

# Kotlin likes to Demoparty

# Etienne Caron

@kanawish

KotlinConf'23

Amsterdam



# **Kotlin Likes to Demoparty**

An exploration of the Demoscene computer art subculture, using Kotlin.

Etienne Caron, 2023

# Early History

NGS TO ALL TH

AHHH GREETINX OF COURSE TO ALL OUR M



# Abnormal, Razor 1911 and The Cartel COPY PARTY



We start the 7th of October 11 A.M. and we stop the 9th of October at 6 P.M.  
This is in the Norwegian Autumn Weekend.

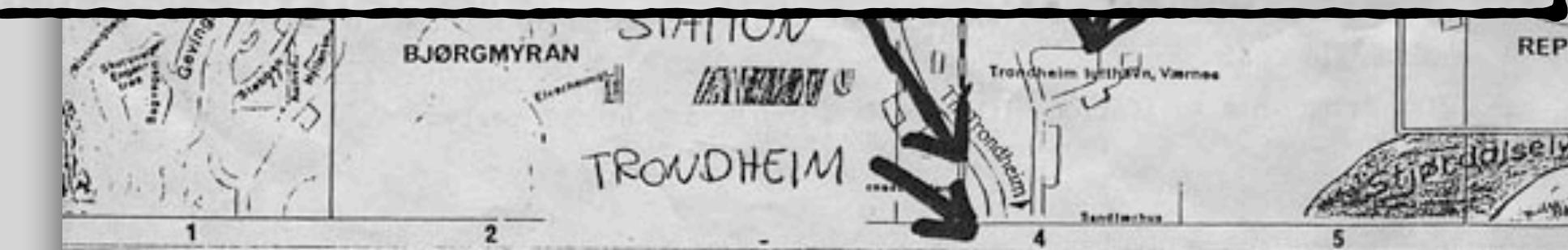
The party will take place in a big school building. The school is 3-400 metres away from Stjørdal centrum so there will be no problem for you to get food, Coke etc. We will copy, hack, crack, code etc. in a big hall, and if you bring a sleeping bag you can sleep rather peacefull in a classroom.

Bring with you your Amiga or C64 and nessesary equipment if you are able to. Remember to bring with you the nessesary cables because we don't have very many extra.

For more information then get RAZOR's Party info on Amiga or Abnormal's party-demo on the C64.

NOTE: Bring this invitation with you when you arrive at our party.

Signed: .....  
.....



Here is our phone numbers:

Doctor No/RAZOR 1911 : 47-(0)7-825694 (Runar)  
Sector 9/RAZOR 1911 : 47-(0)7-805252 (Kjetil)  
PAB/The Cartel : 47-(0)7-825727 (Pål Arne)  
ZTH/Abnormal : 47-(0)76-75771 (Håvar)



## Stjørdals-lensmann på copy-spaning: **POLITI-PANIKK PÅ PARTYET!**

**Norsk Dator's Johnny**  
Niska traff onkel politi på copy-party i Stjørdal.  
Han var en av de få som ikke fikk hjertet i halsen da lensmannsbetjent Nils Ståle Stammes entret lokalene. Men over 20 andre stakk på røde rappet...

Mens man minst frykter dat, dukket vel alles kogn i Østerdalen opp. Hell uten forvarsel kom et overveldende høyremonopol fra politiet.

— Pyttetakkem, jeg trodde ikke dette var mulig i Norge, utbrøt en av gutta.

— Salut! er den at vi har mistat en anmeldelse om en av de norske programmene importert fra USA? Det er bedre om å gjøre oppe for oss på en annen måte, fortalte noen brudd på «Løren om opphavsrett» eller «Copyright-loven». Denne beskjeden fikk arrangementet fra konstabellen Jon Ståle Stammes.

Det var tilstil panikk i salen da de forskjellige gruppene ble informert om hendelsen. Det var ikke bare programmet som var i spørsmål, men også teknologien bak overveldende høyremonopolen.

— Det var litt til panikk i salen da de forskjellige gruppene ble informert om hendelsen. Det var ikke bare programmet som var i spørsmål, men også teknologien bak overveldende høyremonopolen.

Det var ikke hus, ar er utsatt og det andre er ikke. Hva du gjør inn i det ukjent huset og sjekker ute, kan det beslegges som simpelt kvervel.

Bryr du deg dermed inn i det ukjente huset og bekjemper godt høyremonopolen? Dette først det finnes en teknisk løsning som du foretar. Dermed kan også det som nemner kopibeskyttelsen på et program kan vises strengere når det er som tar en kopi av det. Såg av tekniske løsninger og manueller betegnelse som høyre, og teknologi.

Det er imidlertid lov på en ganske alltidig og avslagdig representant for programmet:

— Dette lar vi med oss jo. Vi kan ikke ta ansvar for at det kan forsvinne på teknologien her. Dette kan sammenligne med en offentlig test hvor mange teknikere lydermonopolen, men ikke at man lettvis blir jo sjeldent stortset av den grunn. Hvis program skal endres til eksemplar, er ikke dette nitti stedet å starte på?

— Når det gjelder teknologien er det to typisk tilgang: A sørge og forsikrings overvakt, i alle situasjoner. Eksemplik vilde du alltid finne en cas på skjerm og er vant til å få fotostikkopier av artikler, sider av bøker og avskrift av mye av dette er usiglig kopiering.

— Jeg vil bare si at det ikke kommer, eller kommer, kopiering av programvare ikke.

De av gruppene som bruker programmer gjer det ikke på grun av et personlig, de ser det som en stor personlig tilfredsstillelse og vurdering. Tenk på all den kompetansen de opparbeider seg for hun hører til... Men så mangt bruk av teknologi er ikke det en del av teknologi som også din egen ressursar. Dette fører til at det blir brukt og bedre programmer som misserdet. Det er jo lidenleie...

— Se bare på Atari-markedet i USA, det er helt dodd. Jeg vel overbevist om

**Lensmannsbetjent Nils Ståle Stammes**  
skjuler seg bak en dør under en fotostikkopier i Stjørdal. Loven er klar. Kopiering av spil er forbudt. Men i praktisk ikke politiet gjør noe selv — i hvilken fall ikke annet. Men snart...

at det kommer av at de ikke finner noen brukere igjen som driver på med disse maskinene. Vi kan ikke leve uten vår Commodore-maskin og leverandørene kan ikke leve uten oss.

Rykkes forhånd i løpet i salen:

— Politiet kommer til å ha razzia her, der er helt sikert, sier en person i det han forventer ut døra med at utstyret sitt. Ein lokale besøkte andre for å ha hatt. Temperaturen steg mange høyder i løpet av den tørste halve timen. Noen gikk så langt at den plutselig at politiet hadde kommet.

Og alle med foto-apparat måtte legge

unge seg. Ein anøytt ledde opplyser at grunnen til at enden fikk panikk var at dei fotograf mæsseskoleleire, av videofilmer, ikke vet jeg.

Slik kom beskjeden for andre gang: Politiet er her. Det ble sagt stilla midt av forventede maskinene og til øyeblikket kontrollerte døra opp i lokalen. Nå kan ikke å gjelme unna tiltak og døktene. Andre omtrent sitt som på mykient og bryrhet, dat nolla.

Ta det med ro, vi skal bare sjekke, sier konstabellen Stammes i det han går rundt med skaps i tilkvet. — Hvordan det som skal skje her?

— Vi prøver å unngå, men ikke seg da han ser smilte til Stammes.

Det ble etterhvert nokså typiske forhold mellom eksperimentet og «løvhøyre». — Det er absolutt ikke denne typen ungdom vi har mest i boset med her i Stjørdal, sier Stammes. — Jeg hadde det bestemt meg med at jeg ikke i og med at jeg er vant til at det er ganske mye bråk på slike tilstelninger i ledigleidet. Målet her har hardt betyring til at det settes av. Vi besøvger alle som drar alkohol på offentlig sted, og rekommender 1000 kroner uten pardon. Hva gør politiet i med et party som dette?

— Det er ikke vi kan gjøre på grunn av membranlovsengelen og den kompetanse konflikten dette spesielt omfatter. Jeg ikke besøger fra Innstrøkslag Politikammer på Steinberg om å dra hit ut og informere om lovgivningen, ikke besøksgjøring noe. Hvis det i så falle skulle bli til gjeng, ville det tatt lang tid til å få gjennom all dette. Det finnes juridisk støtting for besøk ved misbruk om konkurrans. Så...

— Det er bare at ungdommen viser til de kantå til noe uten at det skal bli bruk av det, slik fram og en relativt imponer over at er oppdaget med rundt 200 ungdommer som ikke har gjort noe feilt. Det hørde jeg senest ikke venner.

— Ja, sannsynligvis har det ikke har en programvare til dette, men han har en Commodore 64 hjemme i hus. — Men jeg har ikke originale programmer (Det har jeg ikke noe på PC).

I alt godt oppdaget som endte så godt, må ikke et ekstraformål konsekvensen av teknologien ikke være viktig. Bare i Norge ligger programvare-industrien og forhandlere mange millioner kroner i år.

— Vi tar ikke inn noe programvare i henvis til C64 eller Amiga, ster en noe oppgitt forståelse på teknologien. — Det er overhodet ikke nest vesst å passe, vi selger ikke programvare, og i følge os er døra her ikke teknologien. Det er ikke teknologien som bedre teknologitilgang eller programvare som er bilige nok til å holde kjøper dem stedet for å printekopiere.

Det står også sakten. Og hva kommer til å seje? Kommer Norges og verdenes Commodore-fans til å oppfatte si programvarehusene på korn, eller grønne i løkken? I løkken? Og hvordan kan teknologien virke? Hvordan er teknologien teknologien i teknologien og teknologien i teknologien? (Se sentens på siste sida om at det kan oppmuntre til mindre kokeking?)

Den som laver måste. Det kan vinne som om det er «dem elle os»-programvarehusene eller teknologien. Men det verken er at det er teknologien av henvendt. Det er ikke teknologien.

Kan partene samarbeide?

Norsk Dator: Johnny.

Lensmannsbetjent Nils Ståle Stammes skjuler seg bak en dør under en fotostikkopier i Stjørdal. Loven er klar. Kopiering av spil er forbudt. Men i praktisk ikke politiet gjør noe selv — i hvilken fall ikke annet. Men snart...

**Abonnement?  
Se baksiden.**



**NORSK DATOR** C 64/128/Amiga  
COMMODORE Magazin Nr 1/14  
3 årgang

**Nyhet!**  
56 sider  
på norsk & svensk!

**NORSK COPY-PARTY POLITIET på plass...**

**Avsløring:**  
**NYTT NORSK SUPER-VIRUS!**

**Amidi:**  
**BERANEK PÅ AMIGA!**

**Mercedes Benz**

**Se bildene:**  
**NORSK SUPER-DESIGN PÅ AMIGA**

**PLUSS:** Tester, nye spill, leser-annonser, brev, og mye, mye mer!

## CRACKER SPECIAL

Se bildene fra Stjørdals sterke copy-treff:  
**COPY-PARTY MED DIMENSJONER!**

Razor hadde en viss deler på Amigaen, ikke så vidt avmerket, men meget takket på skjerm.

Det var ikke noe i ordet å komme inn i løpet, etter koden i ordet ikke kan mer? Det var ikke godt å si, men moro var det i hvert fall. Foto: Brynild Høyseth på demonstrasjonen, og ikke på stemmings.

E. C. Data bryggen avde høyt på Amiga - og ikke bare i løpet. Men det var et stort overhodet.

Det svingte i Stjørdal 7 - 9. oktober. Da ble nemlig det største og beste copy-party i manns minne arrangert på Hals ungdomsskole. Full fart og en viss orden i kassetten, og sondag kveld var hele Europas venner invitert til overtredte deltakere. Til og med politiet var på plass...

A mange av deltakere var godt representert fra hele Norge, svært mange var godt representert, og vi ventet forsverd på noen tyske og danske grupper som ikke kom. De øner ikke hva de gikk gjennom av.

Arrangementet gjorde stor fornøyelse og god jobb, godt hjelpt av skolen. Kjeller-lokalene hadde de blitt lærne gratis, og to klasserom var leid ut til 300 kroner natten.

Godt over 150 stikkjer fra omkring 35 grupper var mer eller mindre til stede i lokale, som etter hvert fikk en rekord tell.

Moskiskoder på en 2-kommersiell maskin er ikke for amatører og næringstilhørere. Når ganger kom nes i været for teknologi...

atmosfæren. Selv om nøykling var forbudt, fikk løshorn etterhvert preg av en ubestemt masser, og deltakerne tok jernige turer med ordene for å snape inn de teknologiene som var.

Det ble ikke diktatisert at alle som var med måtte ha et teknisk bakgrunn, men ingen klager. Men var du trost alt ikke kommet for å dogne seg på et hotel hotell...

Hva skjedde når oppfil 50 C64 og Amiga var koblet til en stikk-kontakt, og en høy oppfil komme på å bruke kaffen? Svar: «The Fuse Blasters» var en realitet. Sjekk også en komisk oppfølging på et annet bilde. Og, mange linjer programmen subliminer ut i det etter innet. Stabilisering, nogenlunde, men få sure minner ble eksplorert. Eller noen Lykkelamer fra det lokale bruksparten var det bare å ståte på mytt igjen, etter en aldri så liten omorganisering av el-spaghetti som flett over alt.

Drap ja. Noen på høyt nivå, i moderne former. Svenskene hadde også vært utroligende nok til å berike koffein-tabletter for å holde ut krevende og matlagende. Det var ikke absolut trenget.

Som de fleste vet, er det ikke bare teknologi som er interessant. Det var også crackede spil som mangfoldigget over en lav pris, og uten skjærer. Hukk for skulle de ikke det?

Svaret kom på lørdag. Da dukket nemlig lønnsmannsbegjæret Knut Arne Ørsen opp, i full munning, og gav klar beskjed:

– Vi vet at det følger ulovlig kopiering av programmer her, og det skal vi ikke ha noe av. Og vi kommer tilbake og sjekke, så en pålitelig informasjon, som selv ikke har en C64 hjemme.

Beklager unntak til dette når som helst. En eller annen imidlertid still-forsvarende hadde fått trusset i partiet, og nint opp ekonominominatør ved krimmen på Oslo bystokk. Øversikt ringte krimmen til Stensjø ungdomsskole, som igjen ringte til Sørøst lønnsmannskontoret – Ta dem en tur til Hals ungdomsskole, sekk høymønster, og gi dem en advarsrel.

Panikkken ble kompletta da lønnsmannsbegjæret Nils Ståle Stennes vant lokavlene for forstørrelse. Et tydelig hukk til det meget invadert med 8 passende sammenstyrket, det var ikke overrasket.

Under nærmere omstørtingen fra gjort noe som nevet, de har verken økonomisk eller teknisk kapasitet til det. Og for oss andre visste der seg at Stennes selv hadde en 84-sylinder "jernmote". Åh, ja! Han var han en meget hyggelig ker.

Selv da han kom for senen på gang, ble det stor aktivitet i lokale. Mange delte disketter som gave, og cuttet dem under bordet, i kofferten, ja, over alt. Hukk de vært spesielle, ville de gitt ned på hoyvart.

Men, taik alarm igjen. Det var bare en liten høytliggende visit, og Norsk Datormagasin fikk lett lokasjons begivelse. Etter hvert ble det rent ut god stemning mellom parrene, og alt var trygt og gøy, men, noe biljet på forsiden berode.

En rimelig ferdiapp kostet det å være med på invitasjon, og neste meidag sendig ettermiddag var et det aller mest hadde vært veldig godt. Nøen vissttilt vendeoverved siden av sveipspilet, og andre sevriga spiller valket med tog og fy.

De modige og like høye arrangementene kunne se fram til en real oppføring, men var ikkeje ikke inntimmede for et myt dary vist en senere anledning. Det så ut til å bli et lite overskudd av hukk også.

Men pens på Nøsen gang er det ikke sikret at politiet kommer med en så liten og hyggelig stryk. På kontinentet legges de håndjem på 14-åringene og beveglegge utsly for Husvener i løpet...

Demo-konkurransen ble omstilt avviklet utpå lørdagskvarta, med Norsk Datormagasin. Kurt Leivangen som midt-dominer. Som ventet ble det Rowhead som gikk av med seieren i C64-klassen, blant annet med en ny bilde-eindr.

