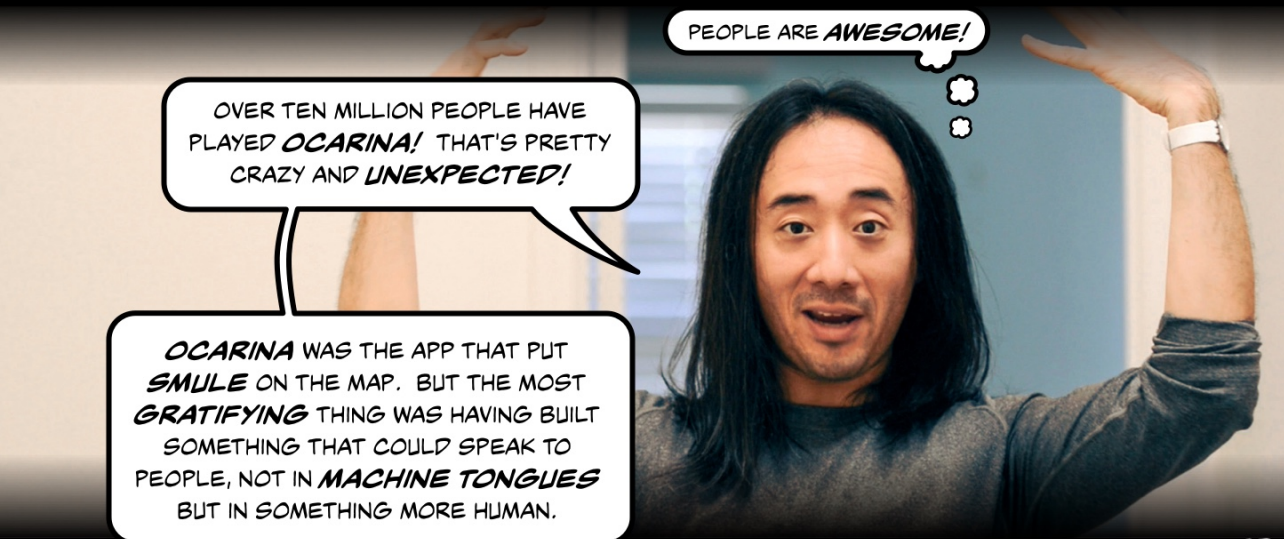
...BUSKING IN THE SNOW

...TEACHING OTHERS TO PLAY

...IN MUSIC VIDEOS!

...TAKING TO THE INTERNET TO PERFORM FOR THE WORLD

A REMINDER THAT WHILE **EACH DAY** HAS THE CAPACITY TO BE TROUBLING, IT ALSO HOLDS THE POSSIBILITY FOR **GREATNESS**, TO BE MORE THAN OURSELVES.



PEOPLE ARE **AWESOME!**

OVER TEN MILLION PEOPLE HAVE PLAYED **OCARINA!** THAT'S PRETTY CRAZY AND **UNEXPECTED!**

OCARINA WAS THE APP THAT PUT **SMULE** ON THE MAP. BUT THE MOST **GRATIFYING** THING WAS HAVING BUILT SOMETHING THAT COULD SPEAK TO PEOPLE, NOT IN **MACHINE TONGUES** BUT IN SOMETHING MORE HUMAN.

I'D LIKE TO THINK, FOR ALL THE **TECHNOLOGY** THAT MADE A THING LIKE **OCARINA** POSSIBLE, THE RESULT WAS **MORE** THAN THE SUM OF ITS PARTS -- REACHING TOWARD THE **HUMAN** AND THE **SUBLIME**...



FROM AN **OCARINA** USER IN 2009

"THIS IS MY PEACE ON EARTH. I AM CURRENTLY DEPLOYED IN IRAQ, AND HELL ON EARTH IS AN EVERYDAY OCCURRENCE. THE FEW NIGHTS I MAY HAVE OFF I AM DEEPLY ENGAGED IN THIS APP. THE **GLOBE** FEATURE THAT LETS YOU HEAR EVERYBODY ELSE IN THE WORLD PLAYING IS THE MOST **CALMING** ART I HAVE EVER BEEN INTRODUCED TO. IT BRINGS THE ENTIRE WORLD TOGETHER WITHOUT POLITICS OR WAR. IT IS THE EXACT OPPOSITE OF MY LIFE."

