

VARIABLE FONT

Definition, applications and resources

November 14, 2019

Sensor Variable Font: *Semantic interfaces through variable fonts*

Iván Huelves & Lourdes Marcos / www.sensorvariablefont.com

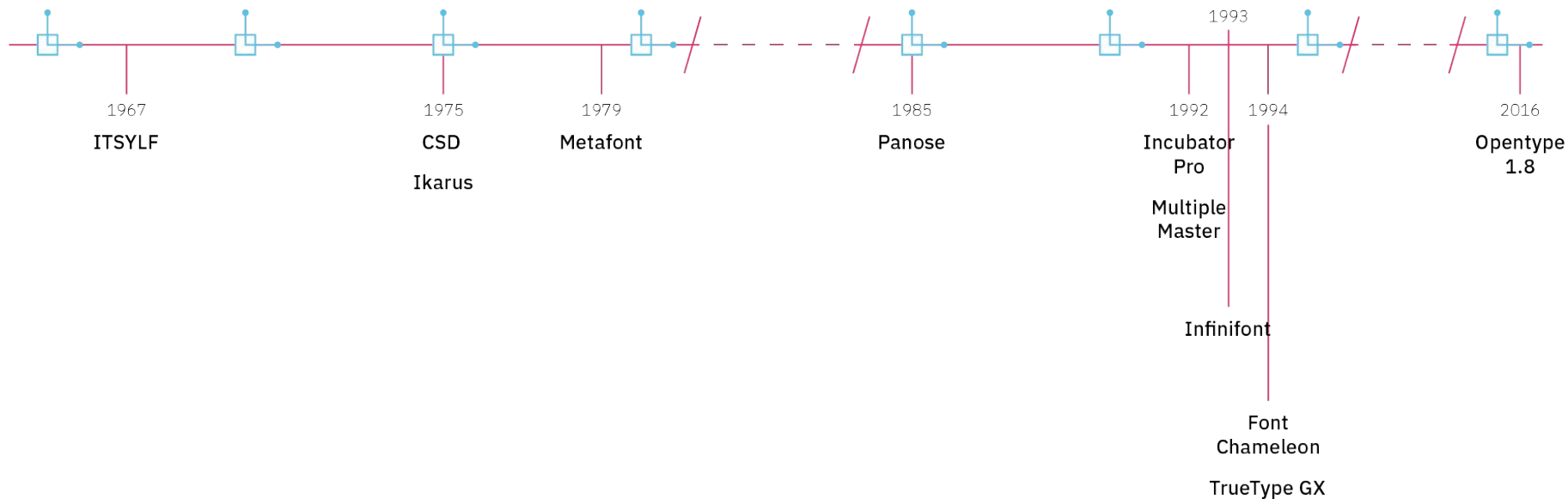
e/s/d/
madrid

ESCOLA
SUPERIOR
DE MEDIA
ARTES
E DESIGN

Variable font history

Digital predecessor parametric systems

Timeline:



Variable font

Opentype 1.8 specification

- **On September 14, 2016**, the new Opentype 1.8 specification was released, which included variable sources.
- The work has been the result of a joint effort by the major technology companies: **Google, Microsoft, Apple and Adobe.**
- The main objective has been to **reduce the bandwidth consumption** of typography on the web.
- However, variable fonts hides applications that **can revolutionize the role of typography in visual communication** by becoming a **dynamic and interactive element.**
- The novelty of variable typography can be summed up in its capacity to **generate new glyphs from the interpolation between two or more master designs.**



