

(Cours/TP) Animations et JavaScript

Julien Guézennec - HETIC Montreuil - MAJ : 20/03/2015

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~ EN COURS D'ÉLABORATION ~



Pour me présenter...

Je fais des sites et applications Internet multi-plateformes !

Bonjour, je m'appelle Julien Guézennec, j'ai 25 ans d'expérience dans le développement web, pour des start-ups, en freelance et pour Bouygues Telecom durant 13 ans (ingénieur "Innovation et

Convergence Internet"). Je suis spécialisé en développement front et back-end de sites bureau/mobiles et je m'intéresse particulièrement à la conception et au développement d'interfaces utilisateur complexes, mais ergonomiques et accessibles.

Je suis capable de travailler seul ou en équipe, et je peux m'occuper de toutes les étapes du projet, du design à la gestion de projet en passant par la formation et la communication. Je suis expert dans de nombreux domaines tels que le e-commerce, les interfaces d'administration, les data(bases/viz), la sécurité, les webapps mobiles, etc.

Je suis passionné par Internet, le code et le multimédia, et j'aime apprendre de nouvelles technologies.

Je pratique aussi WordPress depuis -presque- sa création, et j'aime beaucoup ce CMS :)

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- **Code** : [@julien-queznet](#) sur Github
- **Site** : Julienweb.fr

Mes autres supports de cours :

Mes cours sont disponibles sur Google Drive. Ils sont souvent mis à jour, mais vous pouvez choisir de les télécharger au format PDF si vous le souhaitez !

- Cours WordPress (CMS) :
docs.google.com/document/d/1k0lhA-lyGQKWm9Bu80VBp-ukDvkKX_HDJDNCPQUIKEM/
- Cours HTML / CSS :
docs.google.com/document/d/1fgCnXNqcX_-Oz0ue1vuxuK-ZpzC3bH171iojkVl0m50/
- Cours / TP JavaScript :
docs.google.com/document/d/1j9KsH-YtlYuMhmcPRLqtNJ_JdrD2JUiErmwEUTWt23I/
- Cours / TP jQuery :
docs.google.com/document/d/1Sl4rGvuUeJRIGlFDU1_53LOSIT0HdHuoE6nsm1Pbo9k/
- Cours / TP Animations et JS :
docs.google.com/document/d/18E4RstOSZlsHy2JFK1I2cFAS0-f7hC1oLL-hlwOpgfA/
- Cours en ligne - Google Workspace n°1 :
docs.google.com/document/d/1ccb9T5XVYbcORlwTvP8pA7-v2X_30Rx_/

Sommaire

~ EN COURS D'ÉLABORATION ~	1
Mes autres supports de cours :	2
Sommaire	2
Animations et rendu des applications Web	3
Les grands principes, les bases	3
Avec CSS et ses nouvelles propriétés	5
Effets/Design CSS3 avancés	5
Animer avec les CSS ou animer via JavaScript ?	5

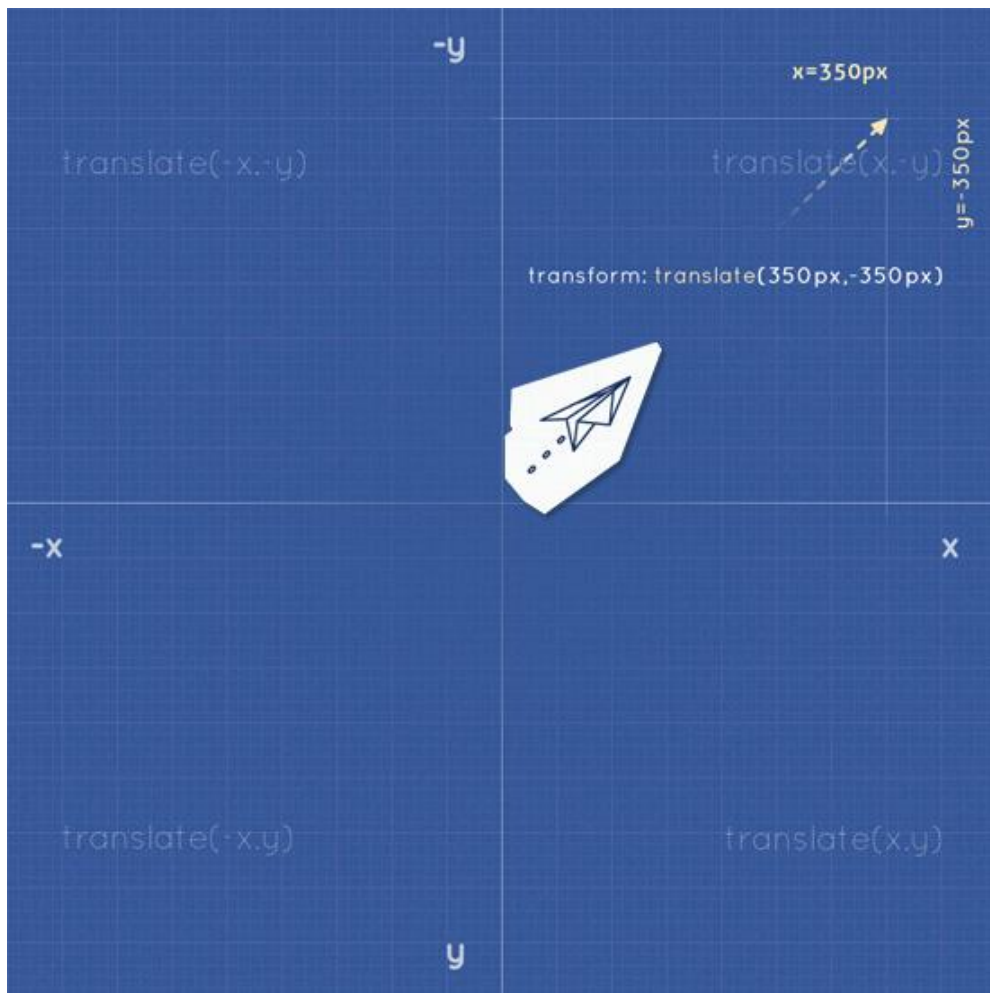
As fast as possible !.....	6
Limitations !.....	8
Outils du navigateur pour les graphistes.....	8
Les contraintes de votre projet.....	10
Animation d'interface.....	10
Exemple : Animation lors du scroll.....	10
CSS, Native JS and jQuery.....	11
Some CSS and "Native JS".....	11
JQUERY.....	13
Frameworks JS/CSS.....	18
CANVAS.....	19
SVG.....	21
Frameworks.....	22
Autres frameworks.....	22
...AUTRES RESSOURCES.....	23