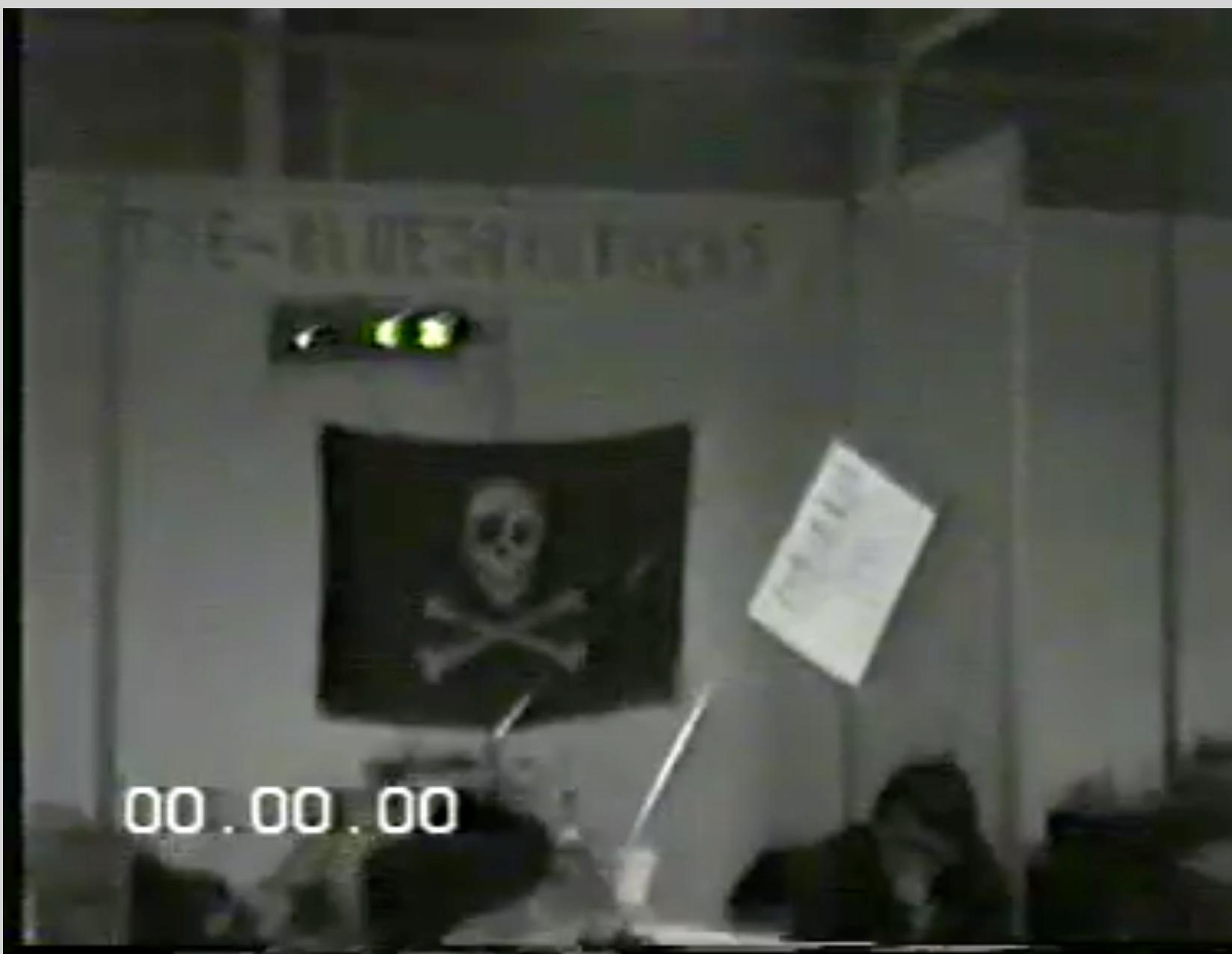
– Bare sett jeg har vært på, var sjømannsgangstoen blant de fleste. Kurt sagt. Alle var enige om at det var en fin må...

**DEMO-RESULTATENE:**  
Se alle resultaten av demo-konkurransen på partyst i Stjørdal:  
**AMIGA-DEMOS:**  
1: The Areobird Team  
2: Cryptoburner  
3: Quicksilver  
**C64-DEMOS:**  
1: Rowhead (Parhysqueezeeber 5)  
2: Rowhead (Pimpinoloseeber 5)  
3: Abecrom (Indication)



<https://youtu.be/bQmWTB7nEog>

[https://archive.org/details/Official\\_Partysqueezer\\_1988-10-09\\_Rawhead](https://archive.org/details/Official_Partysqueezer_1988-10-09_Rawhead)





Making a Demo, using  
 **Kotlin**

The LittleKt website features a dark purple background with a pixelated 2D game scene. At the top left is the LittleKt logo (a blue cat head with glasses) and the text "LITTLEKT". At the top right are links for "Features", "Docs", and "Dokka". Below the header, a large white section contains the title "A Kotlin Multiplatform 2D Game Framework" and a subtitle: "A multiplatform OpenGL 2D game framework that works on Desktop (JVM), Mobile, and Browser. It works on Windows, MacOS, Linux, Android, and Web." Two buttons, "Get Started" and "GitHub", are located at the bottom of this section. A "What is it?" section follows, containing a paragraph about LittleKt's purpose and licensing.

**What is it?**

LittleKt (Little Kotlin) is a multiplatform 2D game framework written in Kotlin. LittleKt provides a huge set of common tools and utilities to help create your game while being low level enough to build your own engine or framework on top of it. LittleKt is completely free and open-source under the Apache 2.0 license which means no fees or royalties. Everything written is

The KorGE website has a light blue background featuring a 3D rendered character with purple hair and goggles standing on a circular platform. The character is positioned against a backdrop of green hills and a blue sky. At the top, the KorGE logo is displayed, along with a navigation bar with links for "HOME", "BLOG", "ACTION", "FEATURES", "SHOWCASES", "DOCUMENTATION", "COMMUNITY", and a "GITHUB" button. Below the navigation, a large white section contains the title "KorGE" and a subtitle: "Modern Multiplatform Game Engine for Kotlin. v3.4.0". It includes buttons for "GET STARTED", "HELLO WORLD!", and "Get from Marketplace". A "KorGE In Action" section follows, showing a snippet of code.

```
1 package scene
2 fun Scene.main() {
3     // ...
4 }
```

# Playful for prototypes. Serious for production.

OPENRNDR is an open source framework for creative coding, written in Kotlin that simplifies writing real-time interactive software.



Set up OPENRNDR

Getting started

Tutorials

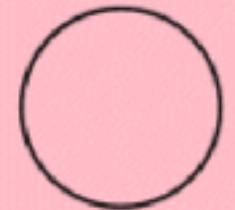
# Key features

OPENRNDR provides simple, reusable utilities with which creative coders can build robust, fast and reliable (interactive) applications for prototyping as well as building production-quality software.



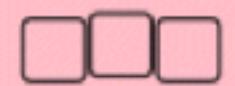
## Light weight

A light weight application framework to quickly get you started



## Minimal

A set of minimal and clean APIs that welcome programming in a modern style



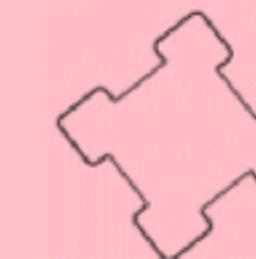
## Only load what you need

Asynchronous image loading



## Fast

A fast OpenGL 3.3 backed drawer written using the LWJGL OpenGL bindings



## Extensive

An extensive shape drawing and manipulation API



## Multi platform

Runs on Windows, MacOS and Linux

RNDR

Projects

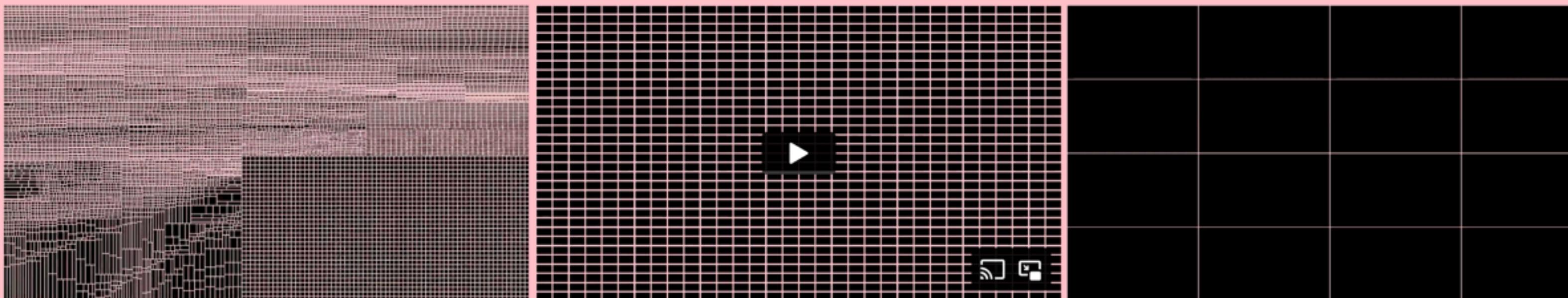
Studio

Contact

OPENRNDR is our largest and longest running project and is a crucial tool for most of our work. OPENRNDR is a tool to create tools, an open source framework for creative coding, written in Kotlin, that simplifies writing real-time interactive software.

Development of OPENRNDR was started in 2010 at LUSTlab under the name RNDR, with the idea to create an in-house framework that was versatile enough to sketch in, but at the same time be robust enough to deliver production-quality interactive media installations, that you know will also run without worries in a few years from now. It takes the creative mind set of a designer or artist, and combines that with the power of IT-grade software. As we could not find this in existing software, we had to develop this ourselves. We are convinced that there are many more people out there that crave for the same.

When LUST and LUSTlab closed doors in 2017, the newly formed studio RNDR continued development and changed the name to OPENRNDR, a precursor to our goal to distribute the software under an open source license. We translated the framework from Java 8 to Kotlin, made a project site, created a very extensive guide, and developed the API documentation. The framework was officially launched in June 2018, and we are improving and adding features almost bi-weekly.



OPENRNDR.org functions as a gateway to all the relevant information around the framework, where to find the downloads, tutorials, the guide, the API, the Github page and much more. You can also find example projects, and in-depth articles on use cases that are posted on the OPENRNDR Medium pages.

*Livecoding*  
**OPENRNDR Basics**

# Going Global in 14kbps



300 baud  
with acoustic coupler



300 baud  
with RS-232 interface



[USRobotics](#) Sportster 14,400 Fax  
modem (1994)



<http://www.bbsdocumentary.com/>



Jason Scott  
Digital Archivist & Historian



aka SketchCow, circa 1995



ACiD Productions @ NAID '96 Demoparty



[https://en.wikipedia.org/wiki/ACiD\\_Productions](https://en.wikipedia.org/wiki/ACiD_Productions)

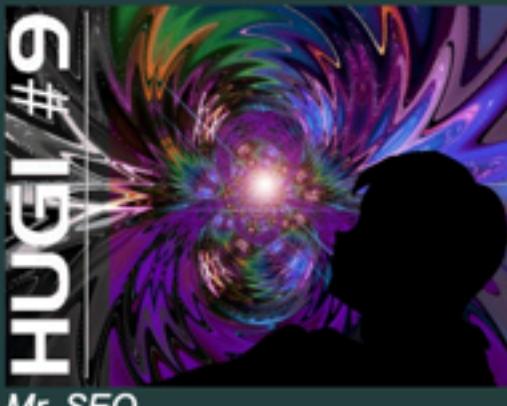
# Hugi Magazine Issues #1 - #10



Mr. SEQ

## Hugi #10, April 1998, 850 KByte of articles.

Entirely in German language again, this issue contained the first party report we ever had in Hugi, written by nobody else than Franky, then a member of the group Riot. We also had a special retrospective about a diskmag called Cream, which had been officially announced by its main editor to be dead a month before - only to appear with a new issue one week after the release of Hugi 10! However, as it turned out later, that issue of Cream, which was subtitled "Resurrection", was really the last one.



Mr. SEQ

## Hugi #9, December 1997, 880 KByte of articles.

Another new interface, the first one that was comparable to the diskmags of the international demoscene at that time. It used a Vesa video mode and a modern module player. Thanks to the new data format, which introduced the concept of links, there were no longer separate programs for the menu and the viewer; the menu was now just the first article displayed by the interface. Due to a few bugs, however, you must boot your PC in MS-DOS-mode to start Hugi 9. For the first time the graphics and music were made by Mr. SEQ, and I think that both the background picture and the tune were so good that they could even be used nowadays. There was also an English Section with demoscene-related articles, rather small compared with our current standards but still bigger than some English-language mags at that time. For these reasons I still think that the subtitle "The Next Generation" was appropriate.

## Hugi #8, October 1997, 620 KByte of articles.



Dr. Brain

This issue uses the same graphics as the previous one. In fact even the topics of the articles are not much different: computers, press, humour, literature, Assembler/C programming and some miscellaneous stuff. Two text-adventure-games are included in the mag - please take this literally: It is games which, technically, are nothing else than articles. Also, we had charts for the first time, with some very odd categories such as "Best Towns", "Best Board Games" and "Best Programming Hints published in Hugi". The voters could also vote for five categories which they thought should be removed and suggest five categories to be added to the charts.

## Hugi #7, August 1997, 530 KByte of articles.



In this issue at the latest one could clearly see that our style had become a tad more serious, regarding both the texts and the design. Jabberwocky published his first computer magazine reviews in this issue. They later became a regular section of a large size. The "History of Hugi" article was also continued.

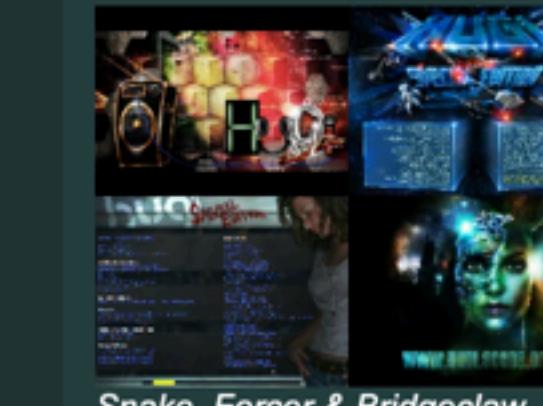
# Hugi Magazine Special Editions



Immortal Rat

## Hugi Party Reports Collection, June 2013.

Converting all English language issues of Hugi to online editions has enabled us to create a collection of the party reports published in all of these issues. Here you can read all the reports in your web browser.



Snake, Forcer & Bridgeclaw

## Hugi SE #4, October 2012, 5.6 MB text.

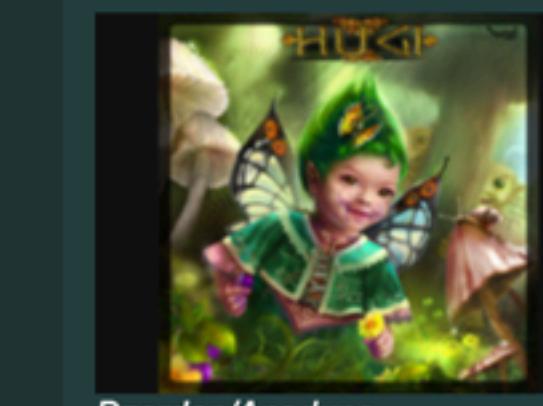
This music disk and diskmag in one was released at Function 2012 in Budapest, Hungary. It contains all the programming related articles from issues 11 - 37, and thus it is an update of the Coding Digest. There are 32 tunes from the five latest Hugi issues and a collection of graphics used in Hugi since 2006. The articles can also be read online [here](#).



Hellfire/Haujobb

## Hugi Remix, January 2009, 310 kb text.

"Hugi Remix" is a small selection of articles from 10 years of Hugi. It is an online-only issue and primarily for new readers who want to get a quick impression of the typical contents of a Hugi issue.



Dzordan/Anadune

## Hugi Interview Bonanza, Aug. 2007, 1.3 MB text.

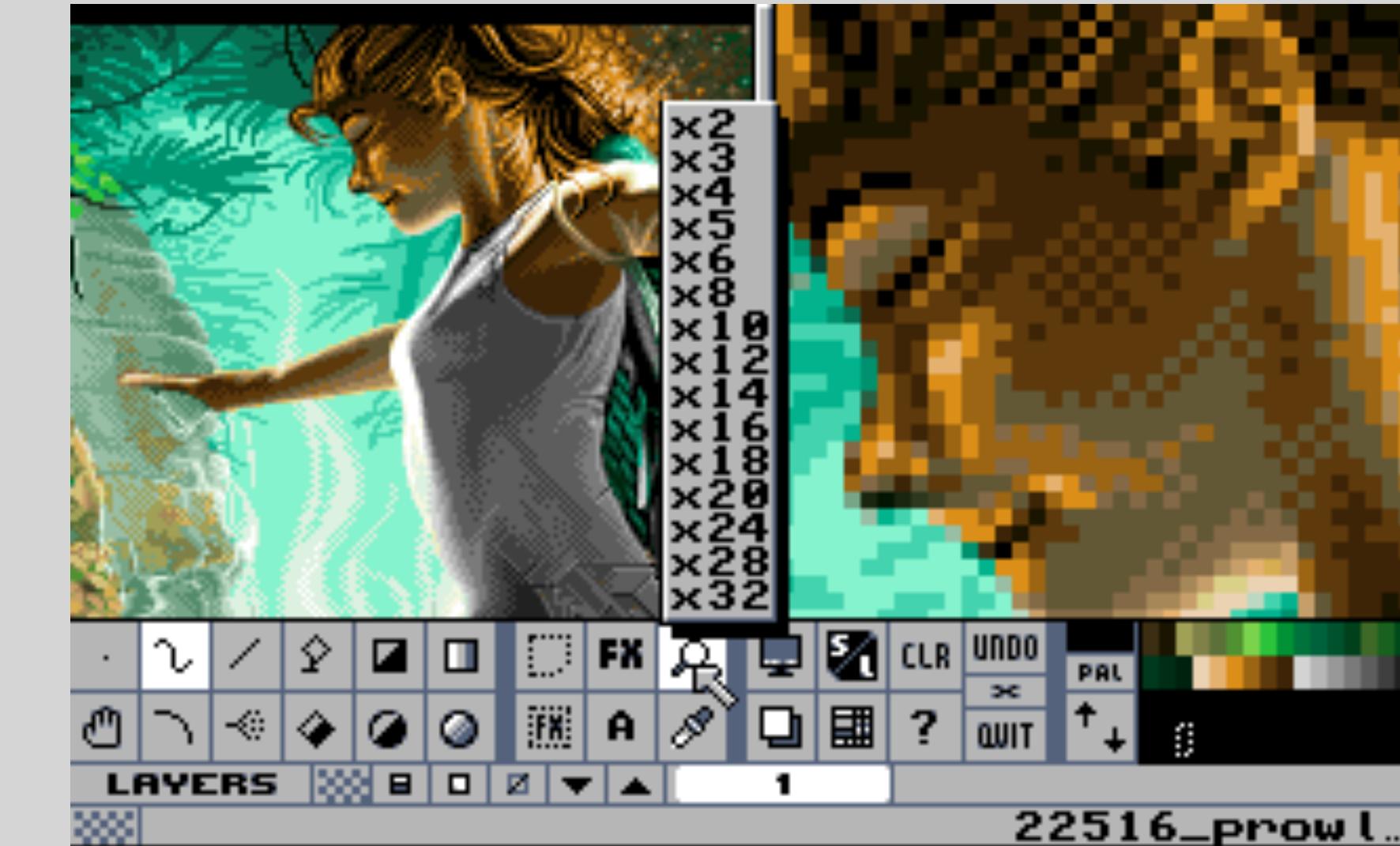
"Hugi Interview Bonanza" is what its name says - a collection of all interviews published in Hugi from 1998 - 2007. In addition, a couple of new interviews have been added (las, Laxity, Mice, Pasy). The engine is equipped with music by Siatek, X-ceed and Buzzer + Mice. In March 2013, an update was released for Amiga OS 4. It additionally contains the interviews from 2008 - 2012. The Windows version of this update followed suit in May 2013; the link above points to it. The Amiga OS 4 version can be downloaded [here](#). An online edition is located [here](#).