-- DEPLOYED U.S. SOLDIER

APPS AS **MUSICAL ARTIFACTS** PROVOKE MANY INTERESTING QUESTIONS!

ON CHINA CENTRAL TELEVISION'S SERIES "ONE PERSON, ONE WORLD"...

Y'KNOW, **OCARINA** DEMONSTRATES THAT MUSIC **TRULY** HAS THE POWER TO MOVE PEOPLE, GIVE THEM STRENGTH IN WAYS YOU DON'T EXPECT. AND REGARDLESS OF THE **MEDIUM**!

INDEED!

THAT'S A GOOD QUESTION. I AM TRYING TO FIGURE IT OUT MYSELF...

THESE SOFTWARE **APPS** HAVE TRANSFORMED THE MOBILE PHONE INTO SOMETHING MUCH **MORE** THAN A PHONE. BUT WHAT SHOULD WE MAKE OF SOMETHING LIKE **OCARINA**? IS IT AN **INSTRUMENT**? IS IT A **TOY**?

黄国伦
GUOLUN HUANG
SONGWRITER

陈伟鸿
WEIHONG CHEN
HOST

MAYBE **CLASSIFICATION** ISN'T SO IMPORTANT HERE, BUT I TEND TO THINK OF **OCARINA** AS A TYPE OF **EXPRESSIVE TOY**. LIKE A TOY, IT INVITES **PLAY** AND HAS A LOW BARRIER TO ENTRY. YET IT AFFORDS A KIND OF **EXPRESSIVENESS** ASSOCIATED WITH **INSTRUMENTS**!

I SEE. SO REGARDLESS OF WHAT THESE ARTIFACTS MAY BE, THEY'RE DESIGNED TO ENCOURAGE EVERYDAY PEOPLE TO **MAKE MUSIC**, INCLUDING THOSE WHO OTHERWISE **MIGHT NOT**?

THAT'S THE HOPE. ALTHOUGH I ALSO DESIGN THESE THINGS BECAUSE IT'S FUN AND, AT THE END OF THE DAY, IT'S WHAT I **DO** -- A WAY TO EXPRESS MYSELF.

MAKES SENSE. COMPUTER MUSIC AND DESIGN IS YOUR **ART**!

PRINCIPLE 2.6 TECHNOLOGY SHOULD CREATE CALM

I'M CURIOUS, WHAT DOES YOUR **FAMILY** THINK OF YOUR WORK WITH COMPUTER MUSIC AND APPS? I UNDERSTAND THEY ARE **HERE** TODAY IN THE STUDIO!

I WONDER IF GE IS HUNGRY. HE LOVES TO **EAT!**

AUNT

GRANDMA

DAD

MOM

MY FAMILY IS HERE INDEED! WHEN I WAS WORKING ON **CHUCK** AND MUSIC PROGRAMMING LANGUAGES, I WASN'T SURE IF THEY KNEW WHAT I WAS DOING. AFTER I STARTED DESIGNING MUSIC APPS, WELL, FOR THE FIRST TIME THEY COULD SEE WHAT I WAS BUILDING AND WHY! I'M GLAD... TO BE COMPLETELY HONEST, **I** DON'T KNOW WHAT I'M DOING PRETTY MUCH ALL THE TIME!

与坚持梦想者同行

WILL COMPUTER-BASED INSTRUMENTS SOMEDAY **REPLACE** TRADITIONAL INSTRUMENTS?

I CERTAINLY **HOPE NOT.**

I GET ASKED THAT A LOT! FOR SOME REASON, THAT'S HOW PEOPLE NATURALLY REACT TO THIS SORT OF RESEARCH! IT IS CERTAINLY NOT MY INTENTION TO REPLACE TRADITIONAL INSTRUMENTS! WE ARE **EXPLORERS** -- NOT **DESTROYERS!**

THERE IS A **REASON** WE HAVE SO MANY INSTRUMENTS IN THE WORLD. EACH BRINGS SOMETHING DIFFERENT. FOR EXAMPLE, NOTHING IS GOING TO BE AS GOOD AT BEING A CELLO -- OTHER THAN A CELLO!

WOW, YOUR GRANDMOTHER IS 96 YEARS OLD! HAS SHE PLAYED ANY OF YOUR APPS?