Animations et rendu des applications Web

Les grands principes, les bases...

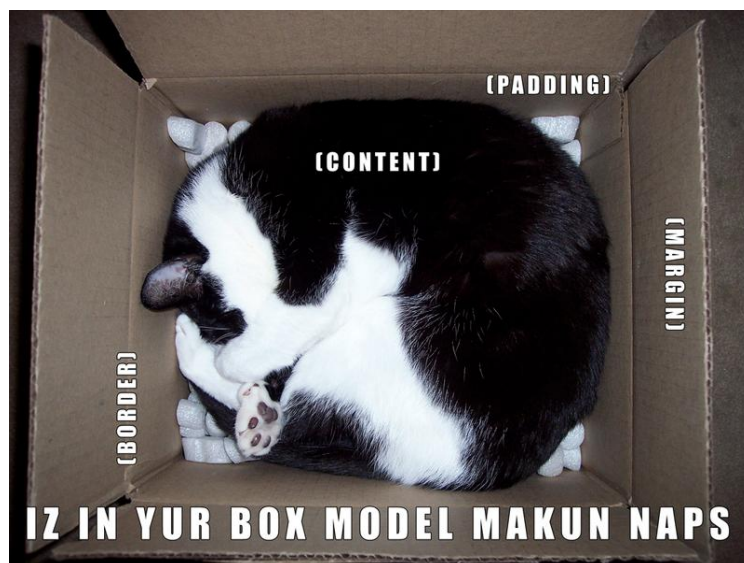
Les coordonnées X, Y

- developer.mozilla.org/en-US/docs/Web/Guide/CSS/Visual_formatting_model



Le box model..

- developer.mozilla.org/en-US/docs/Web/CSS/box_model
- developer.mozilla.org/en-US/docs/Web/CSS/box-sizing



Les 12 principes de l'animation !

- the12principles.tumblr.com

TIME IS WHAT
PREVENTS
EVERYTHING FROM
HAPPENING AT
ONCE.

Albert Einstein



Slow in, Slow out

Avec CSS et ses nouvelles propriétés...

CSS developer guide

- developer.mozilla.org/en-US/docs/Web/Guide/CSS

Tutoriaux...

- [CSS Transitions](#)
- [CSS Transforms](#)
- [CSS 3D Transforms](#)
- [CSS Animation](#)
- [CSS Filters](#)

Effets/Design CSS3 avancés

Les limites (Gradients, shadows, Béziérs, timing, keyframes, transitions, ...)

- css3.bradshawenterprises.com/transitions/

Transition : elements are created with a starting styles ("styles") and/or a starting class ("class"). If "transition" is set, plugin also apply the "ending" styles ("transition.stylesTo"). The "transition.duration" you've set determine the time to morph properties from one(s) to the other(s)

Keyframes are a way of giving multiple sets of animations to elements. For example you can set a first keyframe with infinite rotation and a second keyframe with a one time fadeIn opacity.

- css-tricks.com/snippets/css/keyframe-animation-syntax/
- css-tricks.com/almanac/properties/a/animation/
- smashingmagazine.com/2011/05/17/an-introduction-to-css3-keyframe-animations/
- line25.com/articles/useful-links-for-learning-css-keyframes-animation

Compositing And Blending In CSS (New)

- sarasoueidan.com/blog/compositing-and-blending-in-css/
- sarasoueidan.com/demos/css-blender/

Animer avec les CSS ou animer via JavaScript ?

