



# Noodle

Animation as Ramen

shamansir @ 2022



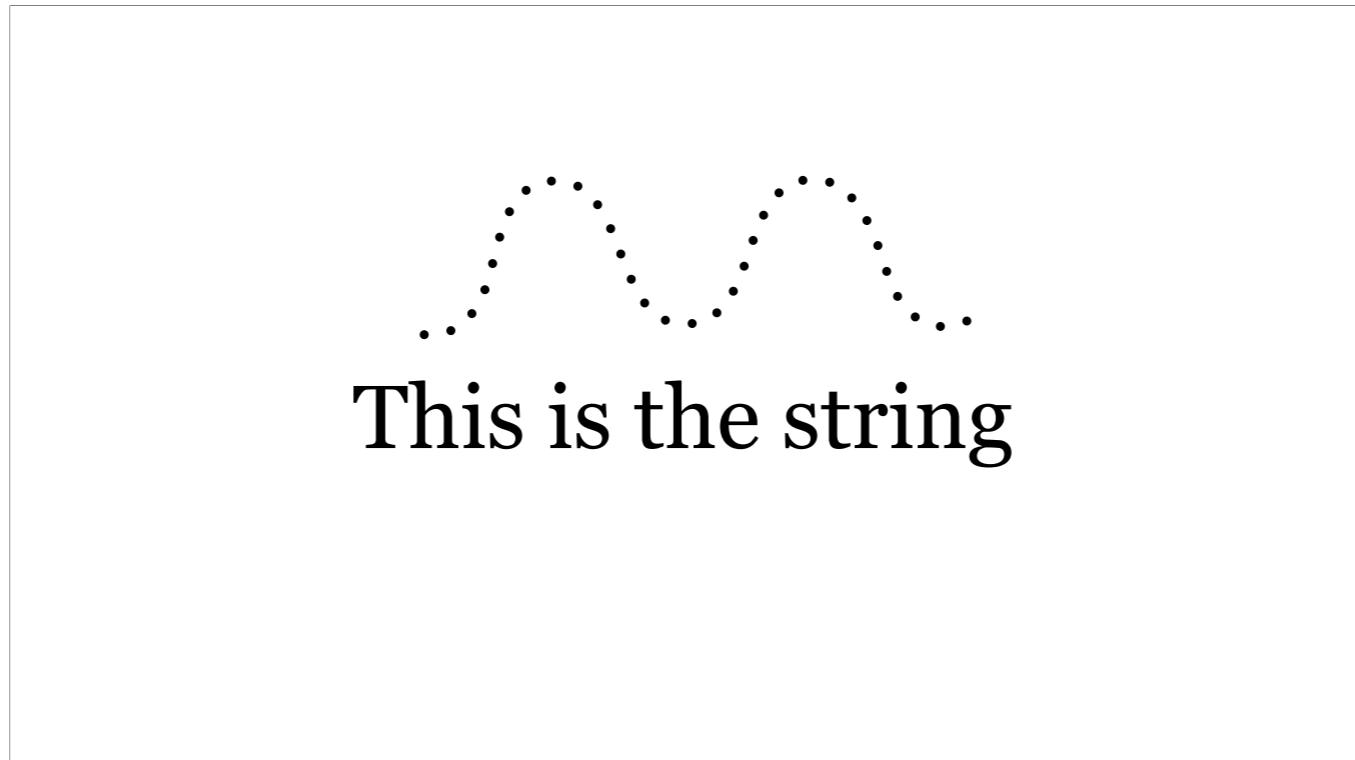
This is a noodle

A noodle is not only a part of almost every dish in the world, but also may be encountered in its essence, if you look closely.



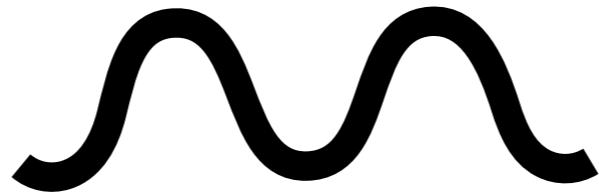
This is not McDonald's

Some areas and concepts which take a huge part in our life are having a shape of a noodle, sometimes infinite, sometimes it is just a cut.