Variable font

Let's see them on action

Variable



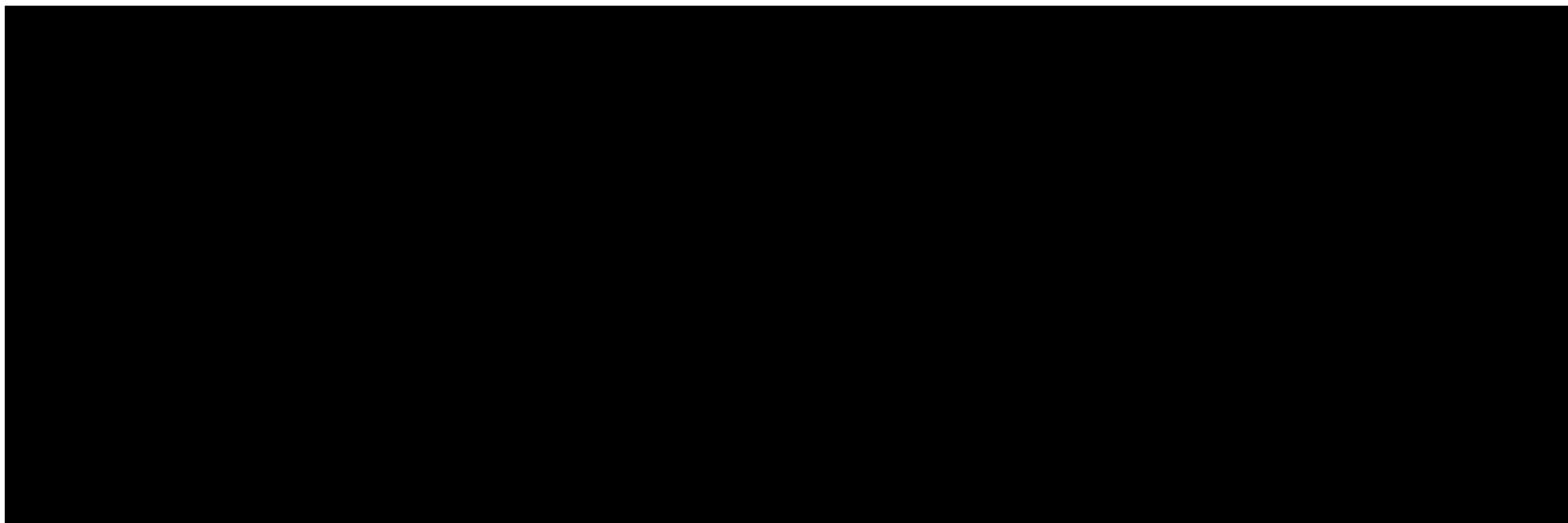
Fontsmith's variable fonts

Variable font

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Let's see them on action



Variable font

- The variations take place from the **interpolation** between two master instances that **delimit the extremes of the design**.

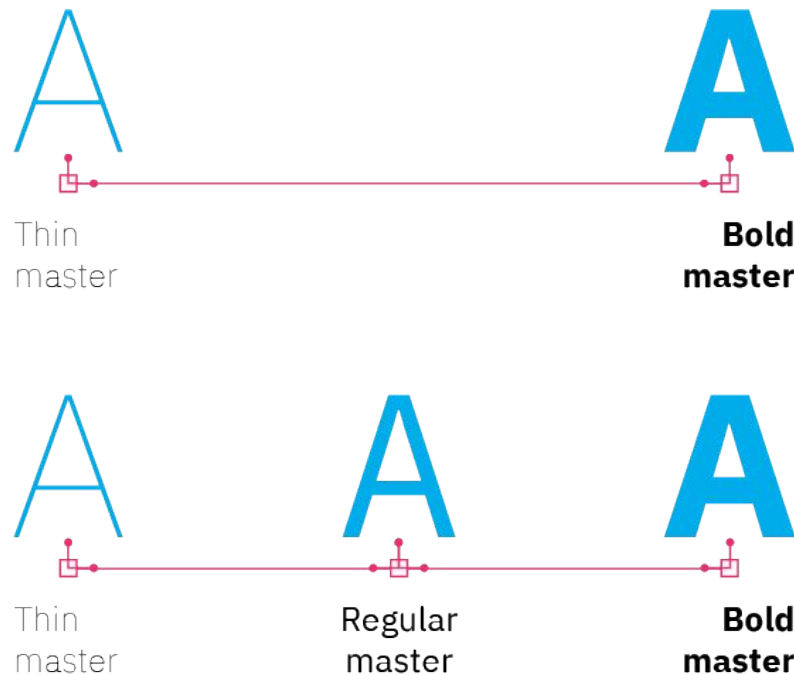


Limited design space at the ends

Variable font

Masters

- It is a set of nodes with coordinates specified a priori by the designer that **configure the contour of a glyph**.
- The usual practice is the creation of **two master designs, each one at the ends of the axis**, and from these it is interpolated.
- It is essential that they contain the **same number of nodes and contours** for interpolation to occur correctly.