- smashingmagazine.com/2011/09/14/the-guide-to-css-animation-principles-and-examples/
- css-tricks.com/myth-busting-css-animations-vs-javascript/

On favorise les animations en CSS, quand c'est possible.

JavaScripted properties have the advantage to be more customizable than plain CSS. For that, plugin add a lot of sugar on settings :

- Every properties can be correctly "CSS3-browsers-prefixed"
- They can be set as plain string or as a function that take an 'index' as argument
- CSS sizes units can be set as : 10, '10px' or '50%' (plugin internally work with "px")

Avec JavaScript ou favorise la **manipulation des classes CSS**, qu'on applique ou qu'on l'enlève sur X éléments.

- Comparing the performance of using style against changing directly cssText, and even using jQuery to do it jsperf.com/csstext-vs-style/22
- Do not use jQuery's hide() method github.com/jquery/jquery.com/issues/88#issuecomment-72400007 Classes are your friend

Il est aussi possible d'animer via d'autres technologies que **DOM/CSS... !**

- **CANVAS** : à base de pixels, dans un contexte 2D ou 3D (WebGL cf. "three.js")
- **SVG** : à base d'illustrations (vecteurs)
- **SHADERS** : Sous forme de "script", mais code "bas niveau" dédié aux cartes graphiques (WebGL)
- **VIDEOS...**

- ...

Including a fallback message inside your interactive <canvas> element is an accessibility issue

- paciellogroup.com/blog/2015/02/html5-canvas-sub-dom/

"60fps on the mobile web" : selon @Flipboard "You cannot build a 60fps scrolling list view with DOM"

La nouvelle version mobile de Flipboard est tout en canvas. Tant pis pour l'accessibilité....

- engineering.flipboard.com/2015/02/mobile-web/

Reconnaissez vous certaines technologies ici ?

- spintank.fr/spinlab/spin/

As fast as possible !

Avec du DOM...

What Every Frontend Developer Should Know About Webpage Rendering

- frontendlab.info/articles/webpage-rendering-101/

Avec CSS...

High Performance Animations

- html5rocks.com/en/tutorials/speed/high-performance-animations/
- aerotwist.com/blog/pixels-are-expensive/

Modern browsers can **animate four things really fast** :

- position
- scale
- rotation
- opacity

Avec JavaScript...

- css-tricks.com/using-requestanimationframe/

There used to be just one way to do a **timed loop in JavaScript**: `setTimeout()`. If you needed to repeat something pretty fast (but not as-fast-as-absolutely-possible like a for loop), you'd use that. For the purposes of animation, the goal is sixty "frames" per second to appear smooth, so you'd run a loop like this :

```
var fps = 1000/60;
var tick = function () {
  // animate something
  if (notFinish) setTimeout(tick, fps);
};
tick();
```

There is a better alternative to this now. Paul Irish introduced `requestAnimationFrame` in 2011. Why better?

- The browser can optimize it, so animations will be smoother
- Animations in inactive tabs will stop, allowing the CPU to chill
- More battery-friendly

Cross-browsers "requestAnimationFrame"

- paulirish.com/2011/requestanimationframe-for-smart-animating/
- gist.github.com/paulirish/1579671

```
window.requestAnimFrame = (function() {
  return  window.requestAnimationFrame ||
    window.webkitRequestAnimationFrame ||
    window.mozRequestAnimationFrame ||
    window.oRequestAnimationFrame ||
    window.msRequestAnimationFrame ||
    function(/* function */ callback, /* DOMElement */ element){
      window.setTimeout(callback, 1000 / 60);
    };
})();
```

And then...

```
var tick = function () {
  if (notFinish) requestAnimFrame(tick);
  // animate something
};
tick();
```

RAF et qAnimationFrame ?

- github.com/gre/qanimationframe A simple Promise wrapper for `requestAnimationFrame` based on [Q](#). This library intends to promisify `requestAnimationFrame`
- github.com/chrisdickinson/raf `requestAnimationFrame` polyfill for node and the browser

What if I want to set a frame rate?

- creativejs.com/resources/requestanimationframe/

A more sophisticated technique would be to check the number of milliseconds past since the last draw call and update the animation's position based on the time difference. For example:

```
var time;
function draw() {
  requestAnimationFrame(draw);
  var now = new Date().getTime(),
      dt = now - (time || now);

  time = now;

  // Drawing code goes here... for example updating an 'x' position:
  this.x += 10 * dt; // Increase 'x' by 10 units per millisecond
}
```

}

[Here's another good example on GitHub](#) of coding with 'delta' time-based animations. We've also created a simple [bouncing ball demo](#) to help get you started. Have a play and happy animating !

Limitations !

- github.com/molokoloco/jquery.boxFx (Cf. Readme)

We cannot animate more than a certain number of DOM elements.

In one of the effect i have tested 800 simple div... This is already way to much ^^
300 seem à legit limit...