## Hugibox volume 1, February 2005.

"Hugibox volume 1" is a music disk with a selection of 30 tunes from



Grafx2



# Grafx2 in action

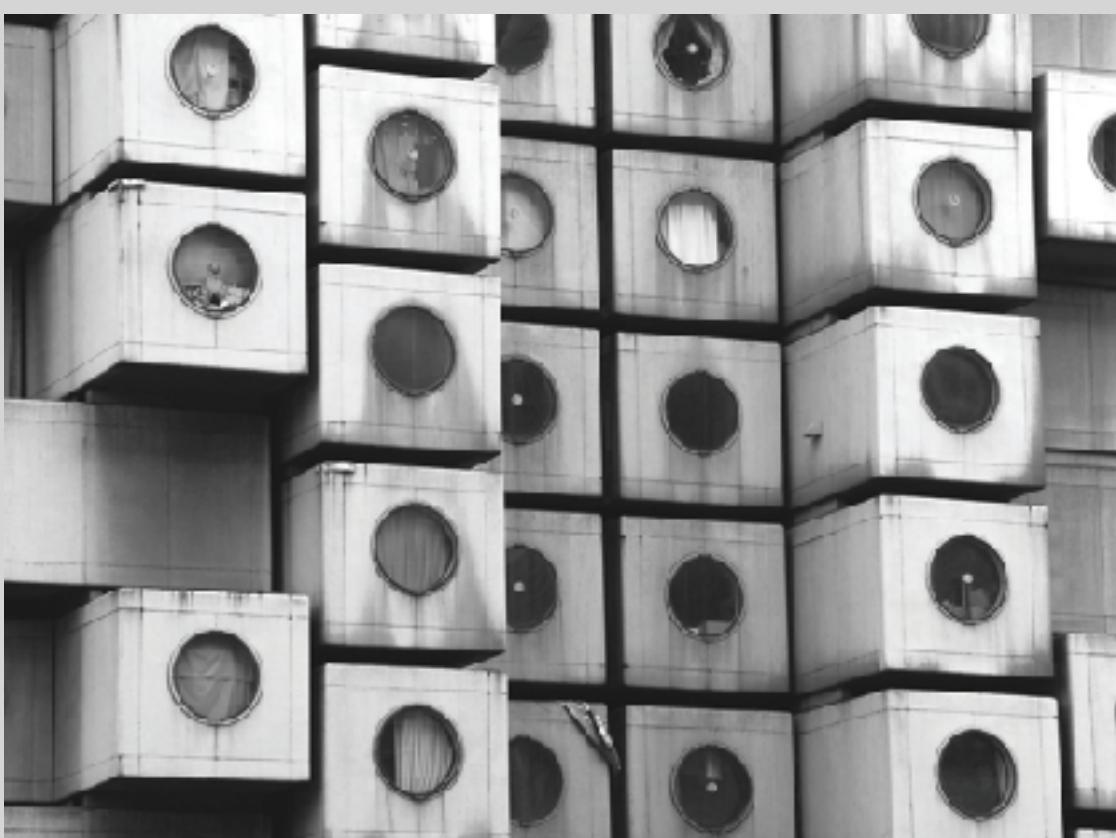
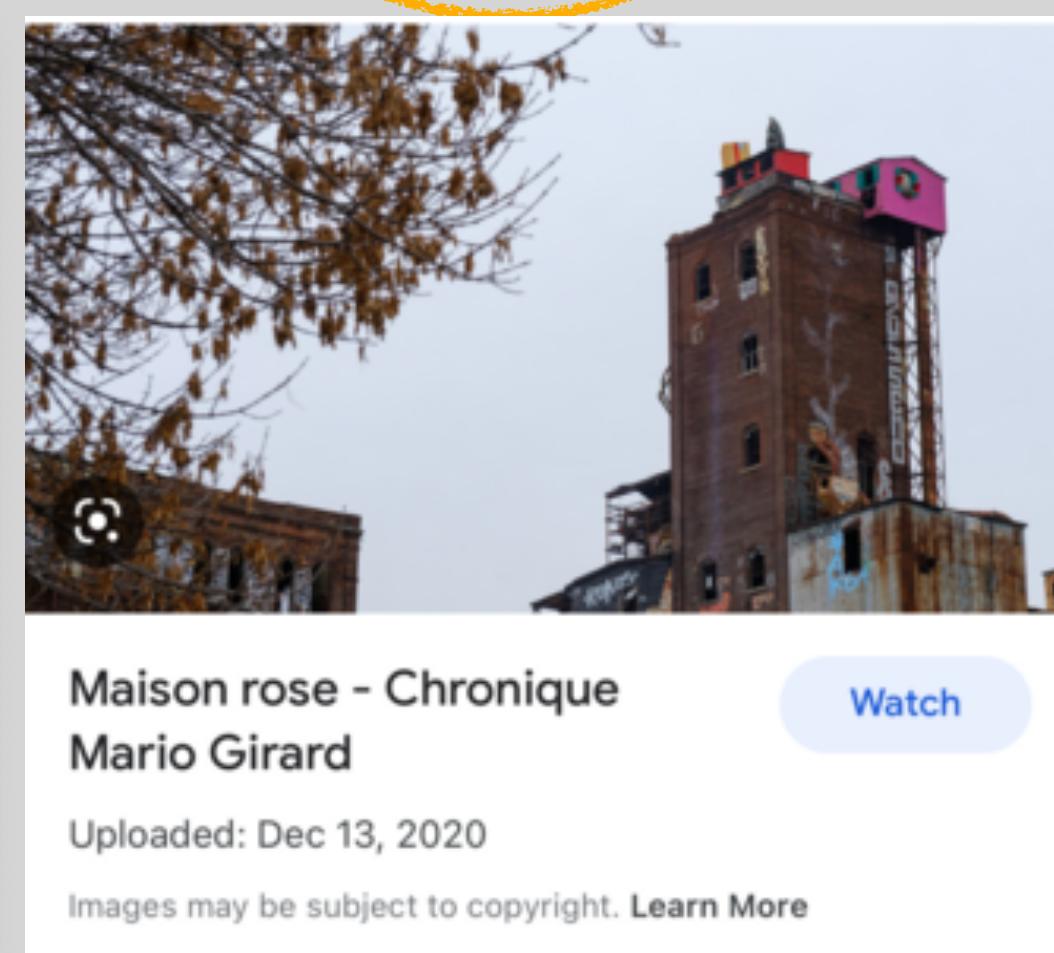
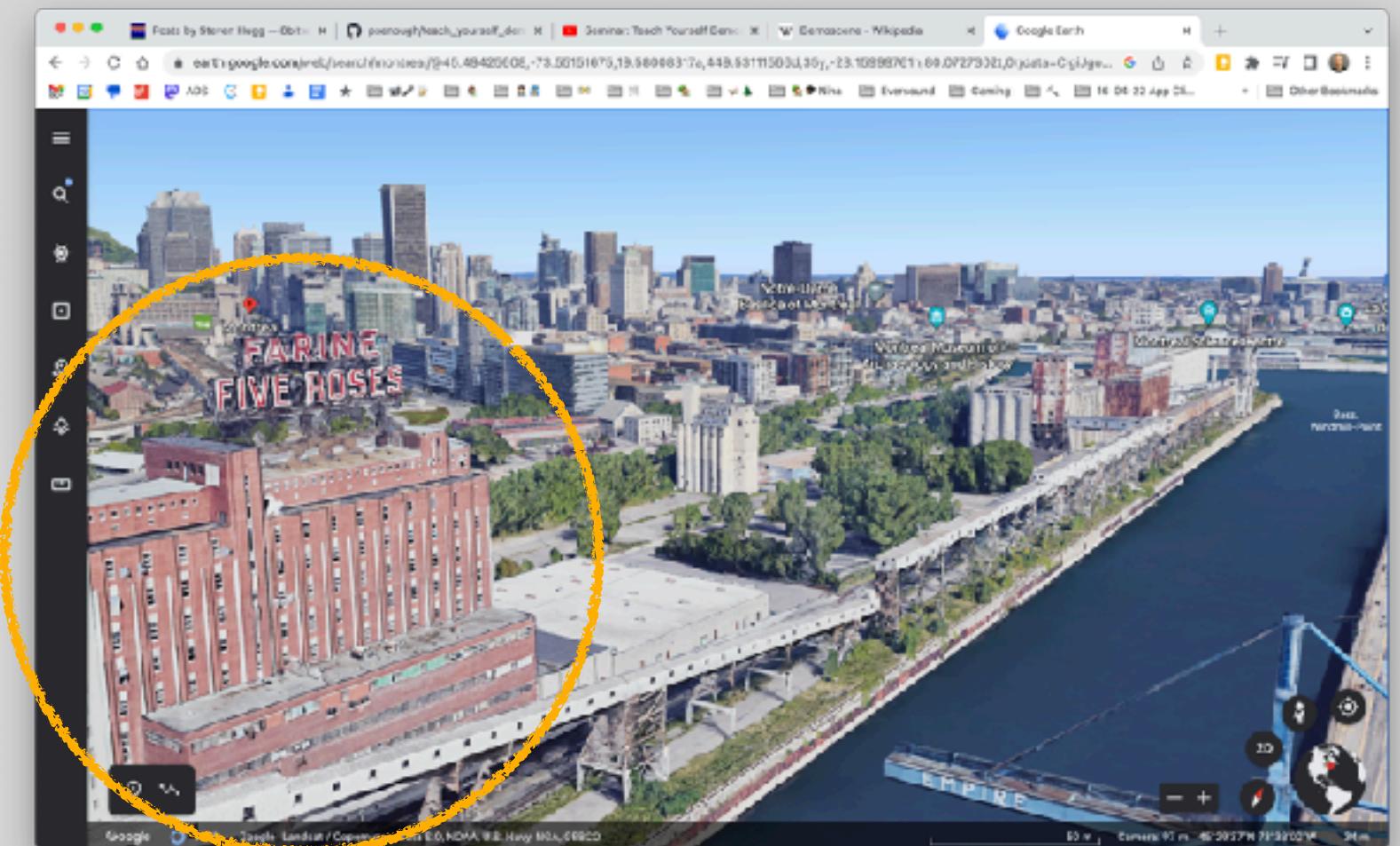
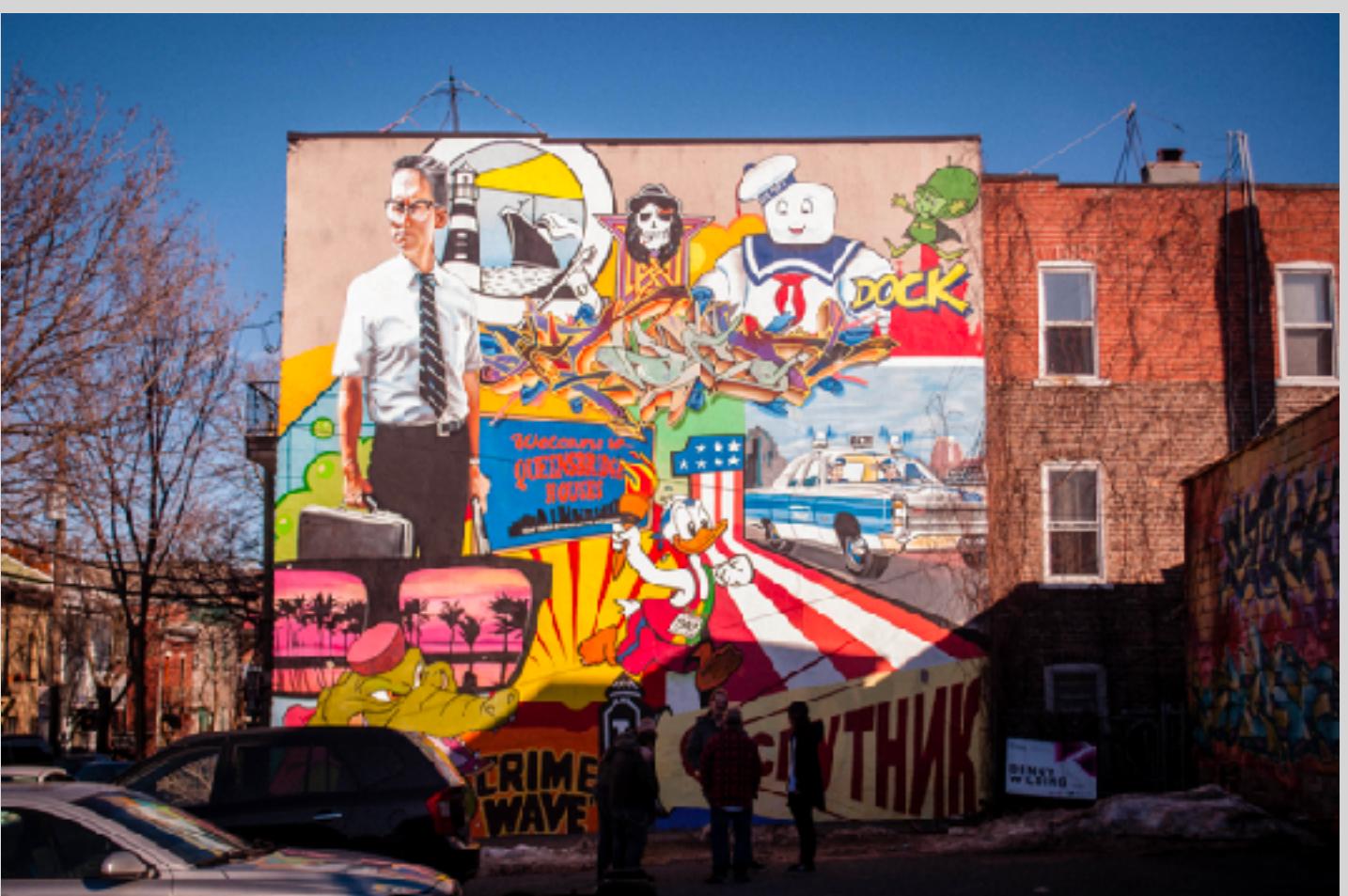
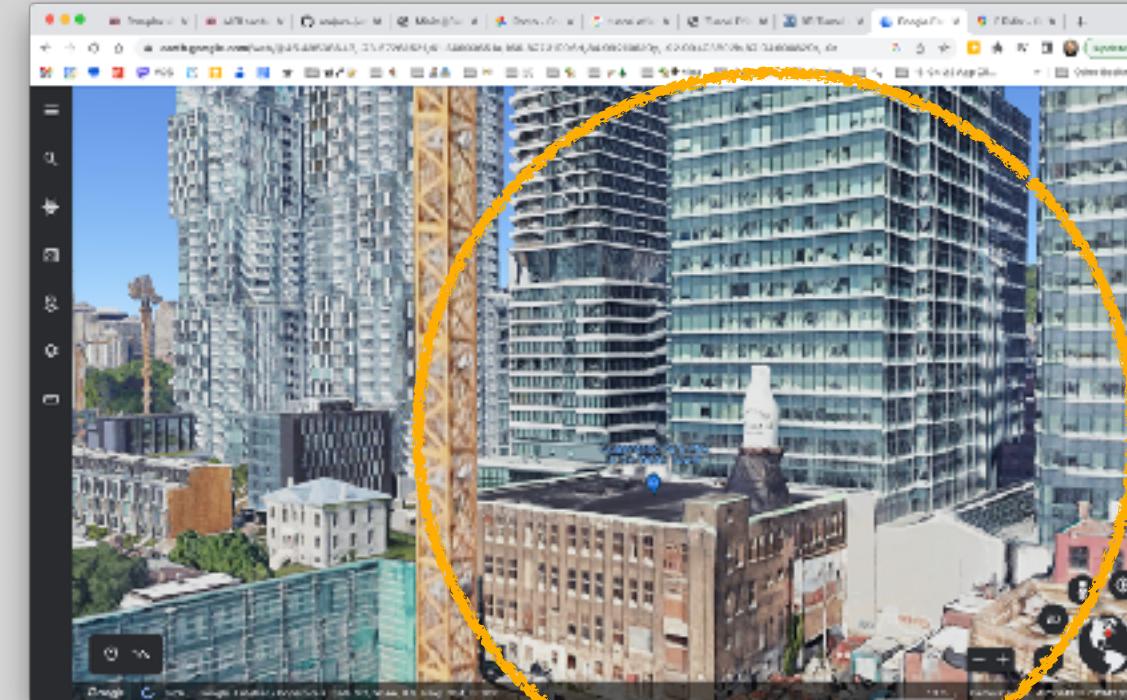
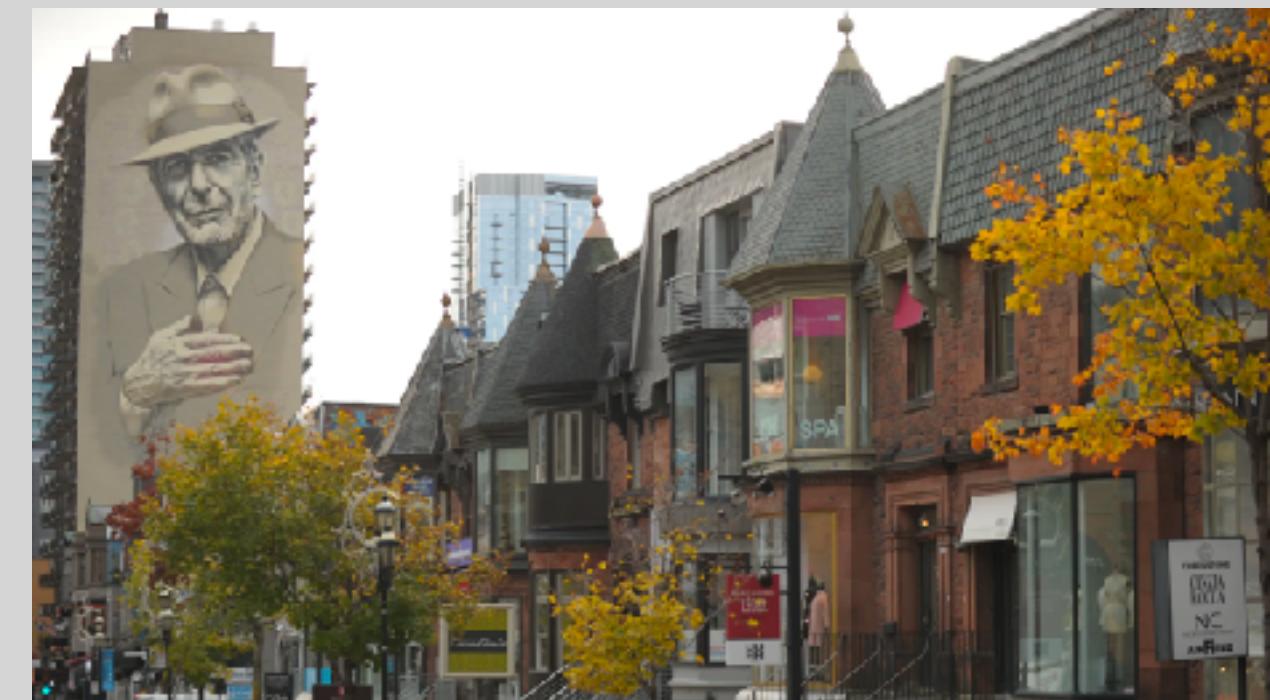