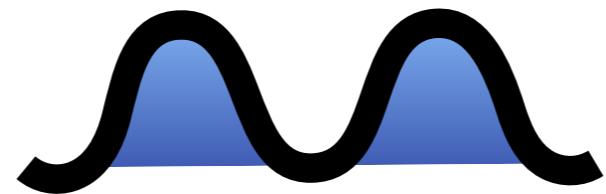
This is the string

If you happen to be the adept of the String Theory, it is to your beliefs that our world is arranged from strings, which are basically infinite sparse noodles. That for sure is true.



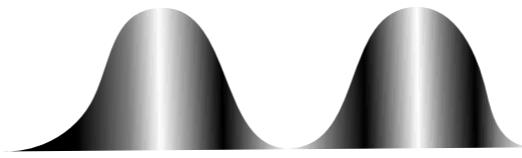
This is the sine wave

If you are producing some kind of modern music, especially by connecting the electrical wires, you have the prove of the String Theory at your hands, such as that you are aware that all the music is just sine waves, modified in a ways, joined or subtracted from each other.



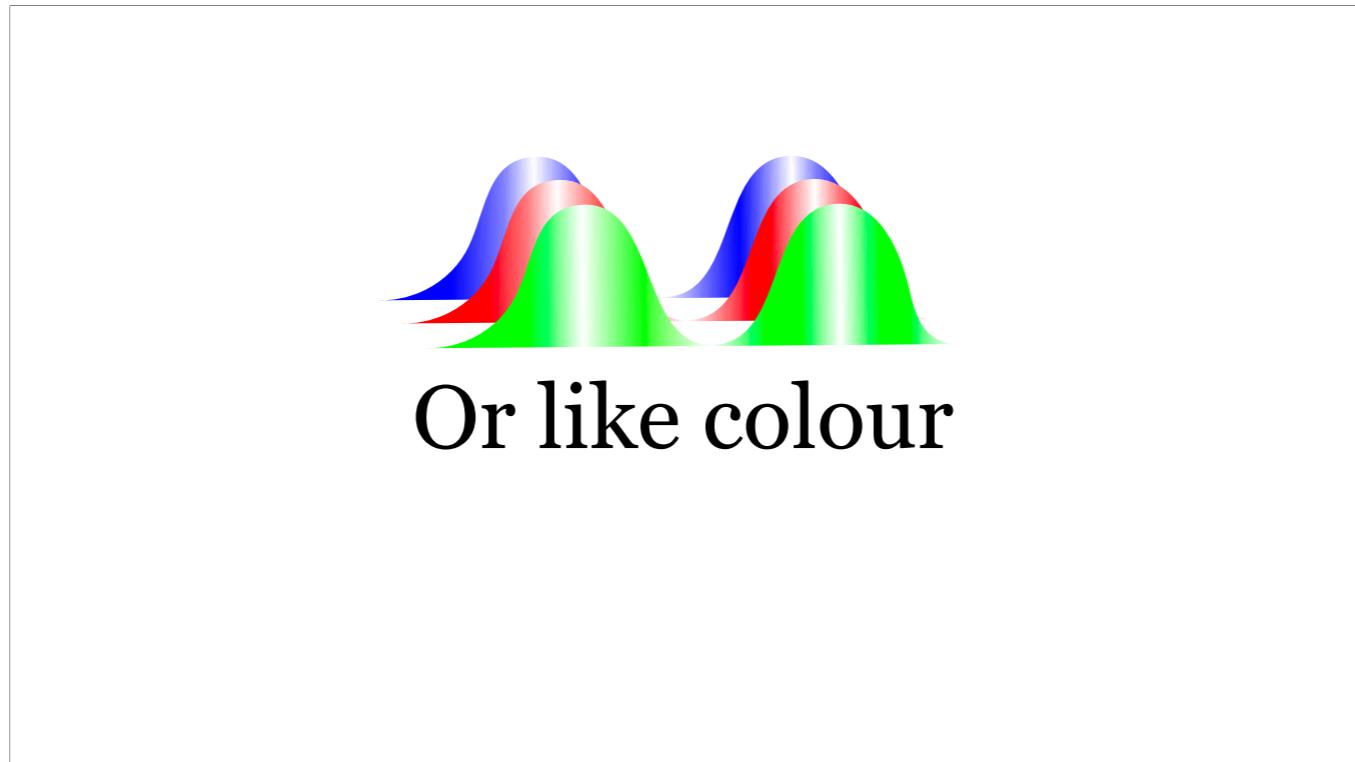
Like a sound

If you open a sound file with some music in your favourite sound editor (you are asked to obey the copyright laws when you do it), you'll see the long wave of sound harmonics combined, being spread along the axis of time. Those are recorded and reproducible numeric values, yes, numbers in a row.