The purpose is to animate few HTML elements, otherwise it's better to use Canvas or SVG

You can setup hundreds of properties. I recommend to only use few of them each time. Some CSS3 properties are good speed killer : gradient, boxShadow, opacity, borderRadius...

CSS animations keyframes and CSS transition styles properties can be in conflict.

We cannot animate the same CSS property in

"transition.stylesTo.XXX" and in "keyframes[0].steps.XXX"

The same apply between two keyframes :

"keyframes[0].steps.XXX" and "keyframes[1].steps.XXX"

But, for example, you can move 1 times the seed with "transition.stylesTo.left"
...and do an infinite rotation in "keyframes[0].steps[0].transform"

As i said : Kill your own PC before killing the ones of your visitors !

We cannot support to old browsers. That not the purpose here.

-No animations for them, but they can not take the blame on the code- ;)

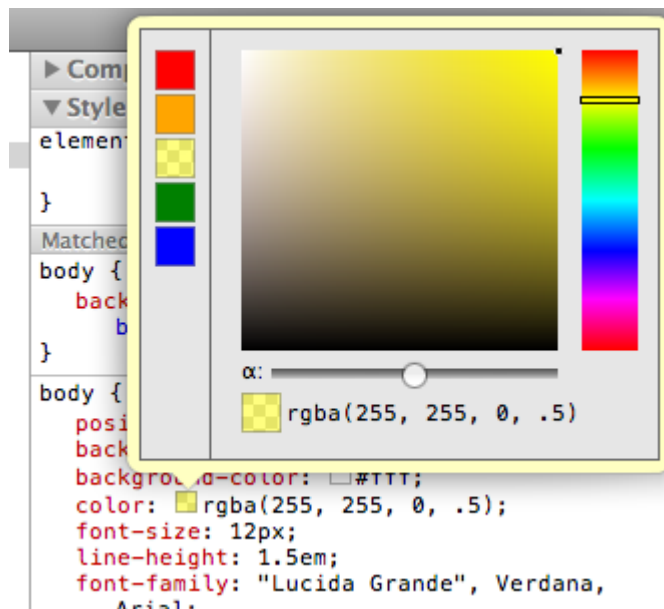
The next modernizr.js will certainly emulate a better cross-browser CSS3 full interface...

.. and also caniuse.com *"Can I use' provides up-to-date browser support tables for support of front-end web technologies on desktop and mobile web browsers."*

Outils du navigateur pour les graphistes

Living colors

- developer.chrome.com/devtools/docs/tips-and-tricks



Cubic Bezier Curves - Under the Hood

- twitter.com/f12devtools/status/490246413138149376/
- jqueryui.com/easing/
- cubic-bezier.com/
- github.com/gre/bezier-easing // greweb.me/gsl-transition/example/
- vimeo.com/106757336

This Element

```

element {
  transition: all 500ms cubic-bezier(.21,.88,.75,.75) 0s;
}
#box {
  width: 100px;
  height: 100px;
  background: url('../images/test-box.png') no-repeat scroll center center #7A7518;
  position: relative;
  margin-top: 3px;
  left: 0px;
  opacity: 1;
  border-radius: 6px;
  transform: translateZ(0px);
}
html, body, div, span, ob
pre, abbr, address, cite,
strong, sub, sup, var, b,
caption, tbody, tfoot, th
figure, footer, header, h
  margin: 0px;
  padding: 0px;
  border: 0px none;
  font: inherit;
  vertical-align: baseline;
}
body, select, input, text

```

style.css:376

style.css:20

style.css:151

Les contraintes de votre projet...

- Des utilisateurs
 - Des navigateurs
 - De l'appareil utilisé
 - D'internet
 - Du serveur
 - De l'hébergement
- Précision du cahier des charges
- Quelques éléments graphiques ou de nombreux éléments ?
 - Couleurs en aplat ou couleurs avec textures de pixels
 - Poids des "assets" graphiques ?
 - Complexité générale
- Nécessite de nombreux plugins et/ou frameworks ?
 - Éventail de plateformes visées

Be a better Web professional ?

- The Web's building blocks —HTML, CSS, and JavaScript— and the role each plays.
- How a Web browser requests resources and interprets each for presentation to the user.
- How servers —web, database, etc.— work together and respond to requests.
- How networks —particularly cellular-based mobile networks— behave and how their behavior impacts users.

Animation d'interface...

Avec l'arrivée de CSS3, les développeurs web ont vu leurs possibilités en webdesign se multiplier : que ce soient les coins arrondis, les fonds en dégradé ou encore les rotations, les nouvelles fonctionnalités utilisables laissent rêveur.

L'une des nouveautés principales est l'animation des éléments, appelée également transition.

- openclassrooms.com/courses/animez-votre-site-avec-css3

Garder en tête la rapidité d'affichage comme une priorité

- callumhart.com/blog/non-blocking-uis-with-interface-previews

Intéressant, pour ceux qui n'aiment pas trop le JS...