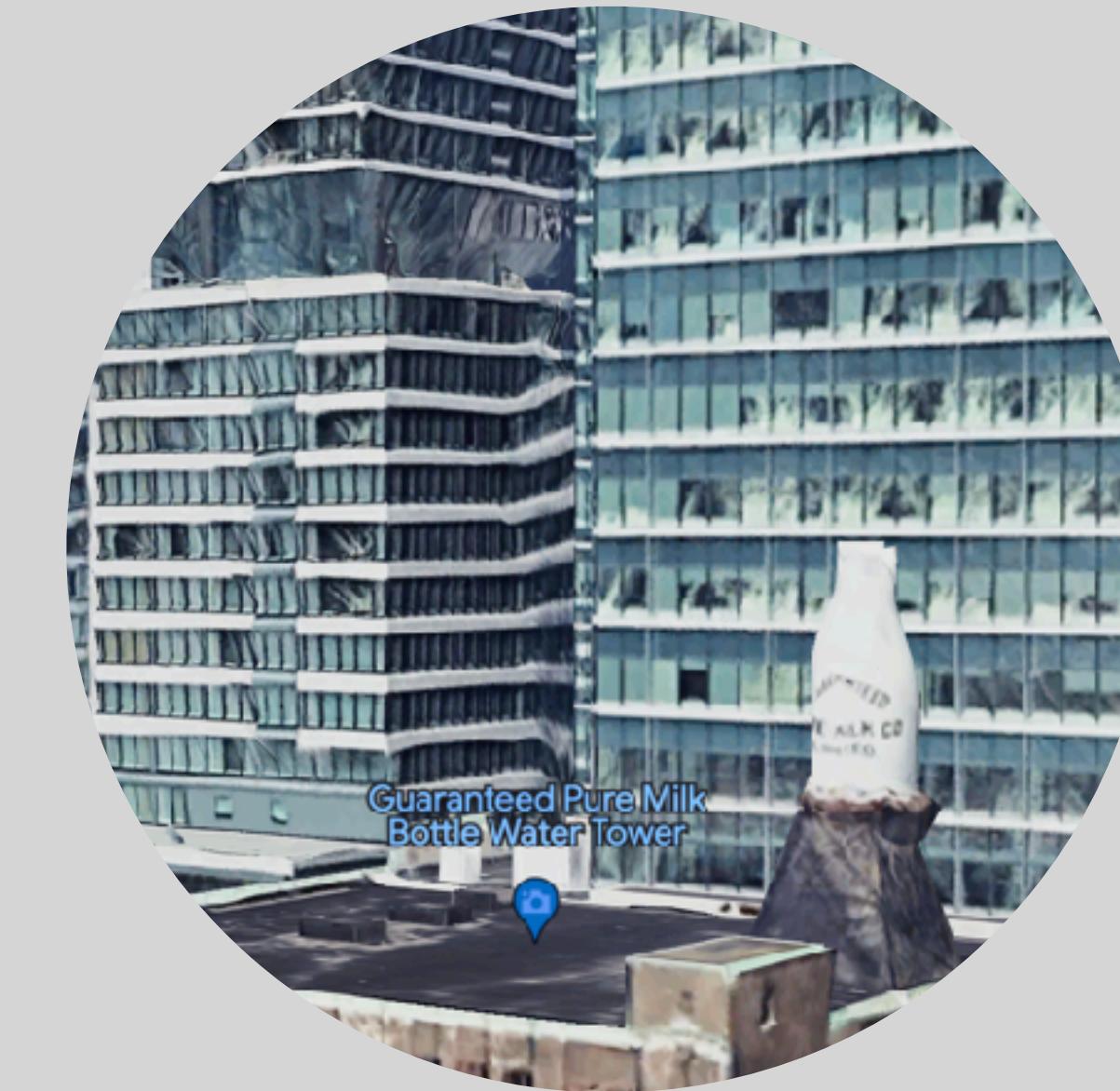
# Screamtracker

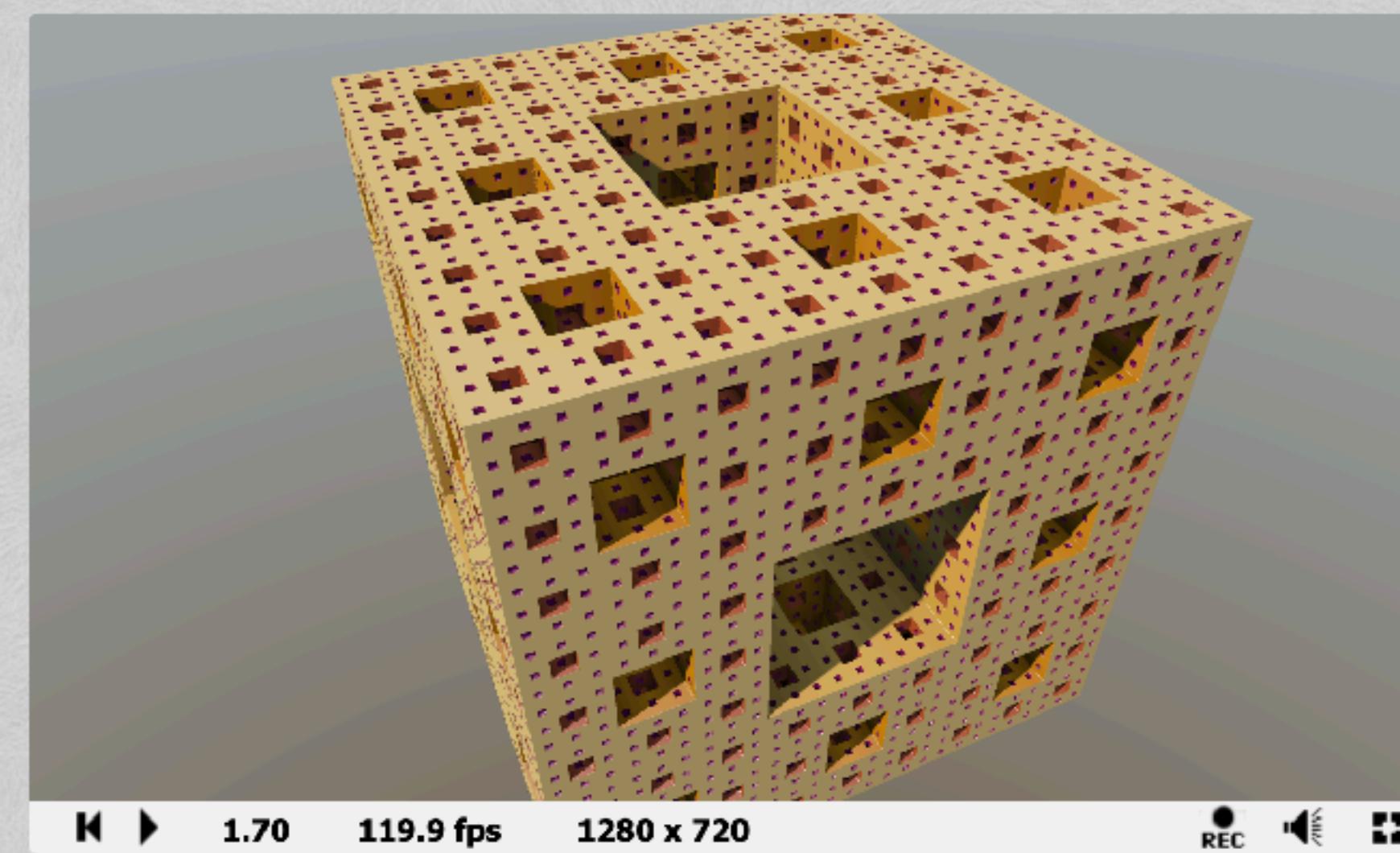


Fasttracker 2

**Leveling up**







## Menger Sponge

Views: 63849, Tags: 3d, raymarching, fractal, menger, vr

Created by iq in 2013-01-14

Four iterations of the famous fractal structure. See <https://iquilezles.org/articles/menger> for the full explanation of how this was done.

Comments (9)

[Sign in](#) to post a comment.



KIO, 2021-01-26

Thanks iq!

Sorry for necroing an article from 2011, but your resources are the most diverse and accessible, as well as extending into some very complex ideas, on the internet. It is a shame that raymarching, and shader-writing in general, seems to be a rather small niche of the programming world. It embodies the beauty of maths so well.

A lot of your approaches integrate optimisation so heavily that I am struggling to read the logic in the code, as I am not that good at visualising mod functions yet. I can understand "iteratively subtract the cross" - I have made fractals before, but I do not understand how

```
...
vec3 a = mod( p*s, 2.0 )-1.0;
s *= 3.0;
vec3 r = 1.0 - 3.0*abs(a);
...
d = max(d,c);
```

achieves the iterative subtraction of the crosses... I get why individual numbers are there - the 3 scales

+ Image

► Shader Inputs

```

1 // The MIT License
2 // https://www.youtube.com/c/InigoQuilez
3 // https://iquilezles.org/
4 // Copyright © 2013 Inigo Quilez
5 // Permission is hereby granted, free of charge, to any person obtaining a c
6
7 // https://iquilezles.org/articles/menger
8
9
10 #if HW_PERFORMANCE==0
11 #define AA 1
12 #else
13 #define AA 2
14 #endif
15
16
17 float maxcomp(in vec3 p) { return max(p.x,max(p.y,p.z));}
18 float sdBox( vec3 p, vec3 b )
19 {
20     vec3 di = abs(p) - b;
21     float mc = maxcomp(di);
22     return min(mc,length(max(di,0.0)));
23 }
24
25 vec2 iBox( in vec3 ro, in vec3 rd, in vec3 rad )
26 {
27     vec3 m = 1.0/rd;
28     vec3 n = m*ro;
29     vec3 k = abs(m)*rad;
30     vec3 t1 = -n - k;
31     vec3 t2 = -n + k;
32     return vec2( max( max( t1.x, t1.y ), t1.z ),
33                  min( min( t2.x, t2.y ), t2.z ) );
34 }
35
36 const mat3 ma = mat3( 0.60, 0.00, 0.80,
37                       0.00, 1.00, 0.00,
38                       -0.80, 0.00, 0.60 );
39

```

► Compiled in 0.0 secs

3643 chars

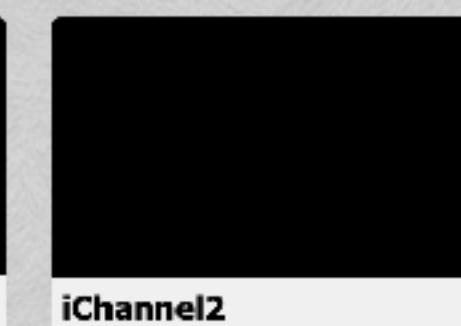
S ?



iChannel0



iChannel1



iChannel2

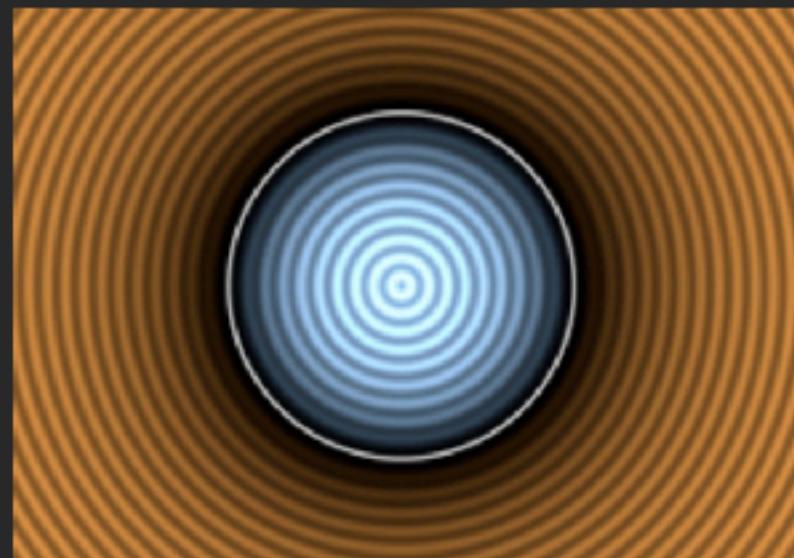


iChannel3

# *Livecoding* Filters & Shaders

## Primitives

All primitives are centered at the origin; you will have to transform the point to get arbitrarily rotated, translated and scaled objects (see below). The `dot2(v)` function returns the dot product of a vector with itself (or the square of its length).