Variable font

Axes

- **Variables** in variable fonts, redundancy permitting, are defined by so-called axes. When declaring variables, they must have a maximum and minimum value between which they are interpolated.
- Variable fonts can contain **multiple axes**.
- It is possible to vary the typography from a **single axis**, or from **several axes** at the same time.



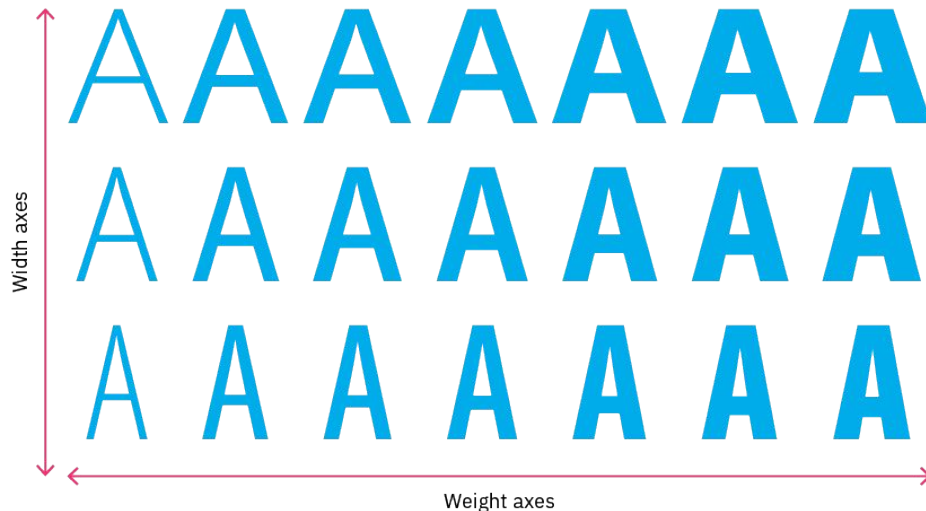
Variable font

Axes

- Variables can also modify the **metric** of the source, such as kerning values and positioning rules or **hinting** values. It also includes the possibility of modifying the **colors** of the font.

Registered axis:

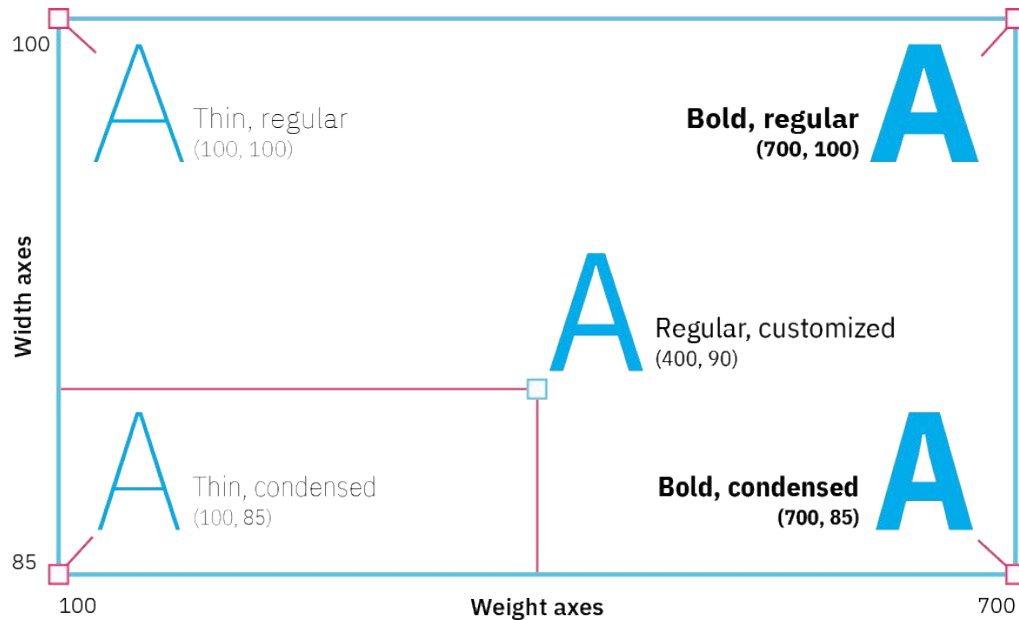
- Variable Weight: «wght»
- Variable Width: «wdth»
- Variable Optical size: «opsz»
- Variable Slant: «slnt»
- Variable Italic: «ital»



Variable font

Design space

- It is a **virtual multidimensional space** in which typography is developed.
- This space is constructed from the **axes**, which would be the variables included in the font, and the **masters** that limit the axes at the extremes.
- This design space is not infinite, but **limited**.