Or like colour

Beethoven could've been didn't hear things, but for sure he has seen colours. And the colour is also some waves combined together, be it only a brightness level,...

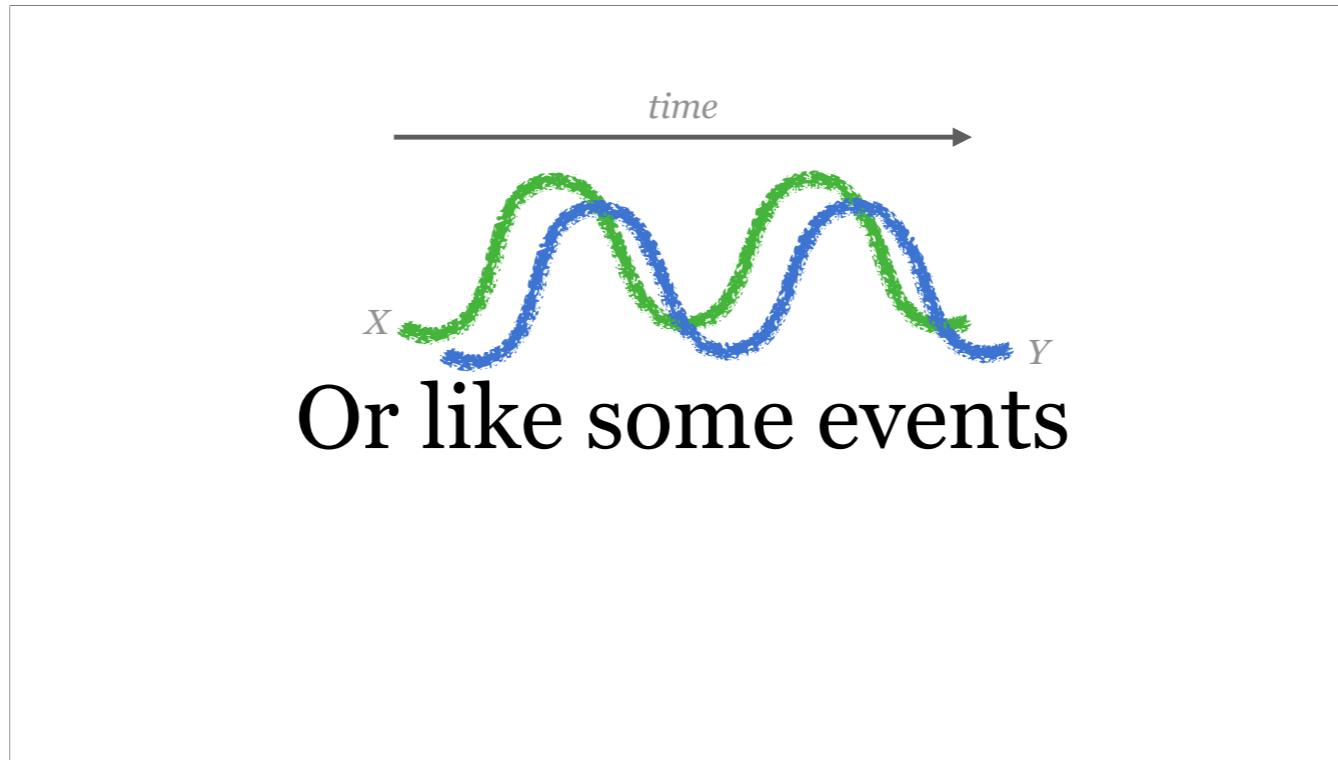


Or like colour

...additive model of producing a color...



...Or subtractive one.



Or like some events

If we track the coordinates of your eyes moving around the plot above and plot them over time, we would get the two continuous waves of values, one for X and one for Y. There could've been one for Z as well, but we decided to make this plot simple.



It's oscillating

Yes, all those waves change the value over time, and it's not always the bumpy shapes as in this nice picture, as well as all the noodles in the world or the universe itself, regardless of their length, try to find the shape of comfort between the other mixed ingredients in, say, ramen.



This is a heartbeat

The heartbeat inside of your body is a wave, a noodle, itself, if you take time measuring it.