**Circle - exact** (<https://www.shadertoy.com/view/3ltSW2>)

```
float sdCircle( vec2 p, float r )
{
    return length(p) - r;
}
```



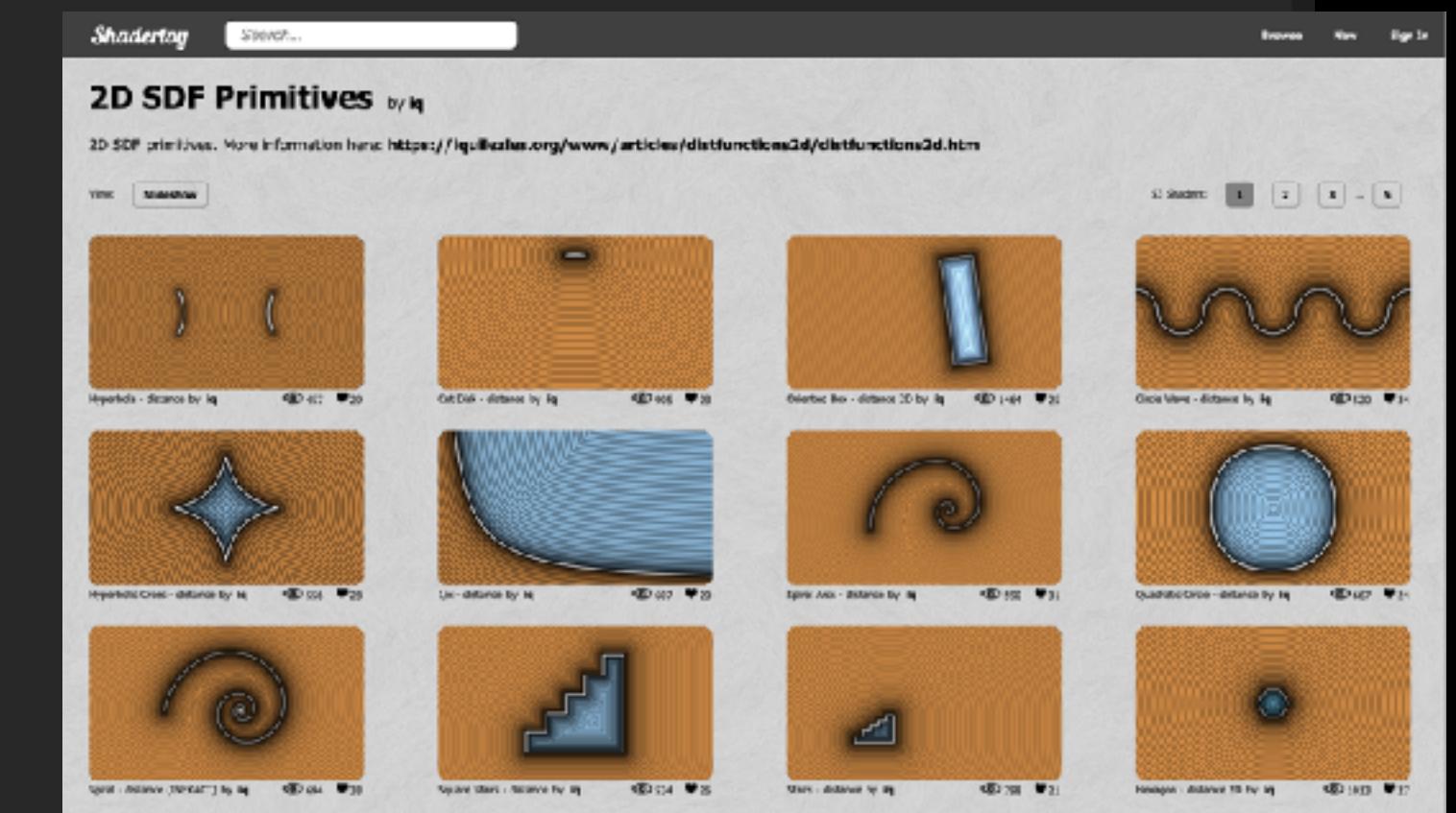
**Rounded Box - exact** (<https://www.shadertoy.com/view/4llXD7> and <https://www.youtube.com/watch?v=s5NGeUV2EyU>)

```
float sdRoundedBox( in vec2 p, in vec2 b, in vec4 r )
{
    r.xy = (p.x>0.0)?r.xy : r.zw;
    r.x = (p.y>0.0)?r.x : r.y;
    vec2 q = abs(p)-b+r.x;
    return min(max(q.x,q.y),0.0) + length(max(q,0.0)) - r.x;
}
```

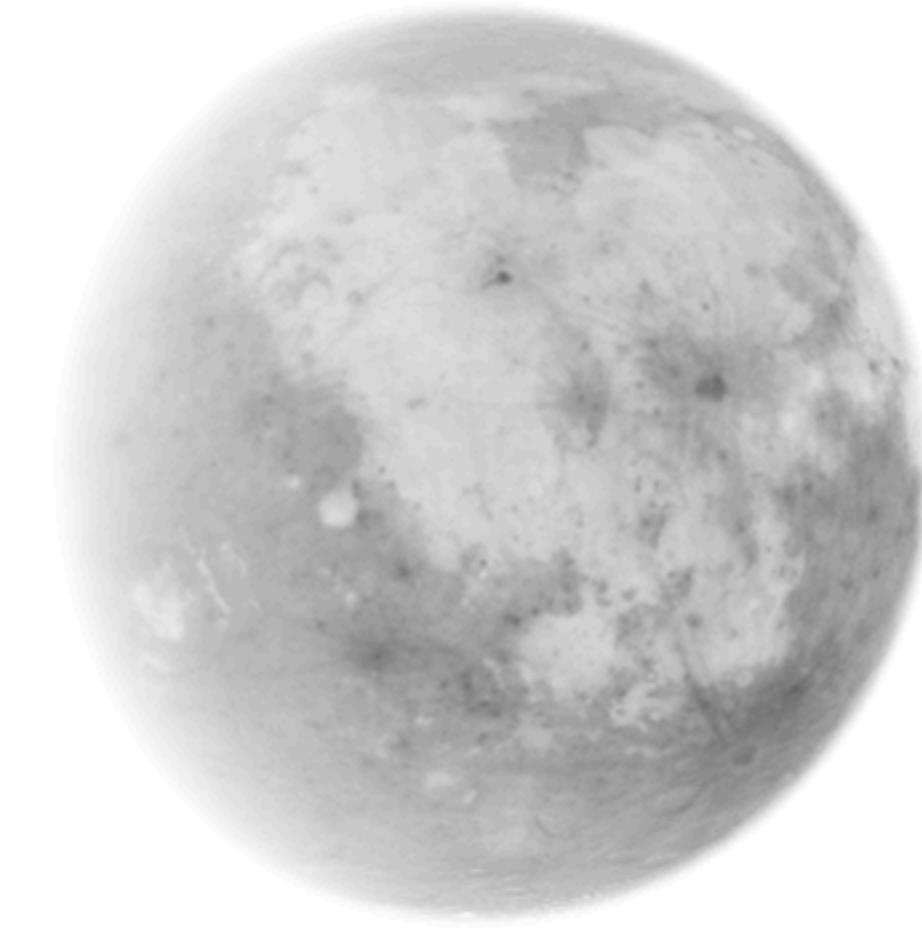


**Box - exact** (<https://www.youtube.com/watch?v=62-pRVZuS5c>)

```
float sdBox( in vec2 p, in vec2 b )
{
    vec2 d = abs(p)-b;
    return length(max(d,0.0)) + min(max(d.x,d.y),0.0);
}
```



<https://www.shadertoy.com/playlist/MXdSRf>



# *The Book of Shaders*

by Patricio Gonzalez Vivo and Jen Lowe

This is a gentle step-by-step guide through the abstract and complex universe of Fragment Shaders.

## Contents

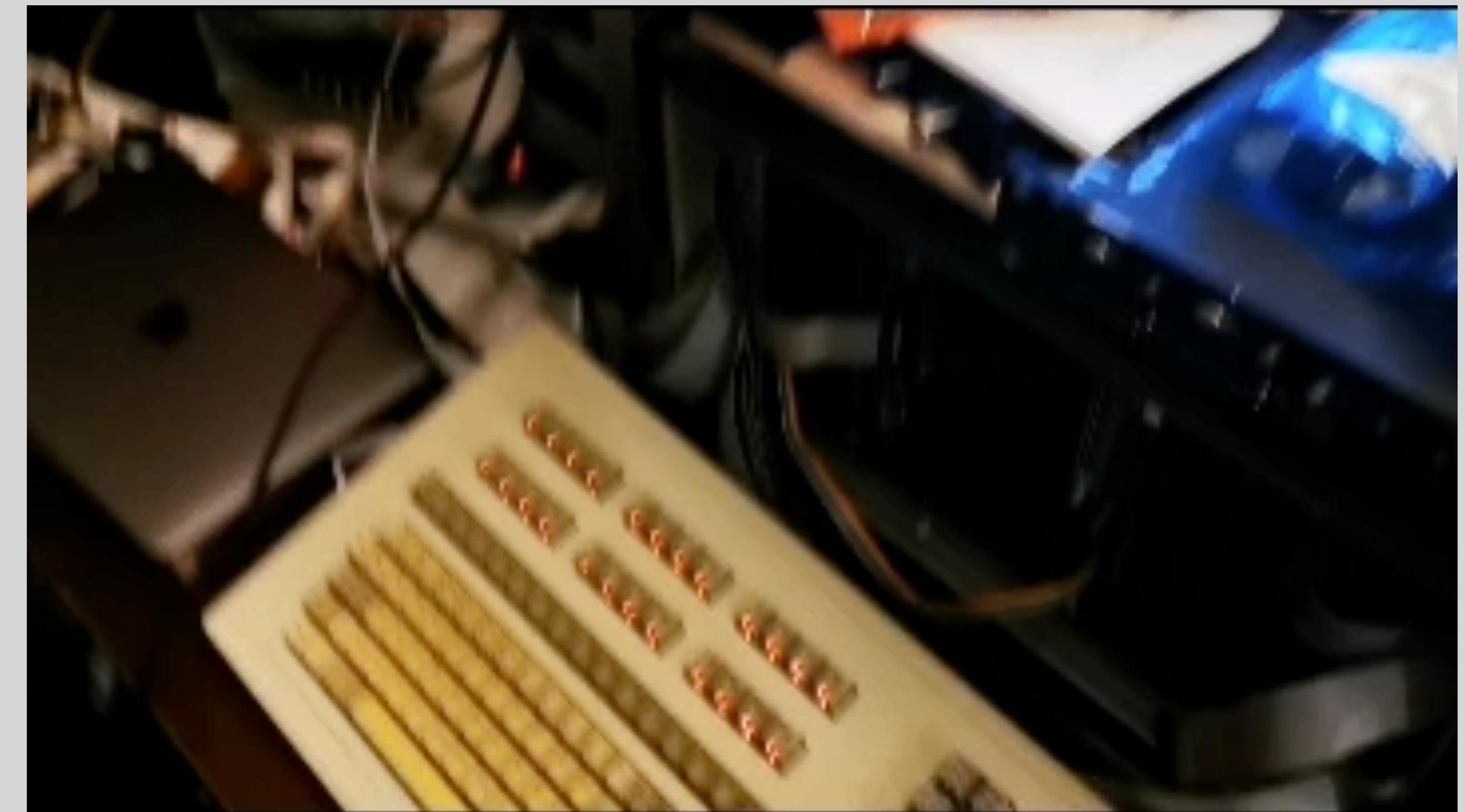
[Donate](#)

- [About this book](#)
- [Getting started](#)
  - [What is a shader?](#)
  - [“Hello world!”](#)
  - [Uniforms](#)
  - [Running your shader](#)



[https://en.wikipedia.org/wiki/Fairlight\\_CMI](https://en.wikipedia.org/wiki/Fairlight_CMI)

<https://youtu.be/daLceM3qZml>

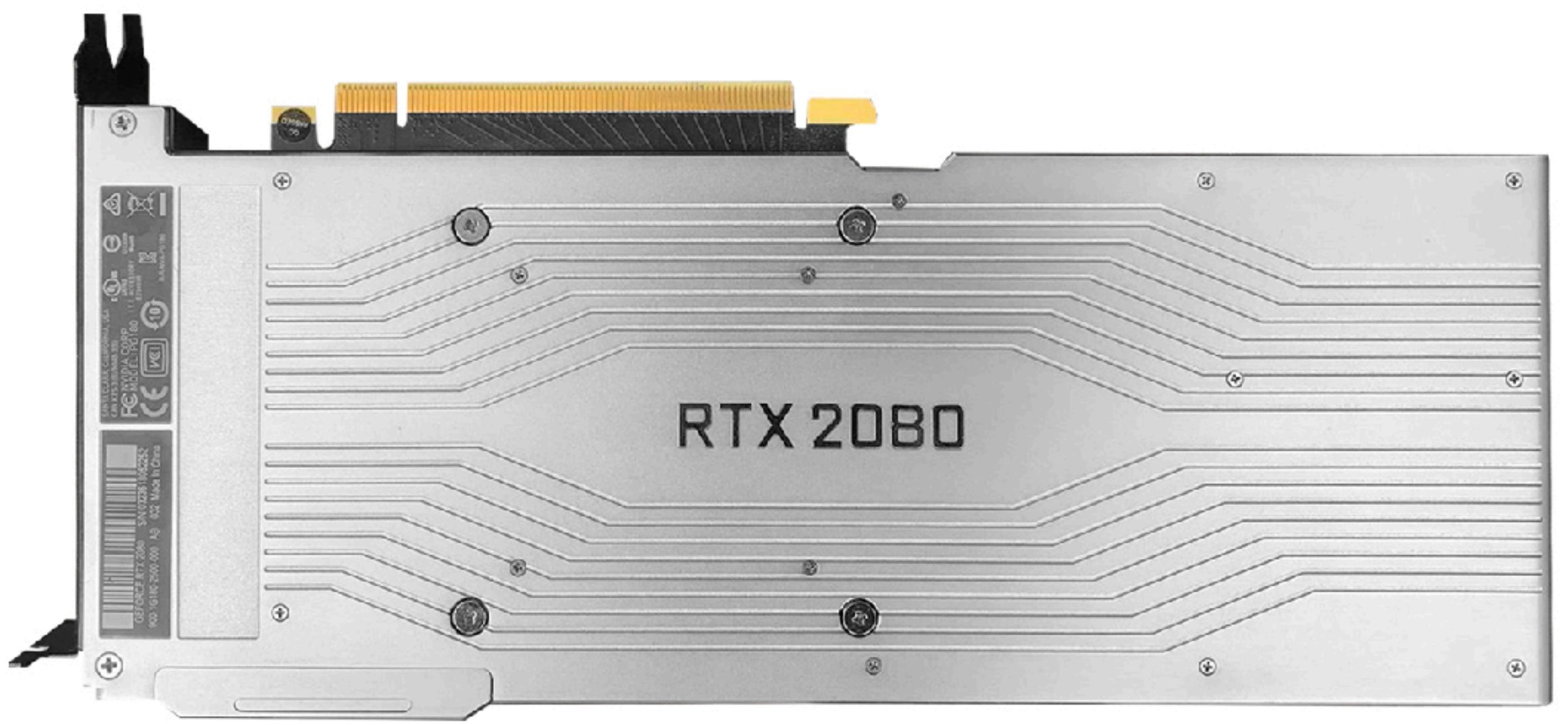


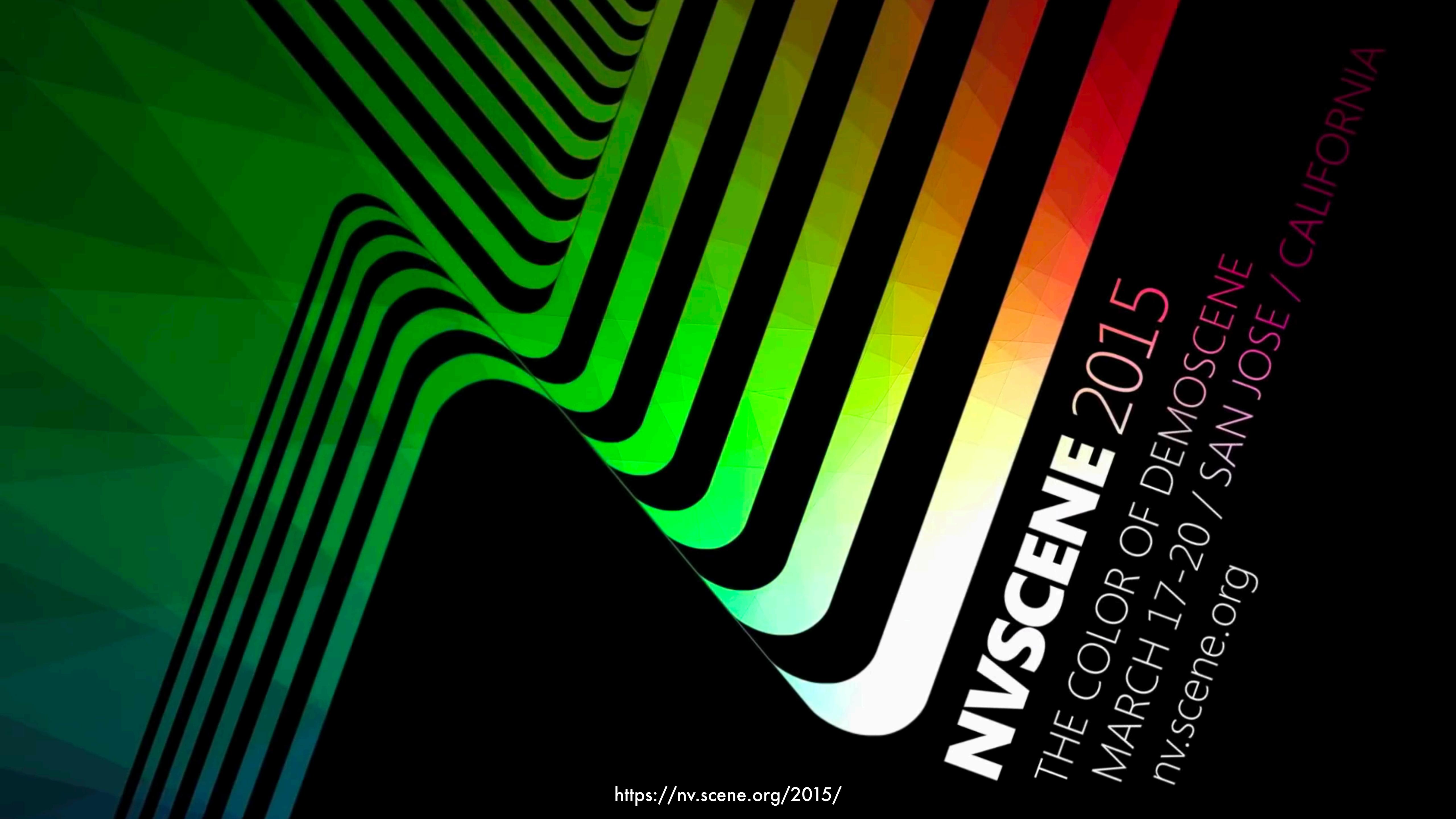
Fairlight CMI Series III

*Livecoding*  
Add Music

**Modern Day**





The background features a series of overlapping, wavy bands of color. These bands transition through various hues, including deep reds, oranges, yellows, greens, blues, and purples. The bands are set against a dark, almost black, background and appear to be slightly curved or twisted as they move across the frame.