SHE PLAYS **OCARINA!**

HI GE'S FAMILY!

ROCK ON!

YEAH!

THERE SEEMS TO BE A LOT OF **VERSATILITY** WITH COMPUTERS AND MUSIC. SO, HERE IS A QUESTION FOR YOU...

A COMPUTER CAN DO A LOT AND AFFORDS NEW SOUNDS AND INTERACTIONS. BUT IT CANNOT DO EVERYTHING! I AM ALWAYS MORE INTERESTED IN THE **HUMAN** IN THE INTERACTION LOOP. IN DESIGNING THESE COMPUTER MUSIC INSTRUMENTS, THE ETHOS IS TO EMBRACE WHAT COMPUTERS ARE GOOD AT DOING, **RECONCILING** IT WITH WHAT PEOPLE ARE GOOD AT DOING!

I WONDER WHY PEOPLE THINK WHAT I DO **THREATENS** TRADITIONAL INSTRUMENTS?

WHAT I AM **TRYING** TO DO WITH **OCARINA** AND COMPUTER MUSIC DESIGN IS TO **ADD** TO THE MUSICAL ECOSYSTEM, TO FIND **RECOMBINANT** WAYS TO RECONCILE FAMILIAR ELEMENTS WITH NEW **EXPERIENCES!** I MEAN, IT'S NOT LIKE THERE IS AN UPPER LIMIT TO HOW MUCH MUSIC CAN BE MADE IN THE WORLD, BEYOND WHICH WE'D SAY "OH, THAT'S TOO MUCH. STOP!" INSTEAD, I BELIEVE WE CAN ALWAYS **MAKE MORE**; MOST CERTAINLY WE ARE **NOT** MAKING ENOUGH...

EXPAND ON THAT!

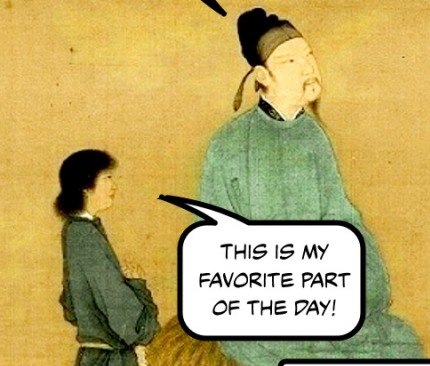
WELL, WHEN DESIGNING WITH NEW TECHNOLOGY, IT'S A GOOD IDEA AND A RESPONSIBLE THING TO **STEP BACK** AND EXAMINE WHAT IS **GAINED**, AND WHAT IS **LOST**.



MUSIC IS NOT AN **ESOTERIC** PHENOMENON. HUMANS, ACROSS ALL CULTURES, HAVE BEEN PLAYING MUSIC FOR THOUSANDS OF YEARS! THEY'VE USUALLY TAKEN ADVANTAGE OF THE **TECHNOLOGY** OF THEIR TIMES, LONG BEFORE MODERN TECHNOLOGY OR EVEN HOUSEHOLD ELECTRICITY...

FROM THE FAR EAST...

SO PEACEFUL THE AIR, SO CONTEMPLATIVE THE MUSIC...



THIS IS MY FAVORITE PART OF THE DAY!



THIS **ZITHER** SPEAKS A LANGUAGE OF ITS OWN...

♪♪♪

Y'KNOW WHAT WOULD MAKE THIS EVEN MORE AWESOME? SOME **SNACKS!**

TO THE WESTERN WORLD...