"uילang : a minimal, ui-focused programming language for web designers"

- uילang.com

Exemple : Animation lors du scroll

Animer des éléments lors du défilement avec **des animations liées au défilement**

- <https://developer.chrome.com/docs/css-ui/scroll-driven-animations>

Découvrez comment utiliser les timelines de défilement et les timelines d'affichage pour créer

des animations liées au défilement de manière déclarative.

CSS, Native JS and jQuery...

Voici quelques démos pour faire un premier tour des possibilités et contraintes offertes par les différentes technos et langages intégrés aux navigateurs...

i have stolen some CSS snippets here !

- github.com/molokoloco/molokoloco-coding-project/wiki/CssSnippets.md
- (and github.com/molokoloco/molokoloco-coding-project/wiki/CSSSyntax.md)

A Collection of Pure CSS Animation Snippets & Demos...

- marketblog.envato.com/inspirations/pure-css-animation-snippets/

Some CSS and "Native JS"

CSS hover

jsfiddle.net/molokoloco/LewFw/

jsfiddle.net/molokoloco/sNHrL/

CSS transition or jQuery animation ?

jsfiddle.net/molokoloco/C3TVg/

```
$(function() {  
  
    $('div.test1').on('click', function() {  
        $(this).toggleClass('toggledClass');  
    });  
  
    $('div.test2').on('click', function() {  
        var toggled = $(this).data('toggled');  
        if (toggled) {  
            $(this).animate({  
                borderWidth: '1px',  
                fontSize: '100%'  
            }, 1000, 'linear');  
        }  
        else {  
            $(this).animate({  
                borderWidth: '10px',  
                fontSize: '300%'  
            }, 1000, 'linear');  
        }  
        $(this).data('toggled', !toggled);  
    });  
});
```

"Vanilla JS" fadeIn anim ex.

jsfiddle.net/molokoloco/AH48B/

```

var fadeIn = function (el) {
    el.style.opacity = 0;
    var i = 0;
    var tick = function () {
        i += 0.03;
        el.style.opacity = i;
        if (el.style.opacity < 1) setTimeout(tick, 1000/25);
        else el.style.opacity = 1;
    };
    tick();
};

var $ = function (e) {
    return document.querySelectorAll(e);
};

var box = $('.box')[0];

fadeIn(box);

box.addEventListener('click', function() {
    fadeIn(box);
}, false);

```

Building CSS animation(s) from 'keyframes' OBJ to CSS keyframes (with préfix)

jsfiddle.net/molokoloco/rf8zt/

jsfiddle.net/molokoloco/aqfsC/

jsfiddle.net/molokoloco/NGm4M/

CSS keyframes examples

vadimsva.github.io/waitMe/

codepen.io/natewiley/pen/GgONKy

Rotating a circle of boxes

jsfiddle.net/molokoloco/ejpk179h/

jsfiddle.net/molokoloco/EG8m7/

Simple 3D anim example

colintoh.com/preloader

codyhouse.co/demo/3d-animated-mockup/

codyhouse.co/gem/3d-rotating-navigation/

Intro to CSS 3D transforms*

desandro.github.io/3dtransforms/

CSS3 3D rotate spinning carousel

jsfiddle.net/molokoloco/yx6LG/

3D - CSS3 try with pos "absolute"

jsfiddle.net/molokoloco/R2LTE/

Maison hantée 3D

codepen.io/ge1doot/full/GgOYoy/

The Incredible Machine and Spiderman
codepen.io/chipscompany/pen/HFdEw
optimum7.com/css3-man/animation.html

Kinetic Scrolling with JavaScript
ariya.github.io/kinetic/

JQUERY

jQuery Test Animate
jsfiddle.net/molokoloco/c8Whx/

```
$('#test').animate({
    width: '70%',
    fontSize: '3em',
    borderWidth: '10px'
}, 1500);

$('#test').slideUp(300).delay(800).fadeIn(400);
```

jQuery hover
jsfiddle.net/molokoloco/P43FG/

jQuery animate, ordering DOM/CSS sequence
jsfiddle.net/molokoloco/xrfmqfx0/

```
var $divAnim = $('<div />')
    .addClass('ui-corner-all')
    .css({
        top: ($(window).scrollTop() + 100)+'px'
    })
    .html('<h1>Message...</h1><p>hello world</p>')
    .hide()
    .appendTo('body')
    .fadeIn(3000);

var moveDiv = function() {
    $divAnim
        .addClass('red')
        .animate({
            top: ($(window).scrollTop() + 300)+'px'
        }, {
            duration: 2000,
            easing: 'easeInOutElastic'
        });
};

setTimeout(moveDiv, 5000);
```

jQuery animate intro image
jsfiddle.net/molokoloco/8t6Qk/

```
$('<img/>')
    .load(function(event) {
        $(this)
```

```

        .css({
            position : 'absolute',
            left      : '50%',
            top       : (($ (window).scrollTop() || 0) -
$(this).height())+'px',
            margin    : '0 0 0 -' + ($(this).width() / 2) + 'px',
            opacity   : 0
        })
        .animate({
            opacity   : 1,
            top       : ($(window).scrollTop() || 0) + 'px'
        }, 800)
        .delay(3000)
        .fadeOut(600, function () {
            $(this).remove();
        });
    })
    .error(function(e) {
        console.log('Erreur !', e);
        $(this).remove();
    })
    .attr('src', 'mozorg.cdn.mozilla.net/media/img/home/firefox.png')
    .appendTo('body');