All of those are continuous  
flows of something

So we at Noodle have noticed all these remarkable resemblances in the universe we live in. And we asked ourselves several questions:

What if you would be able to connect some flows with other flows?

What if you would be able to abstract over the specific meanings of those and just connect flows of numbers to some other flows of numbers? Ok, maybe with some restrictions, like not mixing Celsius with Fahrenheit, but with the ability to easily convert between some kinds of numbers to another kinds of numbers. Considering the time happening globally. [Or like the events in the Marvel Cinematic Universe nowadays, having branches of the time.]

**What if you would be able to  
connect some values  
with other values?**

Sure we don't blindly pursue the fact that every thing in our world is a wave. There are some spatial random events that seem to be just numbers as monadic. \_Or just a very short constant-valued waves\_

Could one  
create animation  
this way?

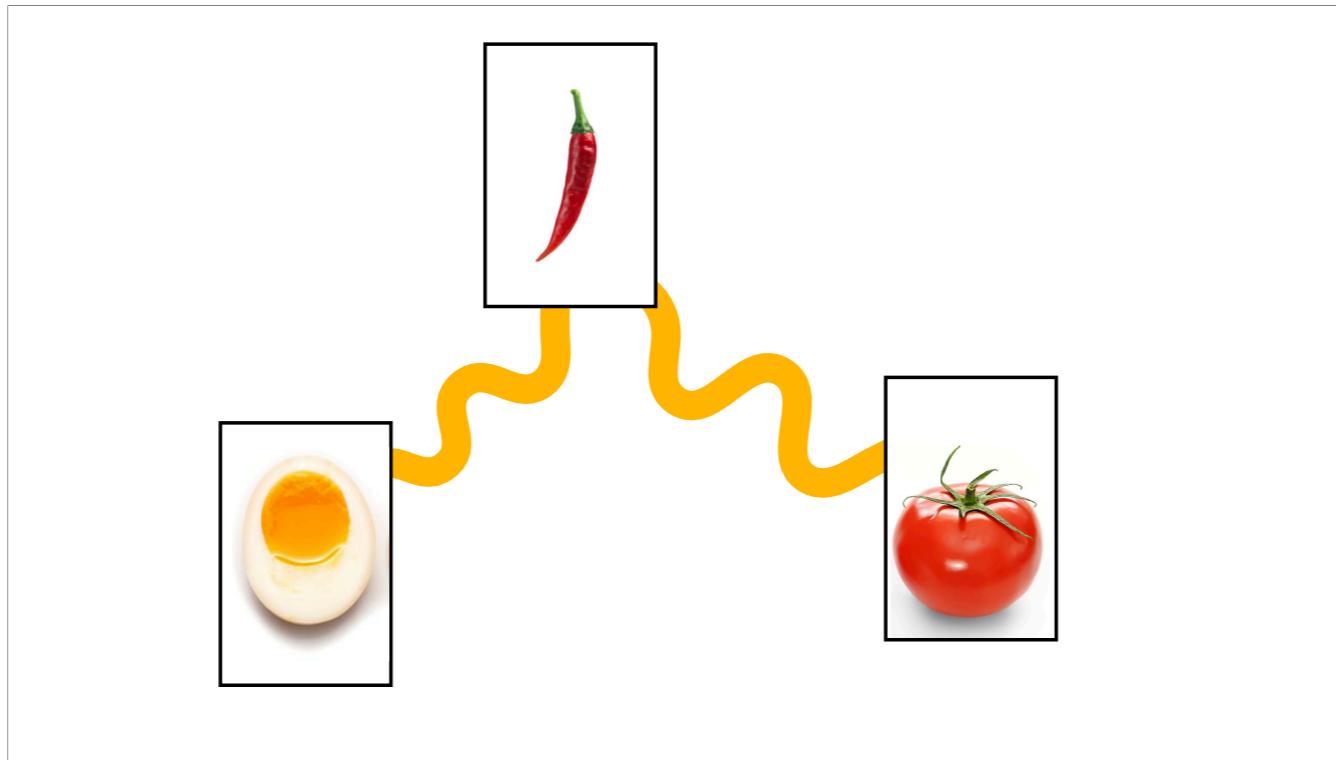
So, taking that the sound is a wave, color is a wave, motion is a wave [only time is a straight line], could one create animation this way?

Sure you could!

Sure one could!