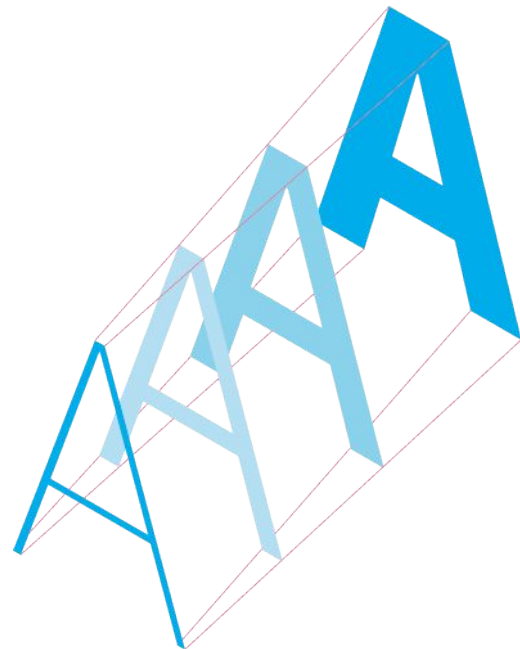


Representation with real values of the design space of the IBM Plex Sans Var typography.

Variable font

Instance

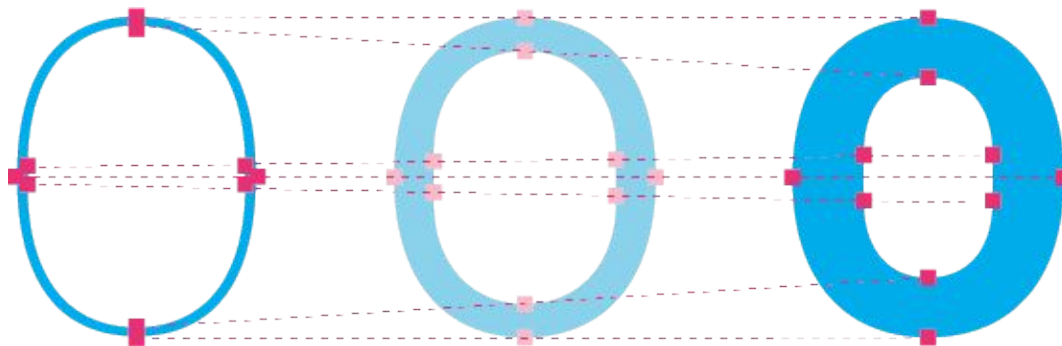
- An instance is **any glyph generated from the interpolation** between one or more axes.
- From the masters, the font interpolates to generate new instances that have not been defined by the designer.



Variable font

Interpolation

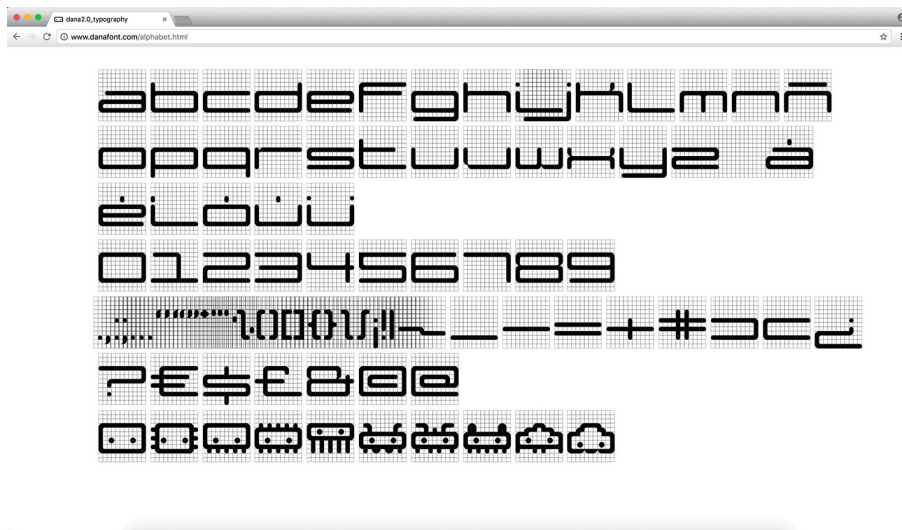
- Interpolation is the mathematical function used by variable fonts to generate instances from masters.
- **Linear** interpolation generates a straight line between two pairs of nodes.
- **The position of the nodes is crucial** so that the shapes do not overlap when interpolating.



