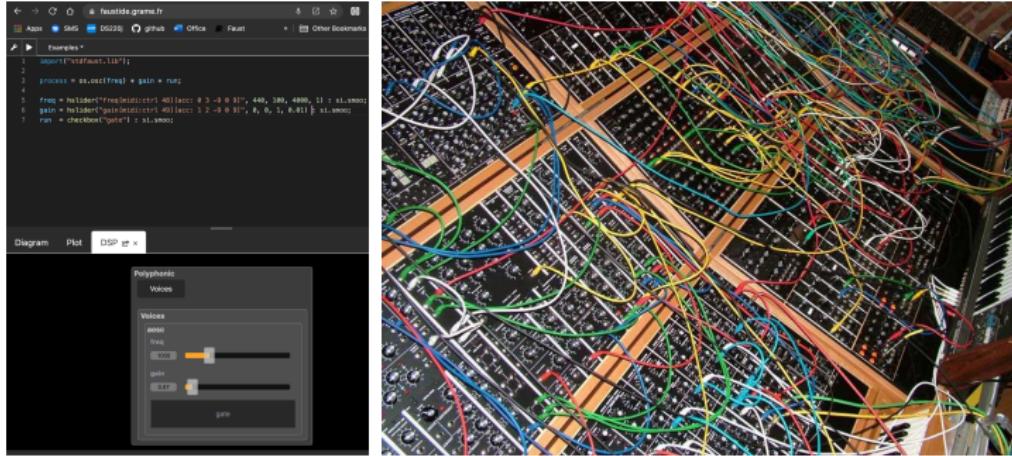




Functional
Audio
Stream

The Faust Programming Language

What is Faust (<https://faust.grame.fr>) ?



Faust is a programming language for signal processing, sound synthesis, electronic music instruments, etc.

Making Realtime Audio Programming Accessible

- *"Faust is amazing! Without Faust, I could never have started making plugins. Community is fantastic!"*
- *"Faust is a really efficient and versatile language, with lots of tools and supported targets. The syntax makes the use of the language easier, also for people with no strong background in programming."*

The screenshot shows a news article from the French government's website. The title is "Remise des prix science ouverte du logiciel libre de la recherche". The text discusses the awarding of prizes for open-source software in research. The sidebar on the left includes links for "Sommaire", "The Coq proof assistant", "Faust", "Documentation", "Gammapy", and "Jury". The footer features the GENDA logo.

Faust awarded with the 2022
Open Source Software for Open Science Research Prize

Faust is Fully Compiled

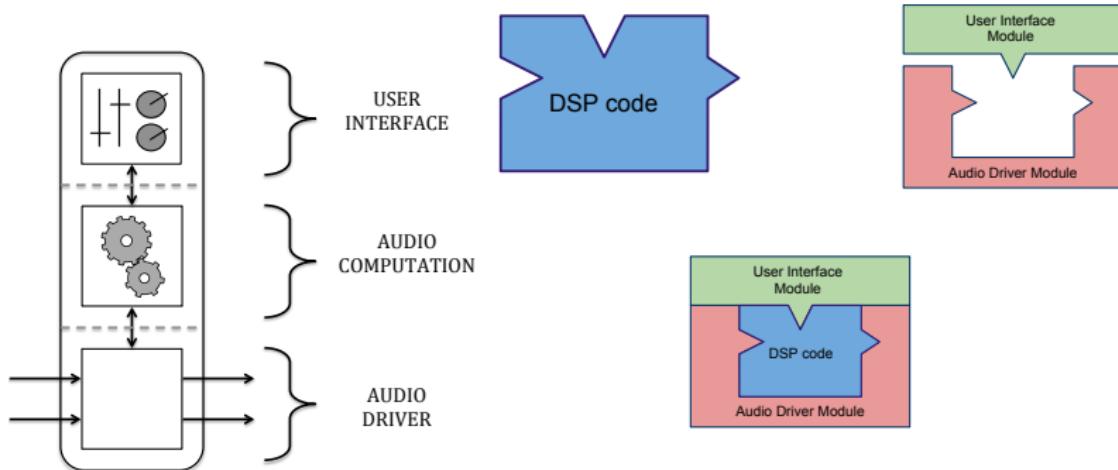
- Fully compiled to native code
- Sample level semantics
- Multiple backends: C++, WebAssembly, Rust, LLVM, etc.
- Code runs on most platforms: embedded systems, web pages, mobile devices, plug-ins, standalone applications, FPGAs, etc.



Architectures and Deployment

Separation of concern

The *architecture file* describes how to connect the audio computation to the external world.