# Meet Noodle

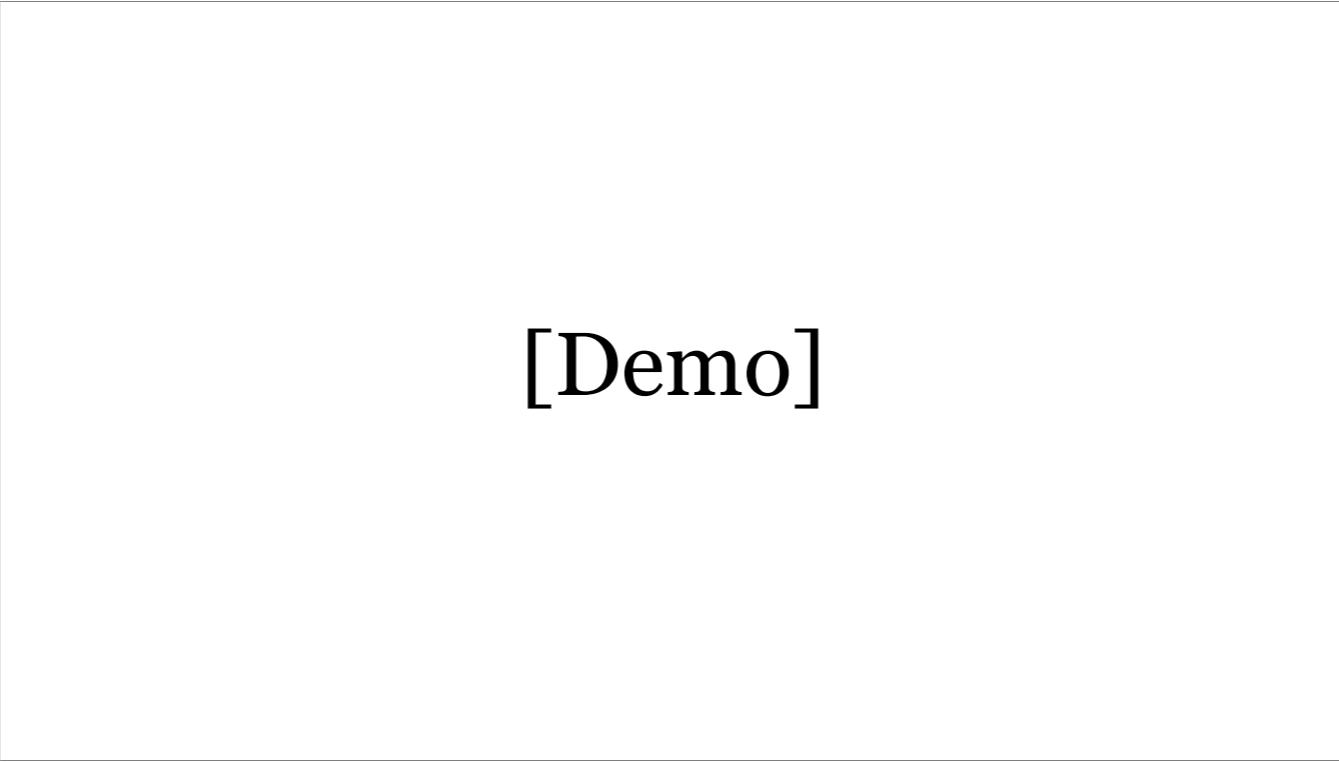
Meet Noodle. This where we take noodles and connect them into the Ramen Universe.



In Noodle, we have a number of building blocks ready to build your animation from. We connect them with noodles, or waves, name them as you want. Sometimes they deliver a single value from one block to another, but usually they represent continuous flows of values like the ones we discussed before.

# Node == function

Temporary slide, for programmers.



[Demo]

Though I think it is better to show it in the product itself.

# My Story

This project started long ago. Maybe because since almost from my birth I was fascinated with digital art. In school, I had a digital contact book with a memory 75-to-5 screen, so I did short animations from running texts and special symbols, one would run them by manually scrolling through the contact list. In 1995, when I got my first computer, I started drawing things using ASCII art. Some time later, probably 1997, I bought my very legal version of Windows '95 and there was this Paint program. Along with Nullsoft Winamp player, with the ability of drawing skins for it, so I drew them through the days.