```

jQuery generate random elements

jsfiddle.net/molokoloco/sAwqF/

```

$(function() {

    // Liste de "elements" avec proprietes top, left, color pour chacun
    var shapes = [
        {left:200, top:20, background:'red'},
        {left:100, top:50, background:'orange'},
        {left:50, top:120, background:'yellow'},
    ];

    $.each(shapes, function(index, item) { // item == shapes[index]
        var cssProps = item;

        $.extend(cssProps, {
            border: '1px solid black',
            borderRadius: '10px',
            width: function() {
                return 50 + (Math.random() * 50);
            }
        });

        $('<div/>').css(cssProps).appendTo('body');

    });

});

```

Generate JS logo(s) + Google FONTS

jsfiddle.net/molokoloco/4yGUw/

Gestion avancé des couleurs en JS avec jQuery (Color space, manipulation, ...)

github.com/jquery/jquery-color

github.com/infusion/jquery-xcolor

xarg.org/project/jquery-color-plugin-xcolor/

Adds the option to smooth the following CSS colors using the default animate() method of jQuery to the passed value : color, background-color, border-color, border-top-color, border-bottom-color, border-left-color, border-right-color, outline-color

```
$(this).animate({ backgroundColor: "#fff" }, 300);

$.xcolor.multiply('#660066', '#443456');

$.xcolor.monochromatic('#0066FF');
```

Exercise...

- jsfiddle.net/molokoloco/gh1ph8g7/

From github but unusable in JSfiddle

<https://raw.githubusercontent.com/infusion/jquery-xcolor/master/jquery.xcolor.js>

Loaded from proxy : ok

<https://rawgit.com/infusion/jquery-xcolor/master/jquery.xcolor.js>

LighTest jQuery TPL

jsfiddle.net/molokoloco/w8xSx/

```
// LighTest TPL ?

$.tpl = function(tpl, val) {
    for (var p in val)
        tpl = tpl.replace(new RegExp('{{'+p+'}}', 'g'), val[p] || '');
    return tpl;
};

var dataObj = [
    {id: 1, title: 'toto'},
    {id: 2, title: 'tutu'},
    {id: 3, title: 'tata'}
],
tplHtml = '<div>N°{id} - {title}</div>',
newHtml = '';

$.each(dataObj, function(i, val) {
    newHtml += $.tpl(tplHtml, val);
});

var $newHtml = $(newHtml).appendTo('body');
```

jQuery : throttle/debounce mousemove

jsfiddle.net/molokoloco/WJnqF/

```
$(function() {

    var pageX = 0,
        pageY = 0;
```

```

var moveIt = function() {
    console.log('moveIt()');
    $('div#cursor').css({
        left: (pageX - 15) + 'px',
        top: (pageY - 15) + 'px'
    });
    setTimeout(moveIt, 1000/25);
};

$(document)
    .on('mousemove', function(e) {
        pageX = e.pageX;
        pageY = e.pageY;
    })
    .one('mousemove', moveIt);
});

```

jQuery : playing with mousemove

jsfiddle.net/molokoloco/F8q8F/

```

$(function() {
    var $document = $(document),
        pageX = 0,
        pageY = 0,
        INT = null;

    var mouseIsMoveBig = function(evt) {
        console.log(pageX)
        $('div').css({
            top: (pageY - 50)+'px',
            left: (pageX - 50)+'px'
        });
        INT = setTimeout(mouseIsMoveBig, 25);
    },
    mouseIsMove = function(evt) {
        pageX = evt.pageX;
        pageY = evt.pageY;
    },
    mouseIsDown = function(evt) {
        $document.on('mousemove', mouseIsMove);
        mouseIsMoveBig();
    },
    mouseIsUp = function(evt) {
        $document.off('mousemove', mouseIsMove);
        clearTimeout(INT);
    };

    $document
        .on('mousedown', mouseIsDown)
        .on('mouseup click', mouseIsUp);
});

```

jQuery CSS browser Prefix

jsfiddle.net/molokoloco/f6Z3D/

PopUp jQuery + plugin center

jsfiddle.net/molokoloco/LwbCS/

```

(function ($) {
    $.fn.extend({
        center: function () {
            return this.each(function () {
                var top = ($(window).height() - $(this).outerHeight()) / 2;
                var left = ($(window).width() - $(this).outerWidth()) / 2;
                $(this).css({
                    position: 'absolute',
                    margin: 0,
                    top: (top > 0 ? top : 0) + 'px',
                    left: (left > 0 ? left : 0) + 'px'
                });
            });
        }
    });
})(jQuery);