SOME WILL **WIN...**



SOME WILL **LOSE...**

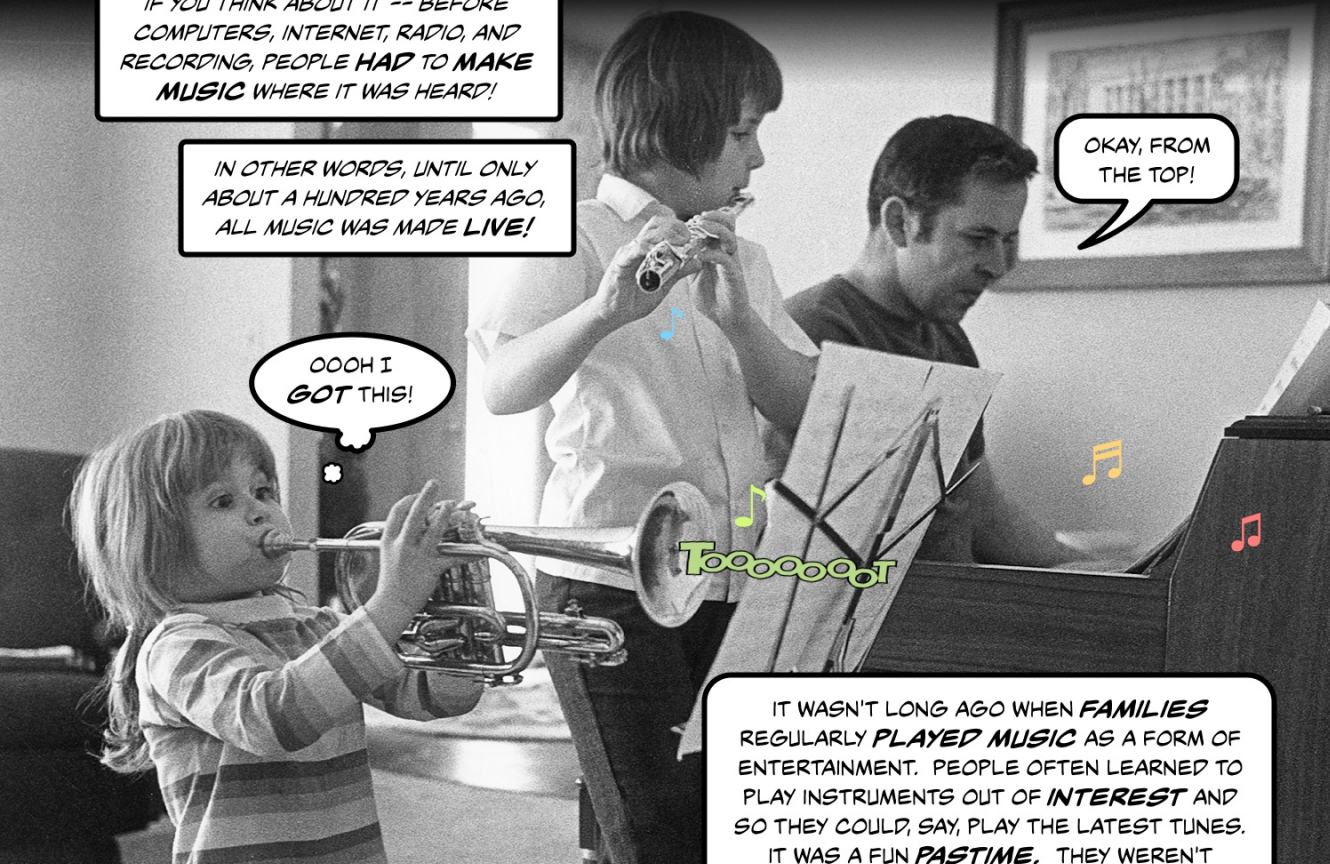
...SOME WERE **BORN TO SING THE BLUES!**

IF YOU THINK ABOUT IT -- BEFORE **COMPUTERS, INTERNET, RADIO, AND RECORDING**, PEOPLE **HAD TO MAKE MUSIC** WHERE IT WAS HEARD!

IN OTHER WORDS, UNTIL ONLY ABOUT A HUNDRED YEARS AGO, ALL MUSIC WAS **MADE LIVE!**

OKAY, FROM THE TOP!

OOOH I GOT THIS!



Tooooooot

IT WASN'T LONG AGO WHEN **FAMILIES** REGULARLY **PLAYED MUSIC** AS A FORM OF ENTERTAINMENT. PEOPLE OFTEN LEARNED TO PLAY INSTRUMENTS OUT OF **INTEREST** AND SO THEY COULD, SAY, PLAY THE LATEST TUNES. IT WAS A FUN **PASTIME**. THEY WEREN'T DOING IT TO "GO PRO" BUT DID IT FOR THEMSELVES, THE PEOPLE AROUND THEM, AND FOR THE JOY OF MAKING MUSIC **SOCIALLY**.