Variable font

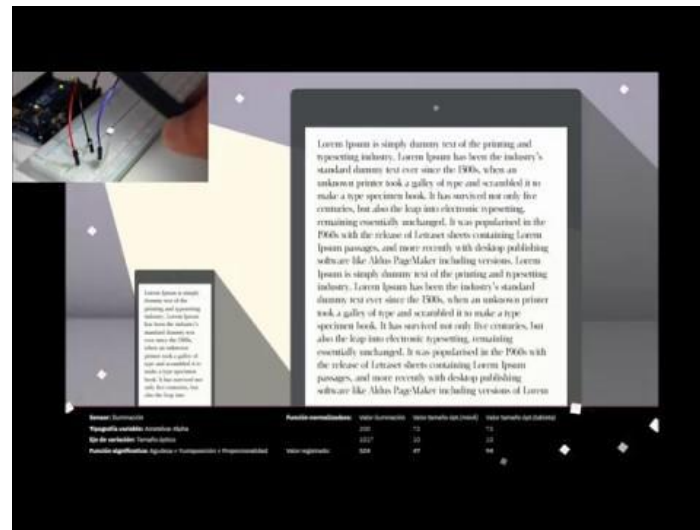
Applications

- Web design and responsive typography.



Dana Font, Ana Estrada

- Improved reading experience.



Sensor Variable Font, Iván Huelves

Variable font

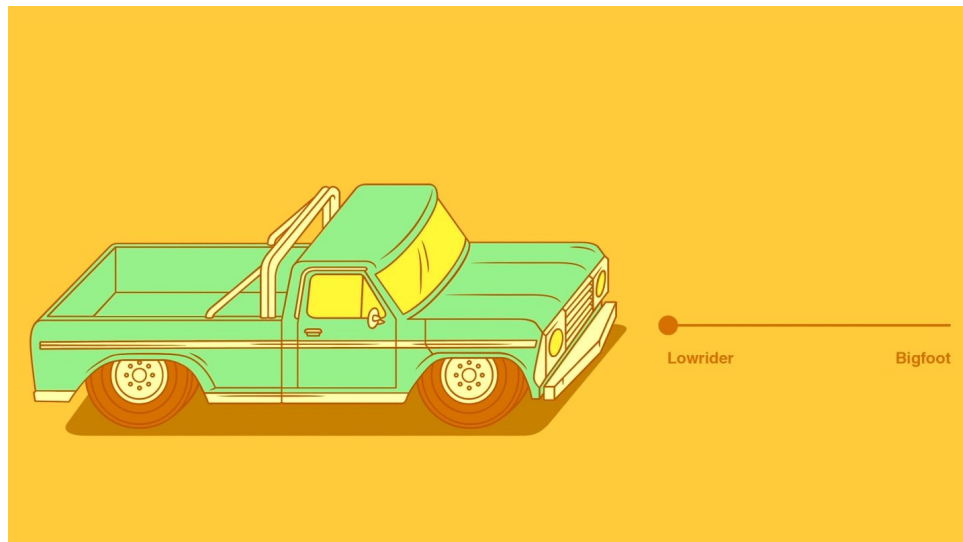
Applications

- Variable identity.



Amsteldok, Fontsmith y VBAT

- Animation and kinetic typography.



Typerature, Arthur Reinders

Variable font

Applications

- Data visualization.



Oh no type

- Augmented reality.