**NVSCENE** 2015  
THE COLOR OF DEMOSCAPE  
MARCH 17-20 / SAN JOSE / CALIFORNIA

<https://nv.scene.org/2015/>

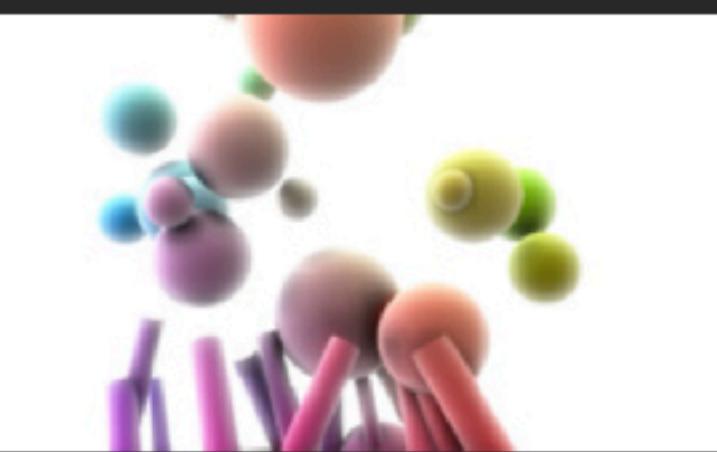
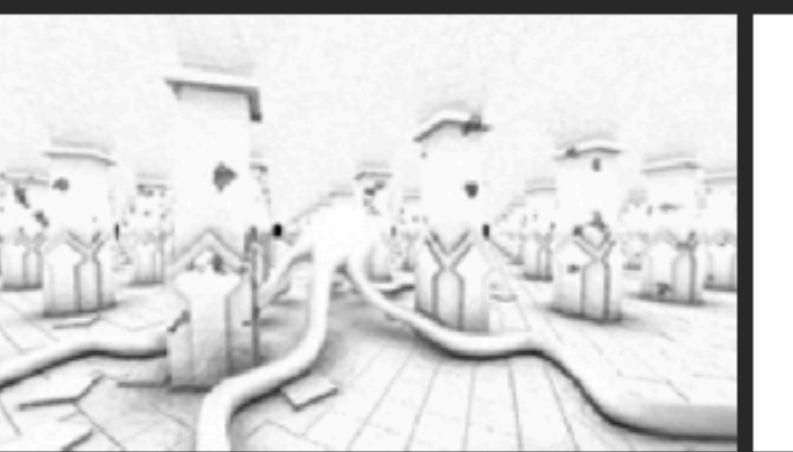
Thanks to the demoscene outreach group guys me and few other demosceners could give some seminars at nvscene in San Jose (California) back in 2008. It was some very interesting days, where we enjoyed a nice party, learned a lot with cool seminars and met the American demoscene. The hotel was in the very same conference center, so it was really cool :) Ah yes, my presentation was about rendering procedural images based on raymarching in the GPU, in the context of four kilobytes demos.

The presentation does first introduce the four kilobytes demos produced by the demosceners. This was a good chance to show the world what amazing things demosceners are doing today, so I showed all sort of 1k and 4k intros featuring raytracing, raymarching and similar techniques. Then I quickly introduced the concept of raymarching into voxels, analytic surfaces, and procedural surfaces without any close analytical expression. Then I introduced the concept of distance fields as a rendering acceleration technique and procedural modeling tool. This was quite a forgotten field of CG, and I like to think I somehow rebumped it by showing the making of Slisesix (the image on the right) what is computed by rendering on distance fields, and fits in 3 kilobytes (that includes the models, textures, lighting, materials, and renderer).

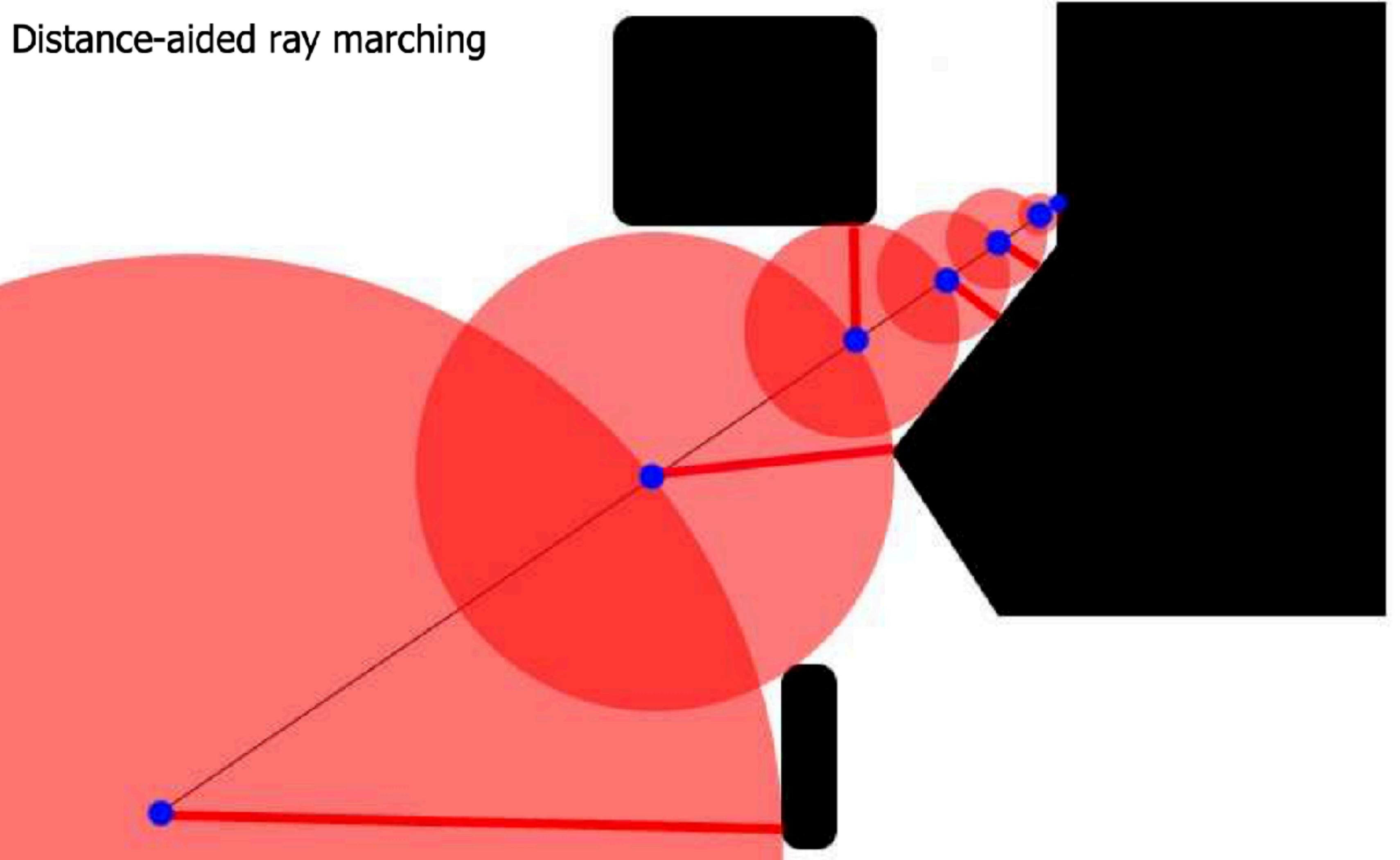
I quickly introduced some of the most basic operations in procedural distance fields as cloning, deforming and blending. I also explained how to efficiently compute ambient occlusion and soft shadows.

I think it's a rather complete and fun read.

The presentation was a real time with interactive slides, but since 2008 tech has changed a lot and it's no longer compatible with modern systems. So instead I'm linking to a static PDF version of it for you to download: [Rendering Worlds With Two Triangles](#).



## Distance-aided ray marching



# *Livecoding*

# Raymarching

# 3D SDF Primitives

by iq

Some **exact** SDF primitives (no CSG, fully euclidean). More information here: <https://iquilezles.org/www/articles/distfunctions/distfunctions.htm>

View:

Slideshow

21 Shaders:

1

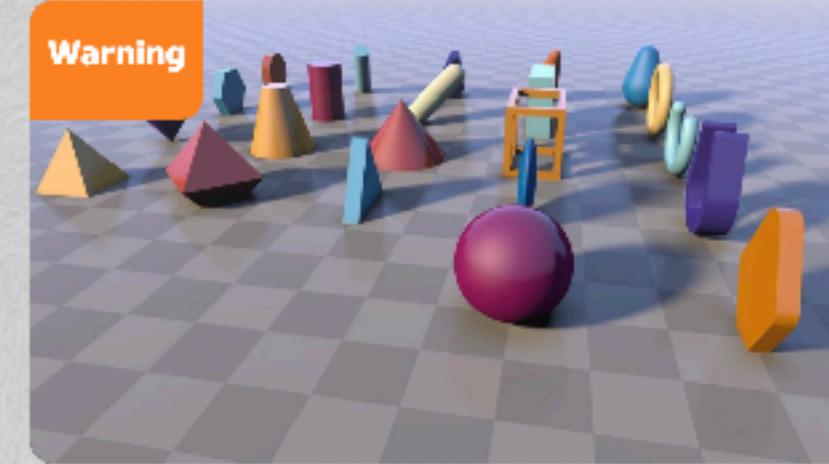
2



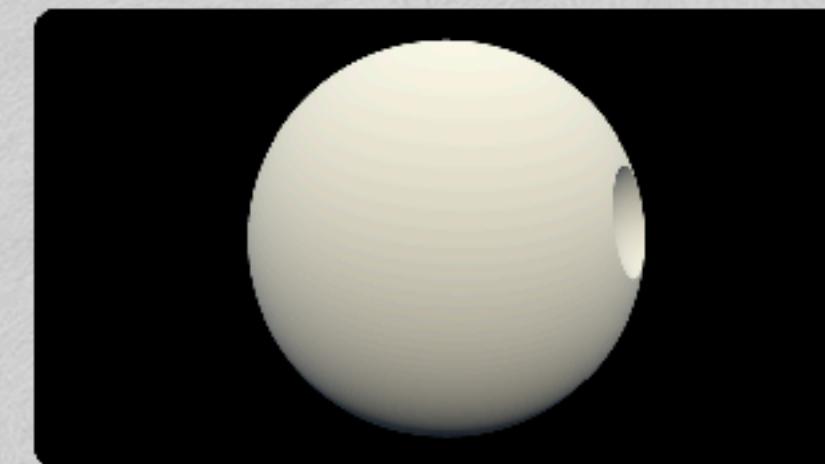
Helix - distance (APPROXIMATED) by iq



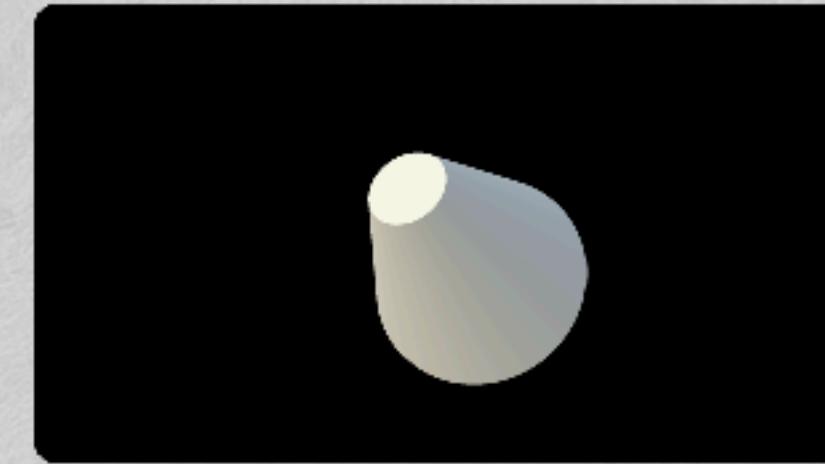
Quadratic Bezier - distance by iq



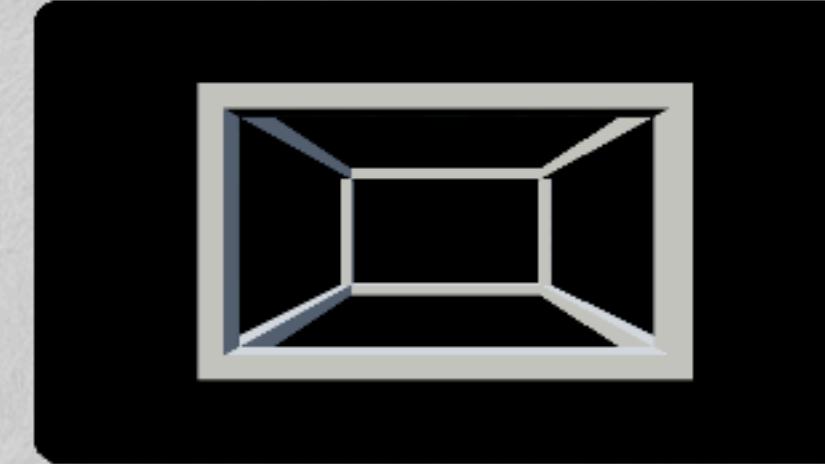
Raymarching - Primitives by iq



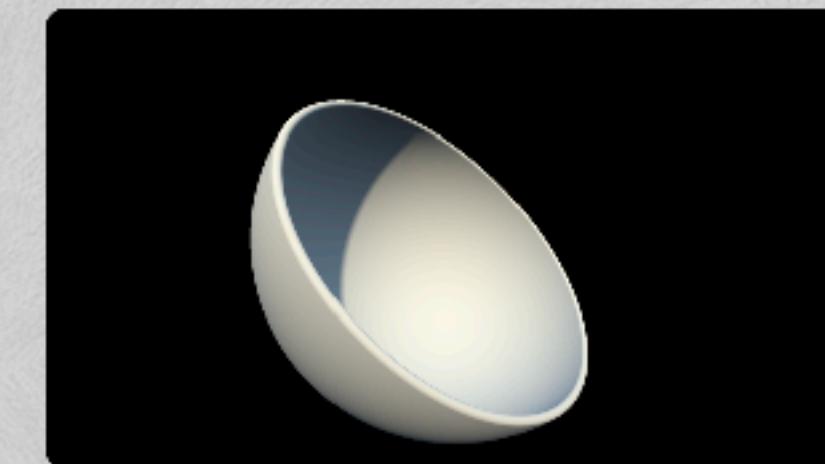
DeathStar - distance by iq



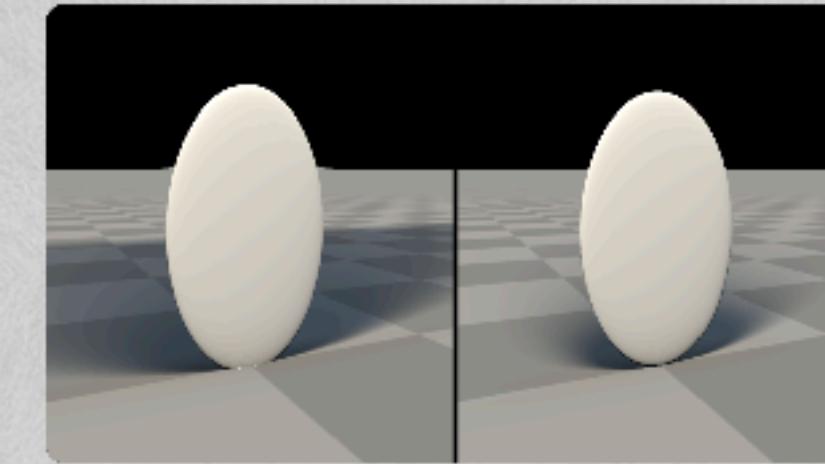
Cone - distance by iq



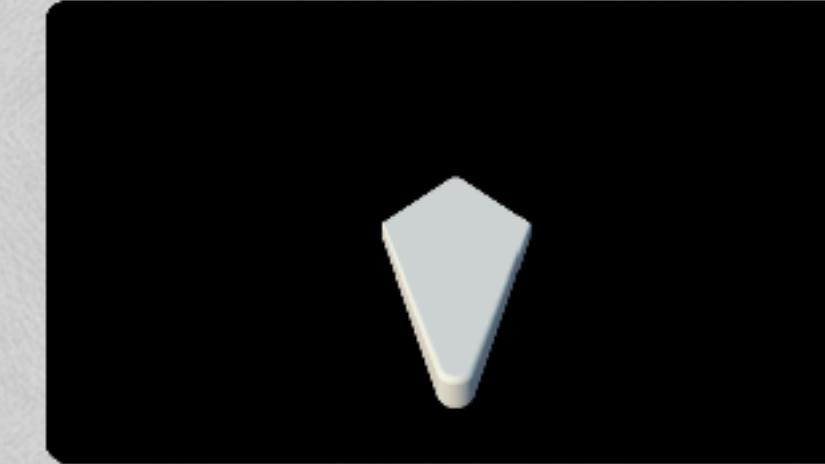
Box Frame - distance by iq



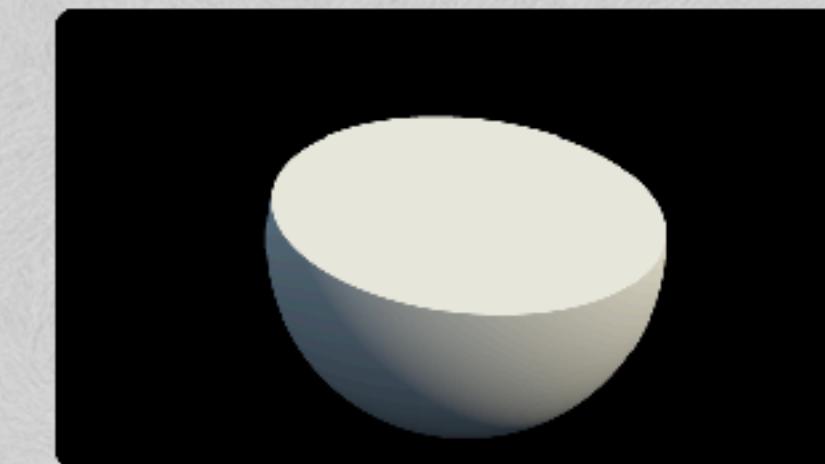
CutHollowSphere - distance by iq



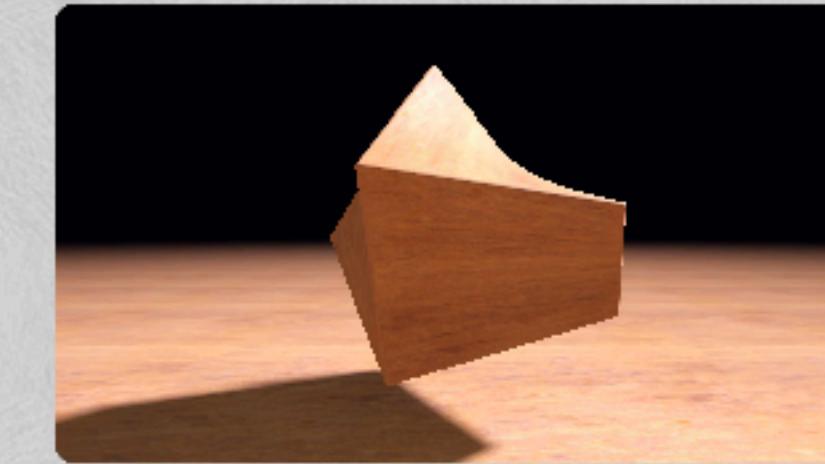
Ellipsoid - distance by iq



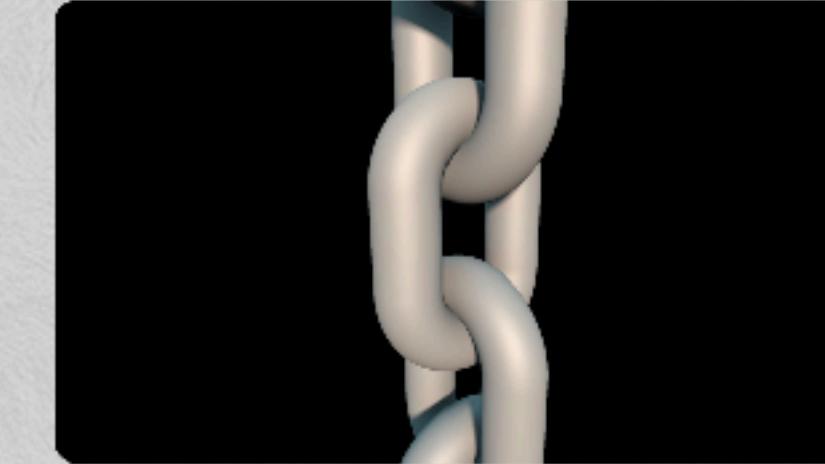
Rhombus 3D - distance by iq



CutSphere - distance by iq



Bilinear Patch - distance by iq



Link - distance by iq



1 9 1 1

<JED>

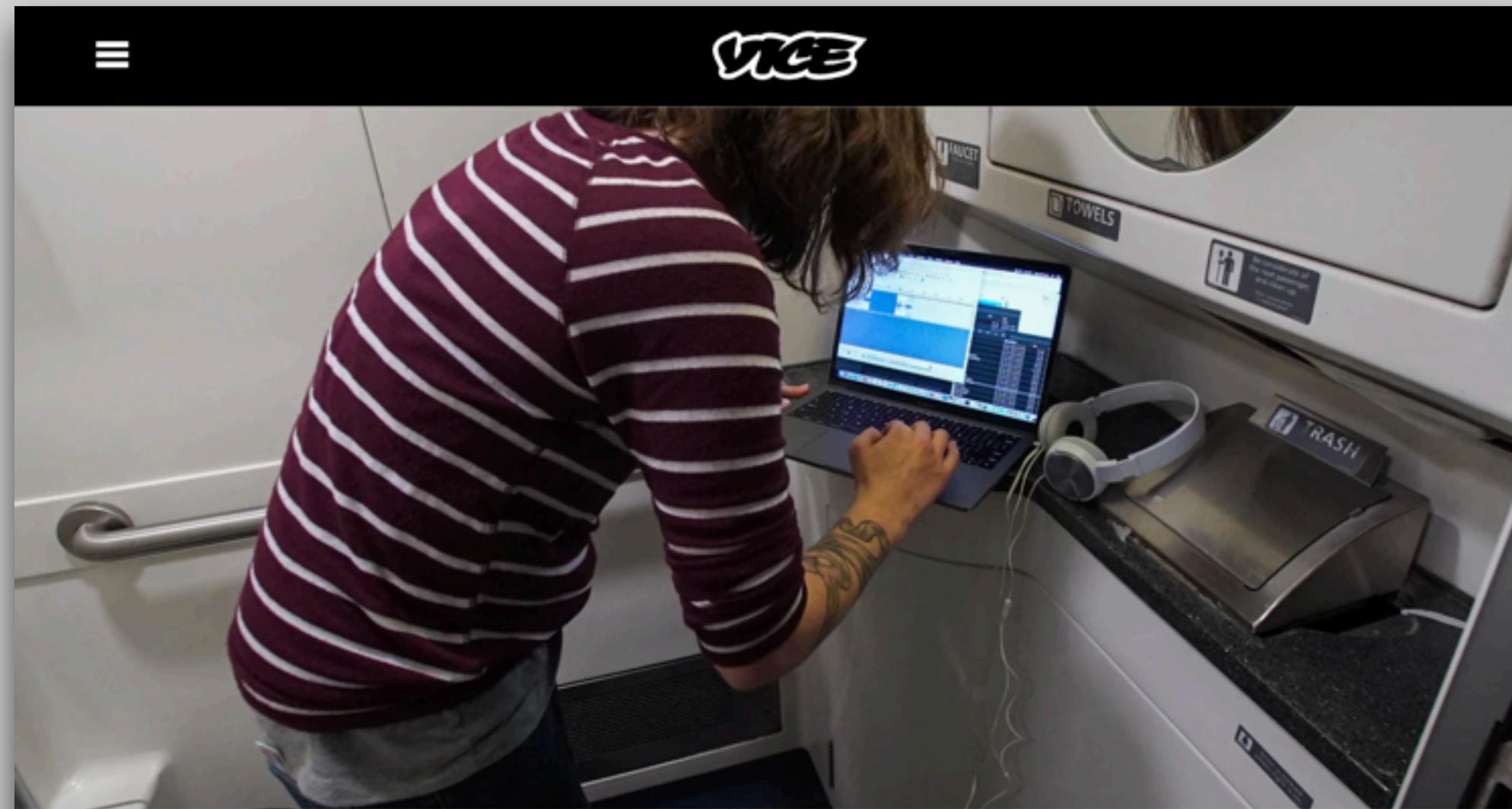
[https://en.wikipedia.org/wiki/Razor\\_1911](https://en.wikipedia.org/wiki/Razor_1911)



The Scene is Dead - Razor1911 | 64k Revision 2012  
<https://youtu.be/IFXIGHOEIrE>



<https://www.dataairlines.net/product/dubmood-mbr-votedisk-scene-is-dead-7>



MESSICA ARSON WORKS ON THEIR SYNCHRONY DEMO, 'BATHROOM SCREAMS,' WHICH INVOLVED RECORDING SYNCHRONY PARTICIPANTS SCREAMING IN THE BATHROOM OF AN AMTRAK CAR. IMAGE: DANIEL OBERHAUS/MOTHERBOARD

**MOTHERBOARD**  
TECH BY VICE

## Who Killed the American Demoscene?

I went to Synchrony, one of the US's last active demoparties, where programmers showcase artistic audiovisual works made in marathon coding sessions.



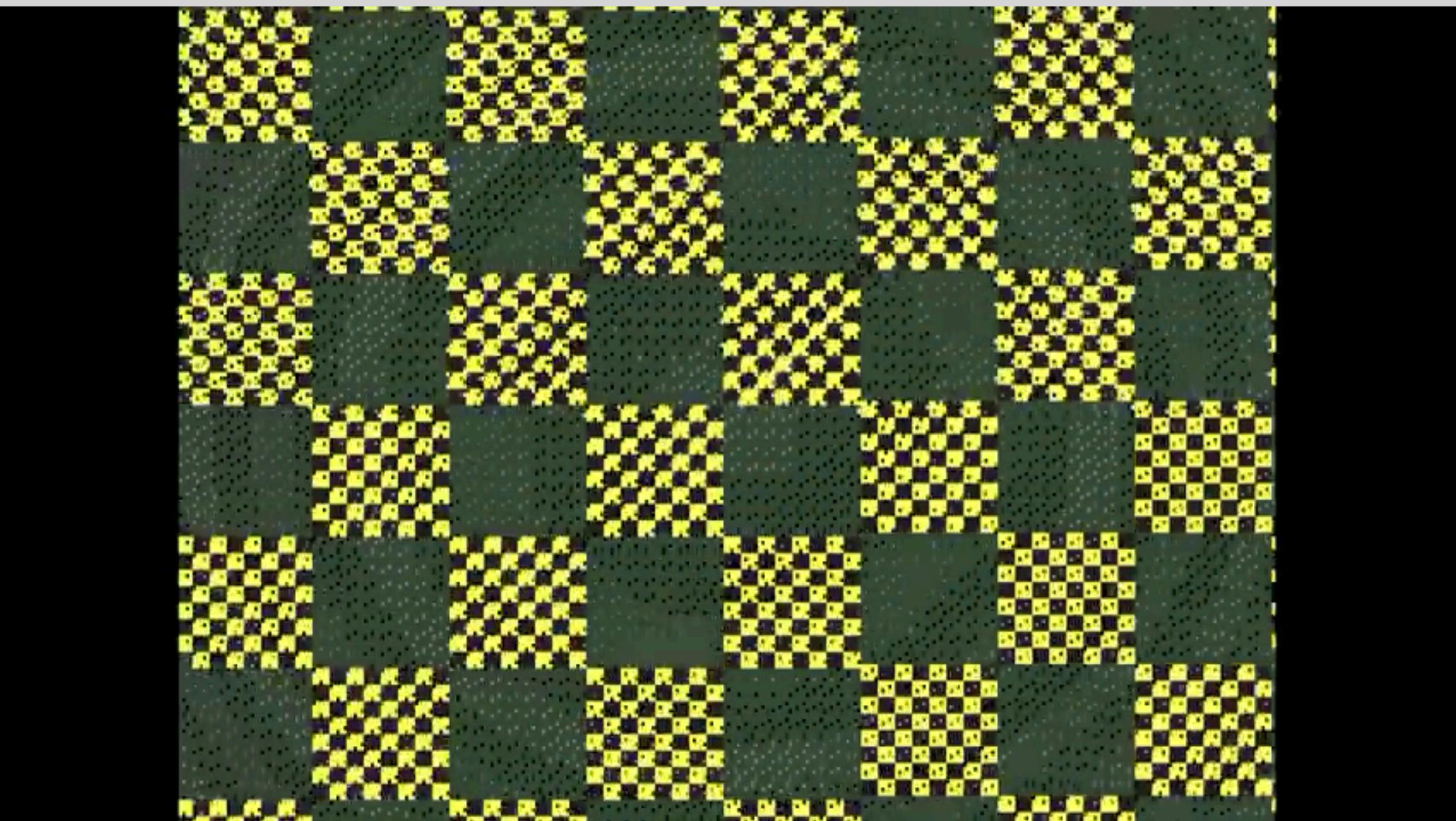
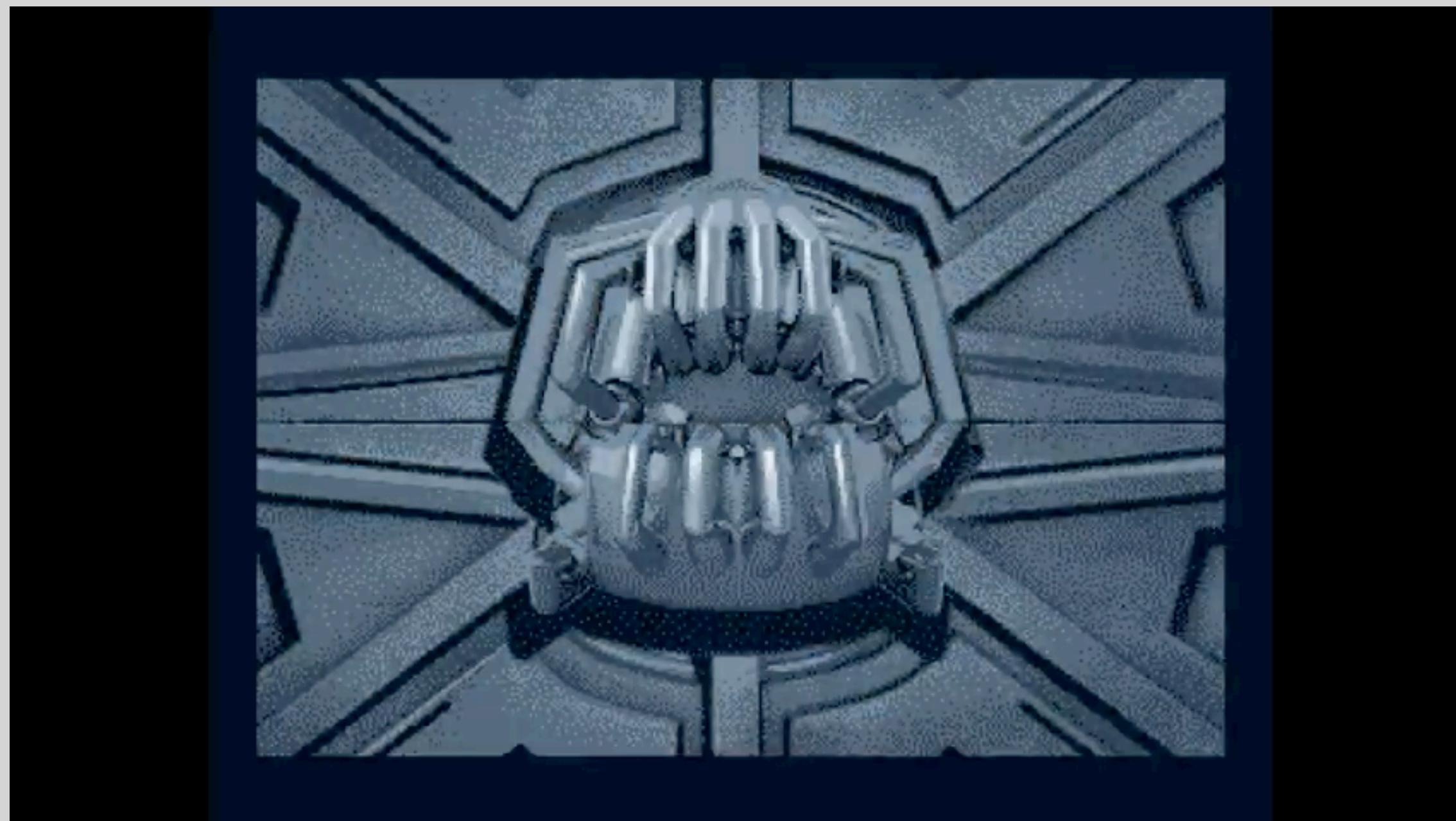
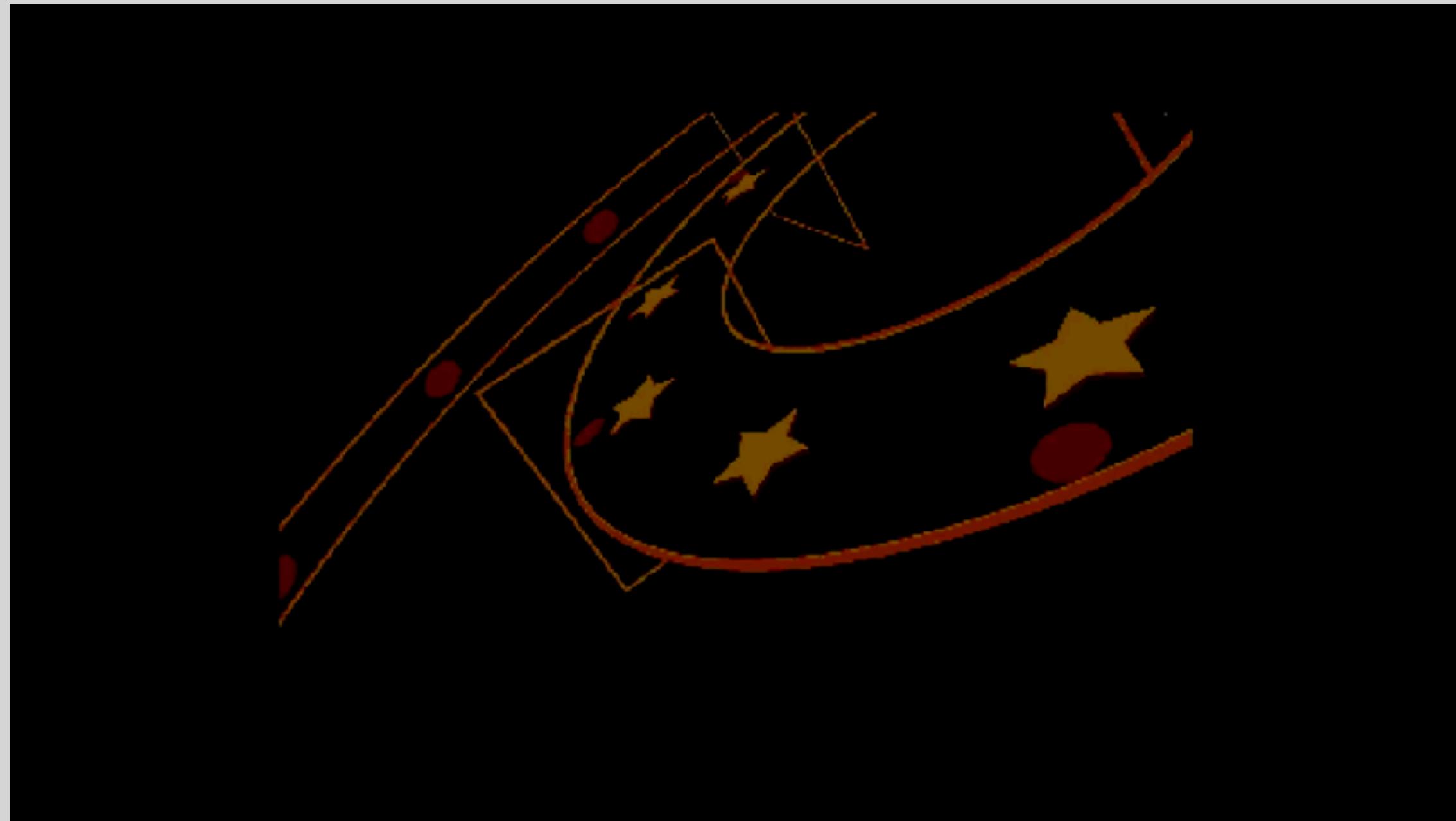
By Daniel Oberhaus