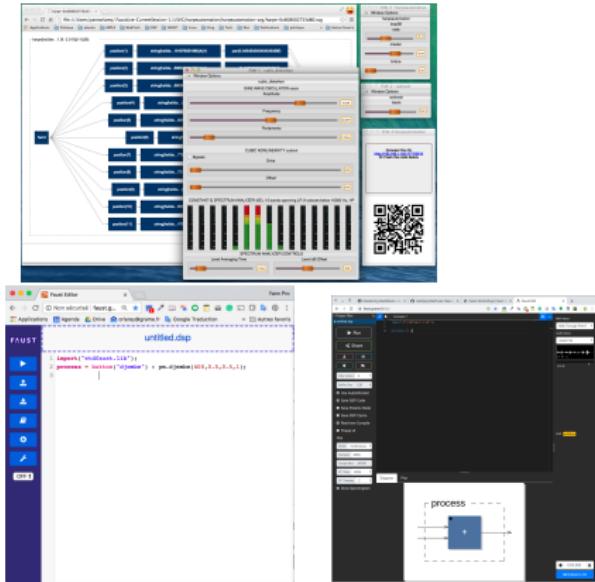
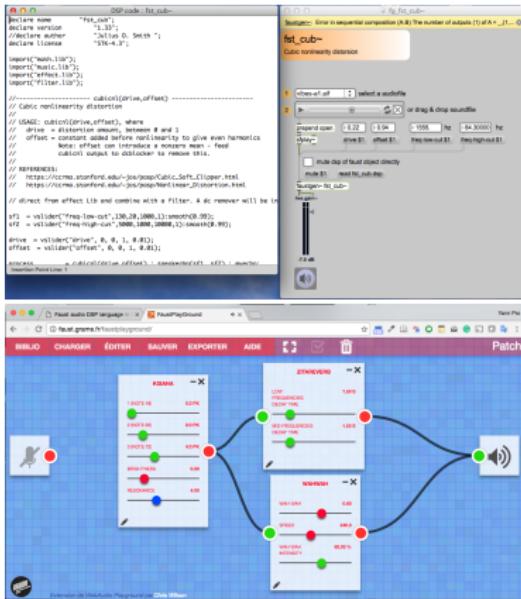


The Faust Ecosystem

Compilers

- Command Line Compilers
 - ▶ `faust` command line
 - ▶ `faust2xxx` command line
 - ▶ FaustWorks (IDE)
- Embedded Compilers (libfaust)
 - ▶ FaustLive (self contained)
 - ▶ Faustgen for Max/MSP
 - ▶ Faustcompile, etc. for Csound (V. Lazzarini)
 - ▶ Faust4processing
 - ▶ Antescofo (IRCAM's score follower)
- Web Based Compilers
 - ▶ Online documentation (<https://faustdoc.grame.fr>)
 - ▶ Faustplayground (<https://faustplayground.grame.fr>)
 - ▶ Online IDE (<https://faustide.grame.fr>)

The Faust Ecosystem



Quick Demo

Scan the QR code with your smartphone



- <https://tinyurl.com/45sxjt5m>
- <https://faustide.grame.fr/?autorun=1&code=https://raw.githubusercontent.com/orlarey/wahoo/master/examples/wahoo.dsp>

Documentation, Examples, etc.

<https://faust.grame.fr>



```
FAUST Home Documentation Downloads Tools Community Projects About Q Search
1 mesh.square[1] = 202 zita
2   sl.bus(4) <- par(1,4,*(-1)) <- sl.bus(4)) :> sl.bus(4); 203 {(
3 // decimator 201 square[1] = 204 with
4 mesh.square[0] = sl.bus(4)*N; 205
5   -decimate, feedback(N/2)); 206
6   -degrade, feedback(N/2)); 207
7 }
```

What is Faust?

Faust (Functional Audio Script) is a functional programming language for sound synthesis and audio processing with a strong focus on the design of signal processing components, audio effects, etc. created at the [Institute for New Media & Department](#). Faust targets high-performance signal processing applications and audio plug-ins for a variety of platforms and standards.

The core component of Faust is its compiler. It allows to "translate" any Faust digital signal processing (DSP) specification to a wide range of non-domain specific languages such as C++, C, LLVM IR code, WebAssembly, JavaScript, etc. In this regard, Faust can be seen as an alternative to C++ but to much simpler and intuitive to learn.

Thanks to a wrapping system called "architectures," codes generated by Faust can be easily compiled into a wide variety of objects ranging from audio plug-ins to standalone applications or smartphone and web apps, etc.



Powered By Faust

This page lists the projects using Faust in different ways: musical pieces or artistic projects, plugins, standalone applications, integration in audio programming environments, development tools, research projects (possibly non-musical), embedded devices, Web applications, etc.

201 Musical Synthesizer



We're Citizen & Dulari and we're happy to announce our newest synthesizer: the 201! If you're familiar with our other modular instruments such as the Podust Para, Dipsolar, Bokta Bass, or Kafelabido, we hope you'll see that the 201 fits right in with them: the 201 is fun, portable, and packed with a medley of musical magic!

Inside, the 201 uses a combination of Pure Data and Faust musical programming environments. Users are invited to modify or create new sound engines!

OneTrick SIMIAN



Learn Faust

International:

- Stanford U./CCRMA
- Maynooth U.
- Louisiana State U.
- Aalborg U.

France:

- Jean Monnet U.
- IRCAM, ATIAM
- PARIS 8 U.

The screenshot shows a web browser displaying a course page on Kadenze. The title of the course is "Real-Time Audio Signal Processing in Faust". On the right side, there is a sidebar titled "WOULD YOU LIKE TO ENROLL?" with a large "ENROLL" button. The sidebar includes fields for "Length" (5 Sessions), "Price" (Audit (Free) Certificate (incl. w/ Premium)), "Institution" (Stanford University), "Subject" (Creative Computing), "Skill Level" (Expert), and "Topics" (Synthesis, Computer Programming, Digital Signal Processing (DSP), Field Effects). Below the sidebar, there are four small circular profile pictures of people.

<https://www.kadenze.com/courses/real-time-audio-signal-processing-in-faust/info>