Y'KNOW, IT'S **FASCINATING!** THERE WAS A TIME WHEN THE WORD **AMATEUR** CONNOTED SOMETHING WHOLLY **GOOD!** IT MEANT YOU **LOVED** SOMETHING, LIKE AN INSTRUMENT, ENOUGH TO LEARN IT FOR YOURSELF.

WORD
AMATEUR
= FROM LATIN
AMATOR



AMONG OTHER THINGS, **AMATEUR** MUSICIANSHIP IS ABOUT **PERSONAL ENRICHMENT**, **ACTIVELY** ENGAGING WITH OUR FAVORITE MUSIC, GETTING OUR HANDS DIRTY TO MAKE MUSIC -- LIKE PLAYING UKULELE IN THE PARK, OR SINGIN' IN THE RAIN!

= **MEANING**
ONE WHO LOVES

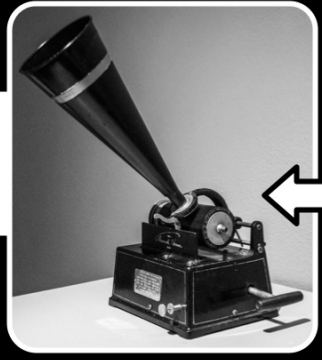
SADLY, THESE FORMS OF MUSIC-MAKING ARE **VANISHING...** I MEAN, HOW MANY FAMILIES TODAY STILL REGULARLY MAKE MUSIC TOGETHER AFTER DINNER?

THE BIRTH OF MASS CONSUMPTION OF MUSIC

SOMEHOW, TECHNOLOGICAL ADVANCEMENTS IN THE 20TH CENTURY CHANGED THE PERSONAL AND SOCIAL DYNAMICS OF MUSIC-MAKING!



SOUND RECORDING:
CAPTURES MUSIC FOR PLAYBACK; PERFORMANCES BECOME TIMELESS



EDISON'S WAX CYLINDER RECORDER / PLAYER!



RADIO:
BROADCASTS MUSIC; VAST DISTANCES NO LONGER AN IMPEDIMENT



PHONOGRAPH



MAGNETIC TAPE

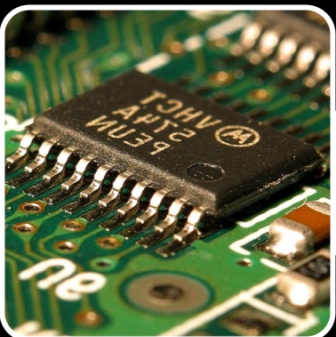
VACUUM TUBE:
ENABLES TECHNOLOGY FOR ANALOG ELECTRONICS, LIKE RECEIVERS AND TELEVISIONS



COMPACT DISC



MP3



DIGITAL COMPUTER:
OFFERS PRISTINE STORAGE, PROCESSING, TRANSMISSION OF MUSIC



THE CLOUD



WHAT'S NEXT?

THE INTERNET:
DISTRIBUTES PERSONALIZED MASS MEDIA, SOCIAL NETWORKING; MUSICAL DATA BECOMES PERVERSIVE, RANDOM-ACCESS, CENTRALIZED IN COMPUTING CLOUDS!

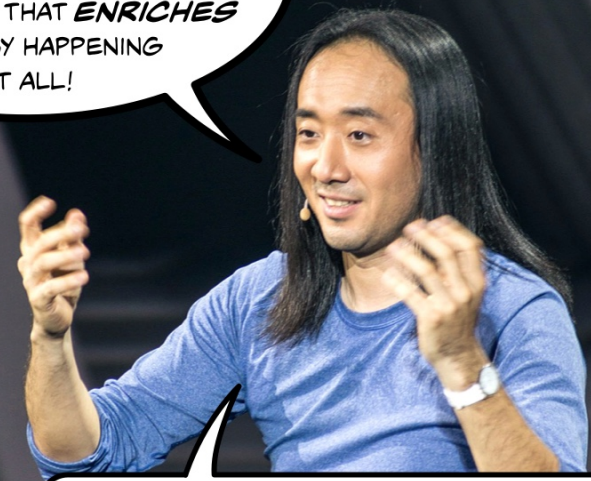


THESE INNOVATIONS HAVE ALTERED THE RELATIONSHIP BETWEEN PEOPLE AND MUSIC -- FOR BETTER AND FOR WORSE -- AS SIDE EFFECTS OF THE EVOLUTION OF TECHNOLOGY...