- 2004–2005: Delphi + MM Flash animation @ Research Institute;
- 2005–2011: Front-end development in Java : Spring, Apache Wicket, GWT, some amounts of JavaScript etc. (music & generative art as a continuous hobby)
- 2011–2016: Animatron, GWT & writing JS player for animation (RPD, Noodle predecessor, as a hobby)
- 2016–...: JetBrains (gen. art as 20% hobby)
- 2019–...: Computational Arts at JetBrains

Let's skip the first place of work where I built real sofas for real people from the real world. So at the second workplace at the Research Institute I was intended to be some sort of software developer (I've self-learned some programming not only while doing sofas, but during skipping school lessons as well) to process seismologic signals and the IDE I knew well was Borland Delphi, so they allowed me to use it and so add some fancy (to the time) User Interface to the tool. But at some point the chief noticed that I am a fan of doing Flash (MacroMedia at the time) animations and used this my skill as a source of dynamic illustration for his scientific talks at the conferences. I wasn't against it, since he helped me improve in that, and even hired a toon animator for a part-job to teach me some tricks.

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Later it was mostly UI development in Java + JavaScript Front-End, and I liked it because UI is also some kind of digital art;

At this point, in the background, I tried some weird things (thanks of friends with who also were [and keep] being into that) like visual recognition written in LISP, music visualisation in Scheme & s.o.

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People from Animatron found me at the point when I lived in Odessa, Ukraine. They suggested to work on the web animation tool and I would be a fool to decline that. So for several years I was the developer of HTML5 animation player and in parallel had ideas about the Noodle project. This is also where I met Sergo, the designer from JetBrains who inspired me to continue things. After a year of remote work me with my wife moved to Munich and I am very happy that we did it.

...RPD story

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After a five years in Animatron I've changed to JetBrains, working mostly as a frontend developer. By coincidence, Sergo worked as JetBrains as well, and we've started doing generative art to provide the designer team with varied images made quickly. Of course we weren't the only source of the designs, even generative design requires a human touch anyway, our products were mostly used for your favourite IDE splash screens and some banners.

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<https://caj.jetbrains.com>

... And at some point our efforts turned into a separate team (thanks for everyone involved in making that happen!), which is six employees nowadays (we're really happy you've joined us, folks!). We are integrated into the design team, making us the developers inside the design team inside the company of developers!

This is where the RPD project turned into Noodle.



Noodle, because **noodles**  
are connecting things

huge thanks to Sergo for the name and tons of ideas for the development

And so it was named Noodle, thanks to suggestion from Sergo. Noodles, because noodles connect things.



**Noodle, because noodles  
are connecting people**

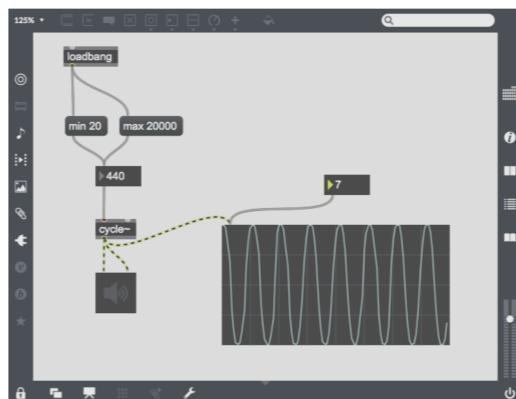
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Even better, noodles are actually connecting people. Just picture a frame from some romantic comedy for a proof.

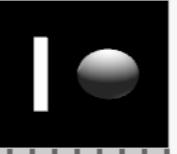
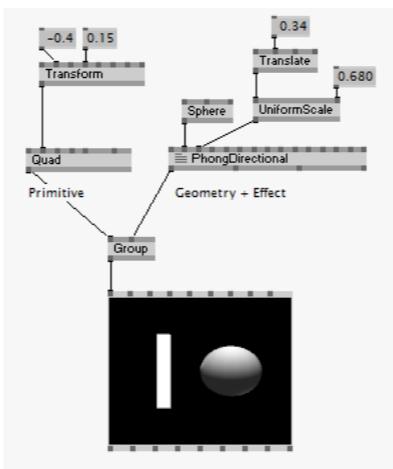
## Similar products

Of course Noodle is not the only one. The idea of doing generative animation or generative audio using visual programming is there for truly a long time. At least starting from 1996 as of PureData, the tool that 3D from Massive Attack used to introduce more character to the music. But maybe it was Alan Kay from 60es with his talks on visual programming.