```

jQuery.boxFx test case : Stream Twitter w/ JSONP

jsfiddle.net/molokoloco/sBqWq/

jQuery TinyPlugin "exploseLetter"

jsfiddle.net/molokoloco/fruVR/

letteringjs.com

jschr.github.io/textillate/ (HowTo)

jsfiddle.net/molokoloco/7495jdhr/

jsfiddle.net/molokoloco/y12vs0s6/

jQuery text gradient color ReadR

jsfiddle.net/molokoloco/23RAr/

jQuery wait all images

jsfiddle.net/molokoloco/NWjDb/

jsfiddle.net/molokoloco/qxapxrbr/ (With Flickr...)

```

$(function() { // Wait dom ready
    var $img = $('img'), // images collection
        totalImg = $img.length,
        waitImgDone = function() {
            totalImg--;
            if (!totalImg) {
                console.log($img.length+" image(s) chargée(s) !");
            }
        };
    $img.each(function() {
        if (this.complete) waitImgDone(); // already here..
        else $(this).load(waitImgDone).error(waitImgDone); // completed...
    });
});
$(window).load(function() {
    console.log("Toutes les ressources sont complètement chargées.");
});

```

jQuery plugin for when a specified element becomes available within the DOM

github.com/tkambler/whenLive
github.com/peutetre/zanimoz

Tween Example with a Curve and Tangent

jsfiddle.net/molokoloco/2dMvM/

Workable / Testable jQuery Default Plugin Boilerplate

github.com/molokoloco/FRAMEWORK/blob/master/jquery.plugins/jquery.tooltips.js

Flat 3D Analogue Clock V2.7 with jQuery/CSS3

jsfiddle.net/molokoloco/x6yc3/
codepen.io/ShamsulAmry/pen/Kmzcs

jQuery scrollView V0.8 : viewport scroll and screen vertical helper

jsfiddle.net/molokoloco/XK3t5/

jQuery.viewport.JS

jsfiddle.net/molokoloco/Atj8Z/

Waypoints, to execute a function whenever you scroll to an element

github.com/imakewebthings/waypoints
github.com/molokoloco/My-Book-ReadR

jQuery colonizr V0.9 : In-between titles Multicols paragraphes

jsfiddle.net/molokoloco/FK7xr/

BoxFx JS is like a "DOM particles emitter" factory

github.com/molokoloco/jquery.boxFx
github.com/molokoloco/jquery.emitter

ThreeJS CSS3 demos !

threejs.org/examples/
threejs.org/examples/css3d_periodictable.html
threejs.org/examples/css3d_panorama.html

jsfiddle.net/molokoloco/wd2o7b3f/

Animated grid + infinite scroll

github.com/molokoloco/FRAMEWORK/tree/master/wall

"Fluid" HTML5 3D carousel

github.com/molokoloco/FRAMEWORK/tree/master/jx

A jQuery plugin to stop the jank of page loads

weblinc.github.io/jquery.smoothState.js/

Frameworks JS/CSS...

Allows chaining of css transitions in a promise based way

github.com/peutetre/zanimoz
peutetre.github.io/Zanimoz/test/index.html

Animatable One property, two values, endless possibilities

leaverou.github.io/animatable/

Animate.css

daneden.github.io/animate.css/

A Collection of Page Transitions

dan-silver.github.io/ElementTransitions.js/

> ricostacruz.com/jquery.transit/ *

Beautiful CSS3 powered animations in no time

bouncejs.com

A Performant Transitions and Animations Library

h5bp.github.io/Effeckt.css

a D3-based library for building custom charts and graphs

tenxer.github.io/xcharts/

Accelerated JavaScript animation !

VelocityJS.org

Dynamic Physics Animations

impulse.luster.io/

Easy-to-use physics engine for javascript

wellcaffeinated.net/PhysicsJS/

Some JS "tools" i use...

github.com/molokoloco/jquery.boxFx/blob/master/js/jquery.boxFx.tools.js

CANVAS

JS CANVAS example...

jsfiddle.net/molokoloco/27SrC/

```
var canvasWidth  = window.innerWidth,
    canvasHeight = window.innerHeight,
    canvasWidthHalf  = (canvasWidth / 2),
    canvasHeightHalf = (canvasHeight / 2),
    canvas, context, toggle;

function init() {
    canvas = document.createElement('canvas');
    canvas.width = canvasWidth;
    canvas.height = canvasHeight;
    //canvas.backgroundColor = 'rgb(0,0,0)';
    context = canvas.getContext('2d');
    context.globalAlpha = 1;
```

```

        document.body.appendChild(canvas);
    }

    function animate() {
        draw();
        requestAnimationFrame(animate);
    }

    function draw() {
        var time    = new Date().getTime() * 0.001,
            x        = Math.sin(time) * (canvasWidthHalf * .7) + canvasWidthHalf,
            y        = Math.cos(time) * (canvasHeightHalf * .7) +
canvasHeightHalf,
            radius = 100; // Math.random()

        //context.save(); // if heavy drawing
        //context.clearRect(0, 0, canvasWidth, canvasHeight); // Reset ?
        context.beginPath();
        context.arc(x, y, radius, 0, Math.PI * 2, true);
        context.closePath();
        context.fillStyle = toggle ? 'rgb(255, 255, 0)' : 'rgb(255, 0, 169)';
        context.fill();
        //context.restore(); // Stop operations, if heavy drawing

        toggle = !toggle;
    }

    init();
    animate();