WE NOW HAVE MORE ACCESS TO MUSIC THAN EVER BEFORE, AS LISTENERS AND CONSUMERS!

YET SOMEHOW I FEEL WE ARE MAKING LESS MUSIC THAN EVER.

THAT'S A SHAME, BECAUSE WHILE LISTENING TO MUSIC IS WONDERFUL, THERE IS A SUBLIME JOY IN MAKING MUSIC -- AN ACTIVITY THAT ENRICHES SIMPLY BY HAPPENING AT ALL!



HAS TECHNOLOGY MADE IT SO EASY TO CONSUME MUSIC THAT IT NO LONGER SEEMS NECESSARY TO MAKE IT? HAS SUPER-READY ACCESS TO VAST LIBRARIES OF HIGH-QUALITY RECORDINGS OF VIRTUOSI SOMEHOW INTIMIDATED OR CURBED OUR DESIRE TO MAKE MUSIC FOR OURSELVES?

MANY PEOPLE'S FIRST REACTION IS THAT BY DELVING INTO COMPUTER-BASED INSTRUMENTS, PEOPLE LIKE ME ARE THREATENING TRADITIONAL MUSICAL INSTRUMENTS AND PRACTICES. HOWEVER, THE INCONVENIENT TRUTH IS THAT MUSIC-MAKING IS CONSTANTLY BEING THREATENED, NOT BY COMPUTER MUSIC RESEARCH BUT RATHER BY THE COUNTLESS "DISTRACTIONS" ENABLED BY MODERN TECHNOLOGY: TELEVISION, STREAMING VIDEO, INTERNET, VIDEO GAMES, ETC. THERE IS NOTHING INHERENTLY WRONG WITH THESE ACTIVITIES, BUT THEY DO ADD UP AND OCCUPY OUR TIME! IT IS SO MUCH EASIER TO CONSUME THESE FORMS OF MASS MEDIA THAN TO, SAY, LEARN TO PLAY AN INSTRUMENT!

I WANT TO CHALLENGE THIS TREND! IF TECHNOLOGY UNWITTINGLY TOOK AWAY AMATEUR MUSICIANSHIP, PERHAPS WE CAN USE TECHNOLOGY TO BRING IT BACK, IN THE CONTEXT OF TODAY'S WORLD.

NICHOLAS COOK, MUSIC FACULTY AT THE UNIVERSITY OF CAMBRIDGE, WRITES...



"MUSIC HAS BECOME PART OF AN AESTHETIC ECONOMY DEFINED BY THE PASSIVE AND INCREASINGLY PRIVATE CONSUMPTION OF COMMODIFIED PRODUCTS RATHER THAN THROUGH THE ACTIVE, SOCIAL PROCESSES OF PARTICIPATORY PERFORMANCE.

IN SHORT, WE SEEM TO HAVE FORGOTTEN THAT MUSIC IS A PERFORMANCE ART AT ALL, AND MORE THAN THAT, WE SEEM TO HAVE CONCEPTUALIZED IT IN SUCH A WAY THAT WE COULD HARDLY THINK OF IT THAT WAY EVEN IF WE WANTED TO..."

-- NICHOLAS COOK

I THINK THERE ARE TWO REASONS WHY I DO WHAT I DO. THE FIRST IS TO DESIGN MUSICAL ARTIFACTS, TO TAKE US BACK TO A PAST OF PERSONAL MUSICAL PERFORMANCE BY TAKING ADVANTAGE OF TECHNOLOGY, AS A CELEBRATION OF MUSIC! I WANT FOR US TO RECLAIM A SENSE OF PLAYFULNESS IN MAKING MUSIC, TO GET PEOPLE TO PLAY MORE MUSIC!

MUSIC-MAKING IS REALLY LIKE THE JOY OF COOKING YOUR OWN FOOD. MOST OF US WHO COOK AREN'T DOING IT TO BE PROFESSIONAL CHEFS, BUT WE ENJOY IT NONETHELESS! IF MUSIC IS FOOD FOR THE EAR AND SOUL -- WHY AREN'T WE COOKING MORE MUSIC FOR OURSELVES?!

THIS GUY SURE LOVES TO TALK ABOUT FOOD... MAKIN' ME HUNGRY!