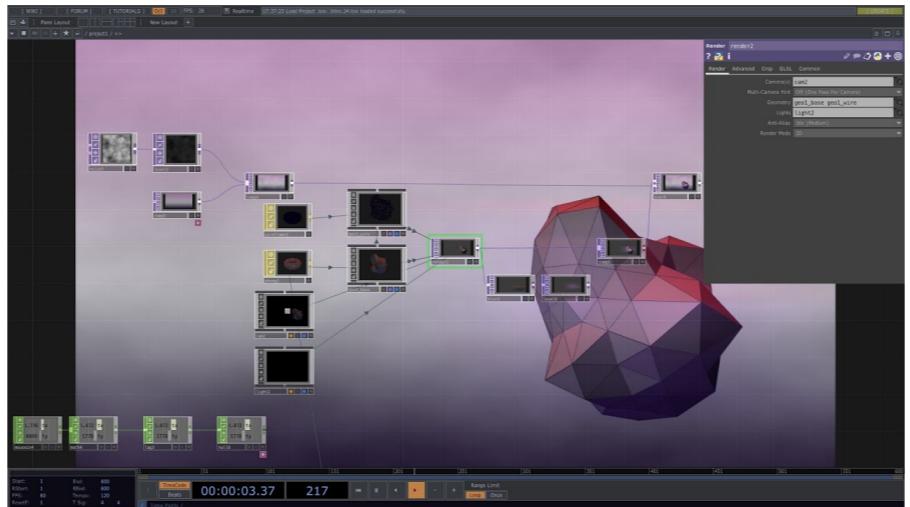
## Max / MSP by Cycle 47



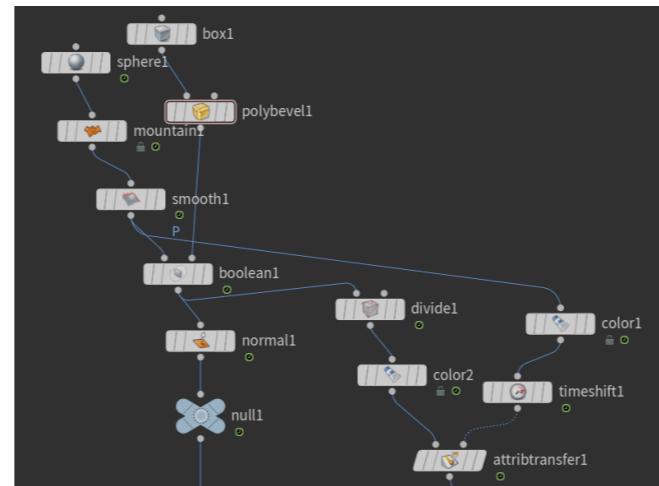
VVVV



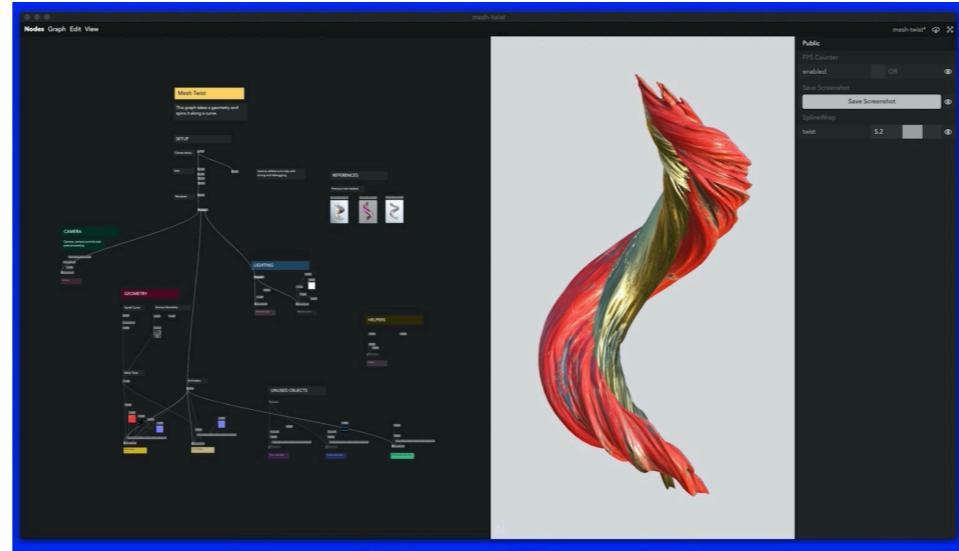
# TouchDesigner



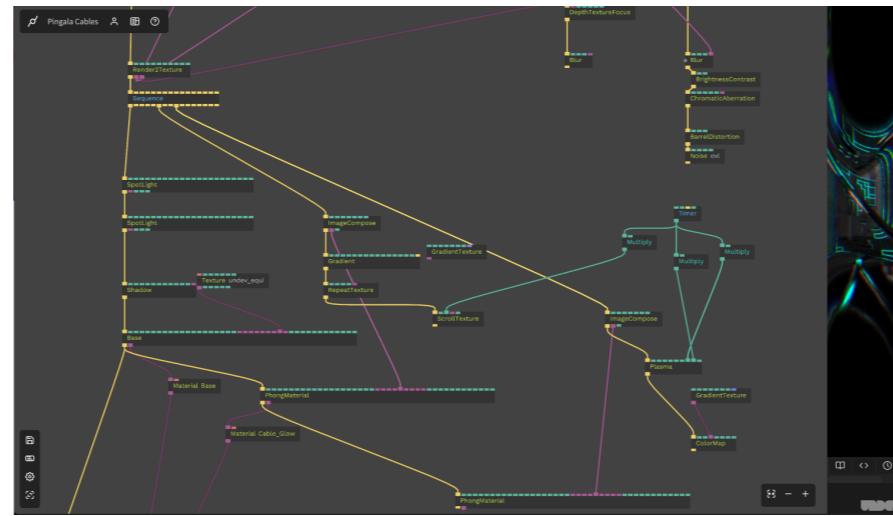
## Houdini SideFX



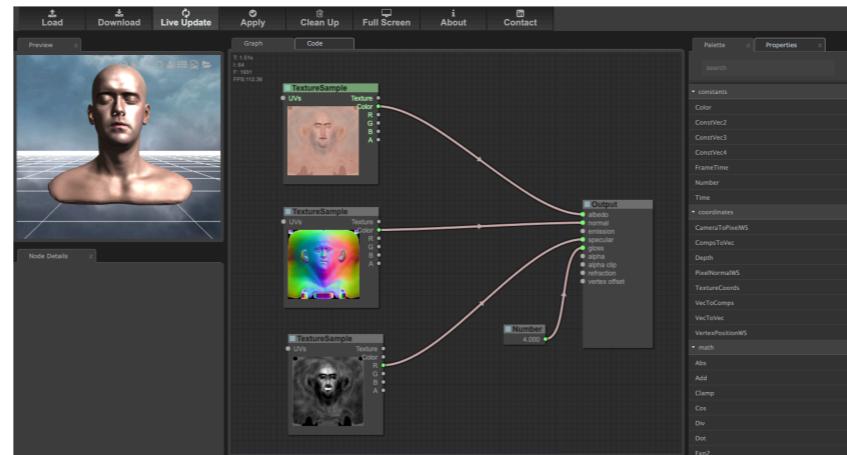
## nodes.io



## cables.gl



and others...



# Design team in JetBrains:

Noodle is being developed for designers from JetBrains to automate the tasks of dealing with massive needs of animation and generative static visuals during usual workflow and marketing campaigns.

- Motion Design;
- Printed and digital,  
static and moving backgrounds;
- Visual panels for conferences;
- Visual + audio feedback;

We have a Motion Design team which could benefit from creating visuals and backgrounds for marketing purpose. We could write minimal interactive installations when offline conferences would be back or having them online in case if they won't.

**Noodle is:**

So some of the differences of Noodle from competitors are:

- Free;
- Web;
- Custom styling;
- Easy to write plugins for;
- Written in PureScript, purely functional: algebraical & stable;

Noodle is being developed to be open and extensible with custom plugins. It will work in Web, be it Web 2.0 or Web 3.0 or whatever next version of Web. It will support different styling. The current version is being written in PureScript, which is very pure functional language for Web so it would be stable and has all the algebraic concepts lying behind the noodle-powered ideas discussed in the first part of the talk. The language for writing toolkits will be different though, the syntax will be closer to PureData files, or else it won't be easy extensible.

[https://github.com/  
computational-arts-initiative/  
noodle](https://github.com/computational-arts-initiative/noodle)

Feel free to visit and discover current state of the source code.

Thank you.