Andrew Johnson

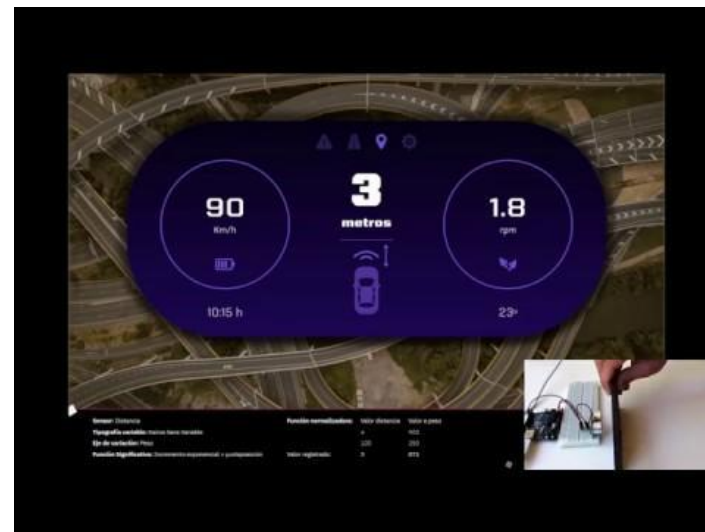
Variable font

Applications

- Interaction and adaptation to context.



Indestructible Type

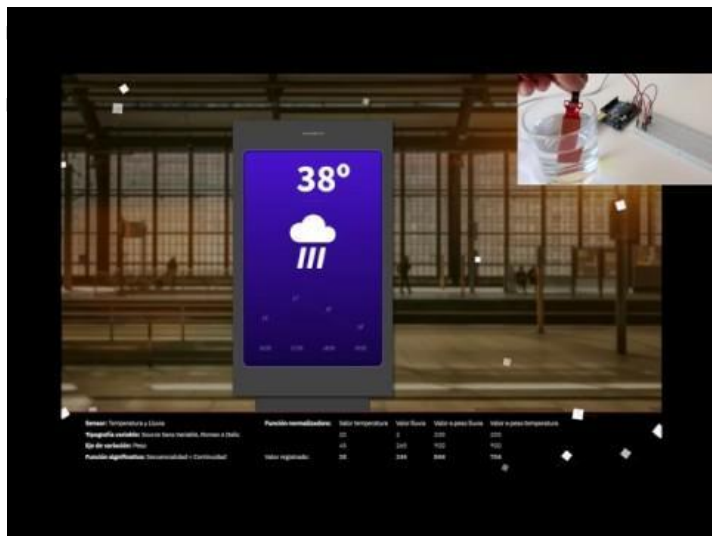


Sensor Variable Font, Iván Huelves Illas

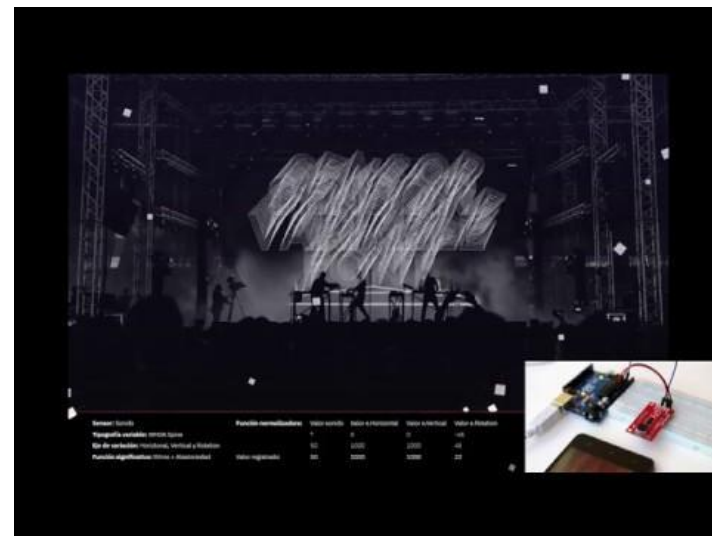
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Applications

- Interaction and adaptation to context.



Sensor Variable Font, Iván Huelves Illas



Sensor Variable Font, Iván Huelves Illas

Variable font

Resources and references

- [V-fonts](#): Repository to search and test variable fonts.
- [Wakamaifondue](#): Tool to obtain information about your variable (and non-variable) fonts.
- [Axis-Praxis](#): Repository to search fonts and blog with the latest news.
- [Variable Font experiments](#): Repository to test some variable fonts.
- [Font Playground](#): Tool to test fonts and modify.
- [Very-able-fonts](#): Blog with information about variable fonts.

Thank you very much for your attention

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