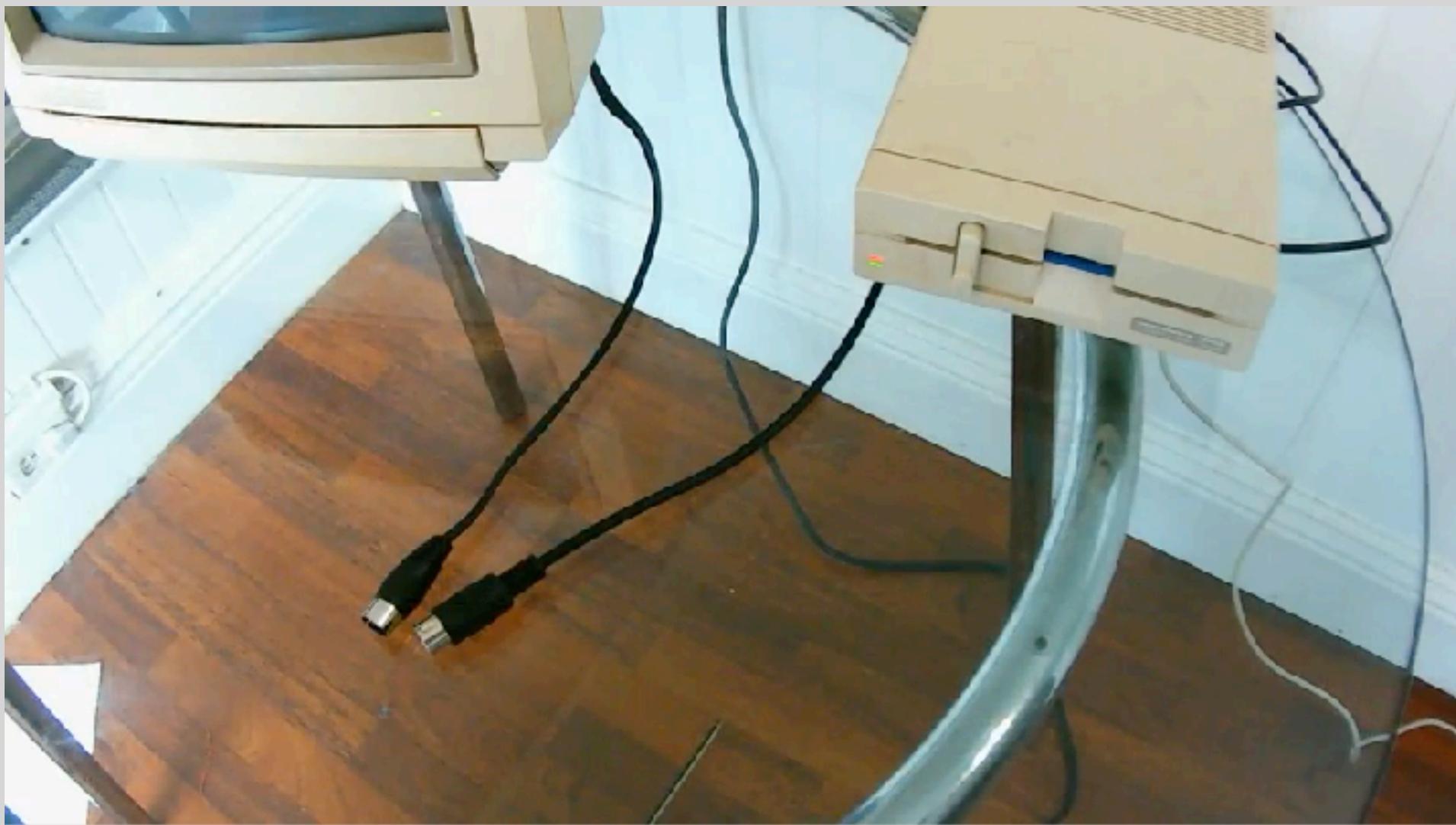
The screenshot shows a forum post titled "Demoscene is dead" in a blue header bar. Below it, a list of comments is displayed. The first comment reads "Nothing dies unless people are unable to participate." and was added on 2003-08-07 by Patrick Groove. Other comments include "Less whining - More demo making." by D Vibe, "my scene is deader then yours" by psenough, and "I do 63 DDPS(\*) on my Athlon. Eat that, suckers!" by mot. The thread continues with various users expressing their opinions on the state of the demoscene, with timestamps ranging from August 7 to August 11, 2003.

<https://www.vice.com/en/article/j5wgp7/who-killed-the-american-demoscene-synchrony-demoparty>

<https://www.pouet.net/>









**unesco**

German Commission  
for UNESCO

World Heritage

Intangible Cultural Heritage

◦ Nationwide Inventory of  
Intangible Cultural Heritage

◦ National Register of Good  
Safeguarding Practices

Memory of the World

Geoparks

Biosphere Reserves

Water and oceans

Cultural Diversity

#SOSAfricanHeritage

**Education**

**Culture and nature**

**Knowledge**

**Q**

Nationwide Inventory of Intangible Cultural Heritage

## Demoscene – Culture of Digital Real-time Animations



© Darya Gulyamova

The demoscene is an international, decentralised and non-commercial subculture focused on the production of digital audiovisual works. Demos are typically a few minutes long, software-generated animation sequences, a combination of music, videos, text, pixel and 3D graphics.



### Fakten

- Crucial date: Throughout the year
- Inscription: 2021
- Domain: Performing arts, social practices, rituals and festive event
- Where to find: Nationwide

### Contact

Digitale Kultur e.V.  
Tobias Kopka  
→ E-Mail  
↗ Homepage

Greetz and goodbyes

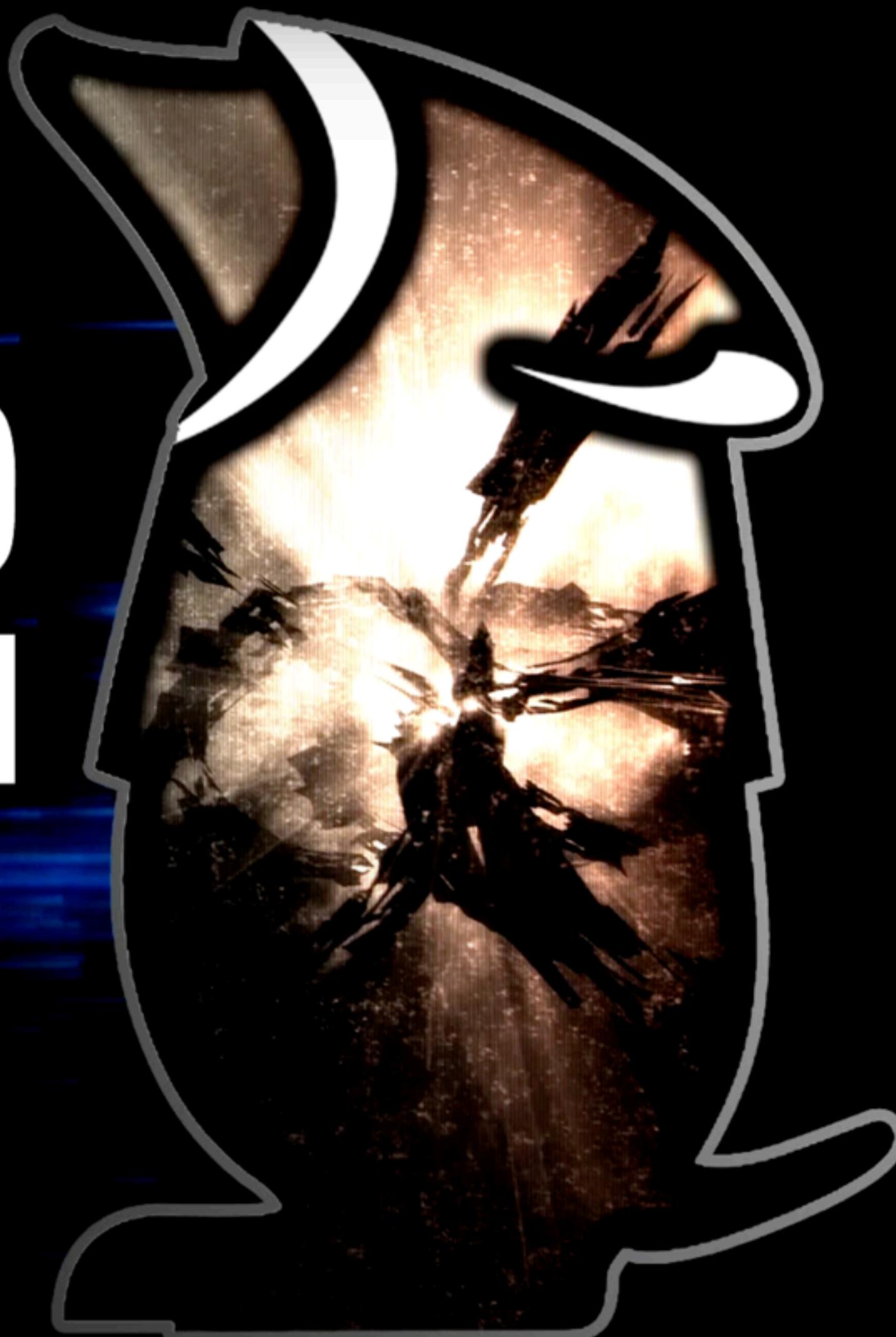
Moleman 2 - Demoscene - The Art of the Algorithms (2012)



# Moleman?

Demoscene - The Art of the Algorithms

[www.molemanfilm.com](http://www.molemanfilm.com)



0:01 / 1:29:58





#### Past parties

#### This week



#### Vintage Computing Carinthia \$20

15th Apr 2023



#### Upcoming parties



#### BCC #17

28th - 30th Apr 2023



#### SESSIONS in C4 LAN 2023 Spring

28th - 30th Apr 2023



#### 68k Inside 2023

15th - 16th Jun 2023



#### News

4/10/23

**Black Valley 2023**

Invite Released

3/10/23

**Kansasfest 2023**

Kansasfest Hybrid Virtual & In person

2/16/23

**Edison 2023**

Tickets Released

1/9/23

**Get Ready for Lovebyte 2023 Stream**

Here is how to submit your entry to the new talent competition

1/9/23

**Revision 2023**

Yes, it's happening!

# reVISION

Revision is back in the E Werk!  
Join us on the world's largest demoscene  
stage to enjoy digital art and connect with  
friends!  
April 7th to 10th, Saarbrücken DE

Oh yeah, let's go!

<https://2023.revision-party.net/>

**HOME**  
All starts here

**ABOUT**  
What they are

**CATEGORIES**  
For everyone

## THE METEORIKS

Celebrating the Demoscene

**LAUREATES**  
Meteoriks 2023

**TEAM**  
Who's behind it

**FAQ**  
Answers

Celebrating the past demoscene year

# ENJOY THE CEREMONY AT REVISION

## THE METEORIKS AT A GLANCE

All you need to know in a nutshell



### THE METEORIKS

The Meteoriks are an award to honor the best demoscene productions of 2022. They were presented at the Revision demoparty in April.



### THE DEMOSCENE

The demoscene is a computer subculture consisting of creative minds with passions of creating realtime art. Learn more [here](#) and



### METEORIKS 2023 LAUREATES

You can review the laureates and nominees of all eleven categories [here](#).  
Thanks to the Revision Team for hosting our

<https://2023.meteoriks.org/>



## UPCOMING PARTIES

April [Vintage Computing Carinthia \\$20](#) [BCC Party 2023](#) [SESSIONS in C4 LAN 2023 SPRING](#)

May [68k Inside](#) [QBParty 2023](#) [Outline 2023](#) [Birdie 2023 \(33\)](#) [AmiParty 29](#)  
[Amstrad ASCII Compo 2023](#) [GemTos 2023](#) [Pre-X 2023](#)

June [X 2023](#) [Vectorama 2023](#) [Decrunch 2023](#) [Nova 2023](#) [Pågadata 2023](#)

## LATEST NEWS

### Revision 2023: results and releases



11 APR 2023

Revision took place last weekend in its usual Saarbrücken E-werk home turf and managed once again to deliver against the very high expectations, whether it's for oldschool platforms or modern ones (41 PC demos!).

Revision 2023 on [Demozoo / scene.org](#)

### Forever 2023: results and releases!



The long-running 8 bit demoparty Forever took place once again on 17-19 March in Slovakia. As usual, many

## DISCUSSIONS

Musical module which was showing the animation from the notes

last post at 15:26 12 April 2023 by jeenio

Fix me beautiful

last post at 16:12 9 April 2023 by menace

Lost and found

last post at 09:11 18 March 2023 by menace

Terminator/Alien video breakpoint ?

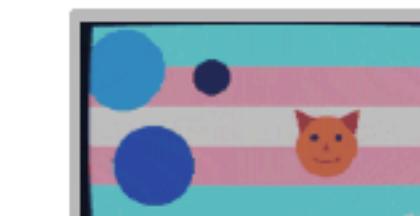
last post at 06:10 10 February 2023 by Skybuck

Demozoo API

last post at 02:09 23 January 2023 by psonough

[All discussions](#)

## NEW RELEASES



**Protect Trans Cats!**

by Aki

TIC-80 - 512B INTRO



**In The Name Of Love (DJ Mix)**

by cslr

STREAMING MUSIC



**Dreams 40**

by Void

AMIGA AGA - PACK



**Mechasm**

by Fairlight

WINDOWS - DEMO



**The Interloper**

# Community

Join our growing community of coding enthusiasts! Whether you are a beginner and want to learn from other users, or if you want to contribute to the project, the community resources are the place to start.

## Discourse forum

70+ users

Let the community answer your technical questions, discuss issues, solve problems, connect with other users, look up tutorials, and share your knowledge.

[Go to Discourse](#)

## Slack

300+ members

Join our Slack channel for more chatty conversations around OPENRNDR.

[Go to Slack](#)

<https://openrndr.org/community/>

## Github

20+ contributors

The complete OPENRNDR project can be found on Github, including its libraries.

[Go to Github](#)

The OPENRDNR Github [repository](#) is the place to visit if you have run into a bug, have an ideas or

# Thanks!



Github

<https://github.com/kanawish/kotlinDemoTalk>

# Thank you, and don't forget to vote



@kanawish

KotlinConf'23  
Amsterdam