```

Center Scale Canvas Transformation

jsfiddle.net/molokoloco/8gXMs/

JS filter Image (with a canvas) : effect invert, etc...

jsfiddle.net/molokoloco/WCL5w/

(Simple : <http://jsfiddle.net/molokoloco/WCL5w/85/>)

Canvas morphing example...

codepen.io/kenjiSpecial/pen/xElwr

A walk in the woods...

a-way-to-go.com

canvg is a SVG parser and renders the result on a Canvas element

github.com/gabelerner/canvg

JavaScript Canvas to Blob is a function to convert canvas elements into Blob objects

blueimp.github.io/JavaScript-Canvas-to-Blob/test/

A JavaScript 3D Library which makes WebGL simpler

threejs.org/examples/

github.com/mrdoob/three.js/



Simple online SVG

<http://jsfiddle.net/molokoloco/Xh9P8/>

How to Use “animateTransform” for Inline SVG Animation

webdesign.tutsplus.com/tutorials/how-to-use-animatetransform-for-inline-svg-animation--cms-22296

Création, coordonnées et animation avec SVG

sarasoueidan.com/blog/structuring-grouping-referencing-in-svg/

sarasoueidan.com/blog/svg-coordinate-systems/

[SVG Pan-Zoom.js](#) : JavaScript Panning & Zooming SVG Things

Styling And Animating SVGs With CSS

smashingmagazine.com/2014/11/03/styling-and-animating-svg-with-css/

jakearchibald.com/2013/animated-line-drawing-svg/

The Gooney Effect (+Color Matrices)

css-tricks.com/gooney-effect/

Raphael.JS - Segments for stats viz

jsfiddle.net/molokoloco/bB9bZ/

SVG Animations Using CSS and Snap.svg

davidwalsh.name/svg-animations-snap

Elastic components with SVG shape animations for enhanced UI interactions

tympanus.net/codrops/2014/12/15/elastic-svg-elements/

Code Sketch is a collection of JavaScript sketches on CodePen
chromeexperiments.com/detail/code-sketch/

PicSvgConvertir une image en Svg (beta version)
picsvg.com/fr/

The transparency of PNGs for the file size of JPEGs
quasimondo.com/ZorroSVG/

Frameworks...

SnapSVG.js : The JavaScript SVG library for the modern web
snapsvg.io

Vivus, bringing your SVGs to life
maxwellito.github.io/vivus/

Jtop.js is a javascript library that uses SVG to let you build beautiful desktop-like user interfaces
github.com/coderitual/jtop

8 JavaScript Libraries To Animate SVG
hongkiat.com/blog/javascript-libraries-animate-svg/

A curated list of SVG
github.com/willianjusten/awesome-svg

Autres frameworks...

Make Transitions Effects with the power of WebGL Shaders (GLSL)
glslio.github.io/glsli-transition-examples/example3/
github.com/glslio/glsli-transition/

REACT JS, Component animation
jsfiddle.net/molokoloco/zmc3Lb1d/

An exploration in Material Design
medium.com/@abrodo/an-exploration-in-material-design-by-feedly-8c1a1cbdfdc4

Material Design Websites with the Materialize CSS Framework
scotch.io/tutorials/make-material-design-websites-with-the-materialize-css-framework

Google Material Design linear bar by using CSS3 and pure js
github.com/lightningtgc/MProgress.js

Material Design for sound !
events.google.com/io2015/

Google Material Design "ripple effect" made simple with jQuery
github.com/adamsea/jquery-ripple

Warns you when colors you've added are too similar to ones that already exist

github.com/SlexAxton/css-colorguard

A real-time, node-based video effects compositor for the web built with HTML5, Javascript and WebGL

seriouslyjs.org

...AUTRES RESSOURCES...

Start creating, rendering and sharing 3D with Clara.io - Model. Animate. Render. Online.

clara.io

Use Sketchfab to publish, share and embed interactive 3D files. Discover

sketchfab.com

D3.js is a SVJ JavaScript library for manipulating documents based on data

d3js.org

Create interactive #visualizations with #Google

developers.google.com/chart/

Création et animations avec canvas (2D et 3D ~WebGL)

mrdoob.github.io/three.js/examples/ ...

Data-Visualisation : présentation de 2 ou 3 librairies

selection.datavisualization.ch ...

Autres cours : [Wordpress](#), [JavaScript](#), [jQuery](#), [HTML5 & CSS3](#) et [Animations & JS](#)

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