A SECOND GOAL IN MY WORK IS TO LOOK TO THE FUTURE, TO DESIGN AND CREATE SOMETHING THAT SIMPLY HAS NOT BEEN POSSIBLE WITHOUT TECHNOLOGY... TO EXPLORE WHAT NEW MUSICAL THINGS AND EXPERIENCES AWAIT DISCOVERY, THAT WE DON'T YET HAVE NAMES FOR, THAT DEFY CLASSIFICATION. MIGHT WE CREATE INSTRUMENTS TO BE PLAYED BY A MILLION STRANGERS ACROSS THE WORLD? WHAT WOULD THAT SOUND LIKE? HOW WOULD IT FEEL TO BE A PART OF THAT?

I THINK I SEE WHAT YOU ARE TRYING TO DO!



I BECAME A SONGWRITER AND SINGER BECAUSE I WAS FOLLOWING MY INTERESTS IN MUSIC. I SEE YOU HAVE ALSO FOLLOWED YOUR INTERESTS IN DESIGN. I WONDER WHERE THESE INTERESTS WILL TAKE US...

YES! AND HOPEFULLY IT WILL BE A FUTURE THAT EMBRACES VARIED WAYS OF MAKING MUSIC, NEW AND TRADITIONAL ALIKE! TECHNOLOGY WILL EVOLVE -- WHAT'S MODERN TODAY SHALL BECOME ANTIQUATED TOMORROW -- BUT THE CORE HUMAN DESIRE TO EXPRESS WILL STILL BE HERE. THROUGH ARTFUL FASHIONING OF TECHNOLOGY, WE WILL SEEK OUT NEW THINGS TO SEE, HEAR, INTERACT WITH -- TO THINK AND FEEL WITH. THE INSTRUMENT MAY LOOK AND SOUND DIFFERENT, BUT THE SONG REMAINS THE SAME. MUSIC IS STILL MUSIC, REGARDLESS OF THE MEDIUM. AS THE ANTHEM GOES, "ROCK 'N' ROLL IS HERE TO STAY!"

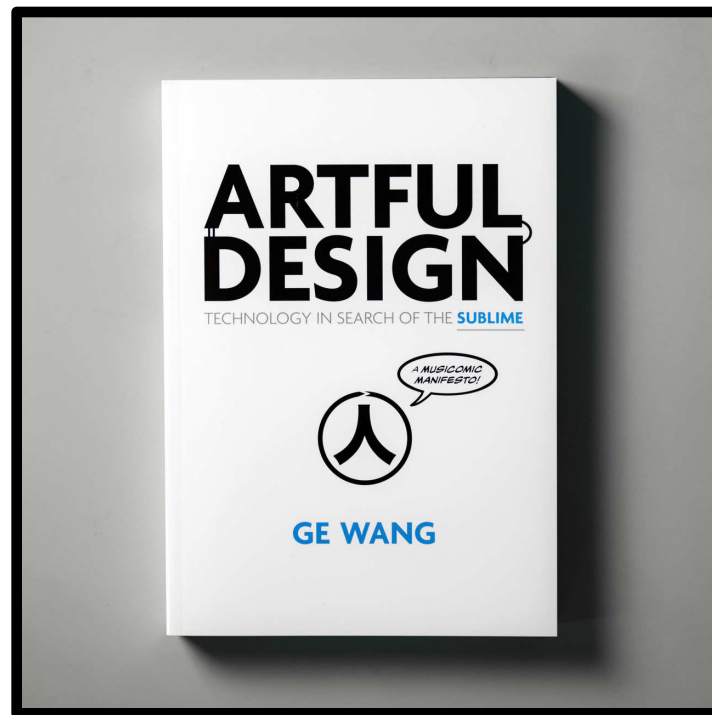
...I FEEL WE ARE HEADING INTO A NEW ERA OF MUSIC AND FUTURE MUSICAL EXPERIENCES! IT SEEMS WE ARE ONLY AT THE BEGINNING. MUSIC AND TECHNOLOGY WILL CONTINUE TO CO-EVOLVE!

AND IF MUSIC IS -- AS YOU SAY -- FOOD FOR THE SOUL, HOPEFULLY COMPUTERS WILL ADD TO THE MENU AND PALETTE!

THANK YOU FOR BEING ON "ONE PERSON, ONE WORLD"!

THANK YOU FOR HAVING ME!





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