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**Creative CODING**

HOT

DATA VISUALISATION  
WITH THE  
**WOW FACTOR**

101

5 NEW  
**DESIGN**  
JOBS FOR THE  
FUTURE

DAZZLE  
with 16 FREE  
COOL AS...  
**FONTS**

Make a  
**MILLION**

TOBIAS VAN SCHNEIDER

tells you how  
to become  
**DESIGN ROYALTY**

KILLER TECHNIQUES  
& TIPS TO INSPIRE  
IN 2018

POWER UP YOUR  
**PORTFOLIO**

What's new in  
**NODEJS 9**



CODE LUSH LIQUID WAVES WITH WEBGL • MAKE WEB FORMS WORK ON  
ALL SCREENS • WORKSPACES: WHERE COMMUNITY & CREATIVITY MEET

FUTURE  
ISSUE 270

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# Welcome to the issue

## THE WEB DESIGNER MISSION

To be the most accessible and inspiring voice for the industry, offering cutting-edge features and techniques vital to building future-proof online content



**Steven Jenkins**  
Editor

## Be brilliant in 2018



The Web never stands still, technologies are ever evolving, trends are evolving, techniques are evolving. What does this mean? It means that there is always something new to learn, something to be inspired by, and as we head into 2018 this premise still remains the same.

This issue Web Designer has decided that it's time to bring together the new and inspirational to get you ready for the year ahead. Our HOT 101 heads out into the industry to get what you need to be brilliant in 2018. So what's on offer? Creative heavyweight Tobias Van Schneider reveals his five simple tips for design success, creative director Tom Wittlin suggests how to power up your

portfolio and software engineer Simon Jones gives an insight into the world of prototyping with Origami. This is just the tip of the iceberg. You'll also discover 16 great free font combinations to help you create impressive typography, 10 hand-picked YouTube web development channels, what's new in Node 9 and four essential eCommerce solutions. We'll also show you how to let your imagination run wild with six ways to get into creative coding.

Sitting beside this bonanza of designer and developer gold we still have a host of tutorials and workshops. Create lush liquid effects with WebGL, build web forms with great UX, implement glitch effects and much more. Welcome to the latest issue and welcome to the new year. Enjoy.

In a world where users have high expectations of their experience on the web and mobile, prototyping and user evaluation is key.

## Highlight

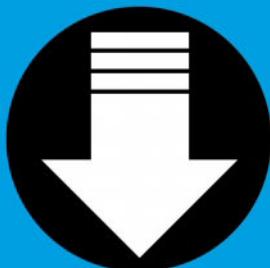


Skills are important, but on top of this we are looking for self-motivated team players

Zeta are a team of artisans that wield today's digital tools to deliver engaging content. Web Designer finds out more. Page 66

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**FREE - exclusive with this issue**  
**39** **Designer resources**

**Video Tuition** - 98 minutes of expert JavaScript video guides from Pluralsight ([pluralsight.com](http://pluralsight.com))

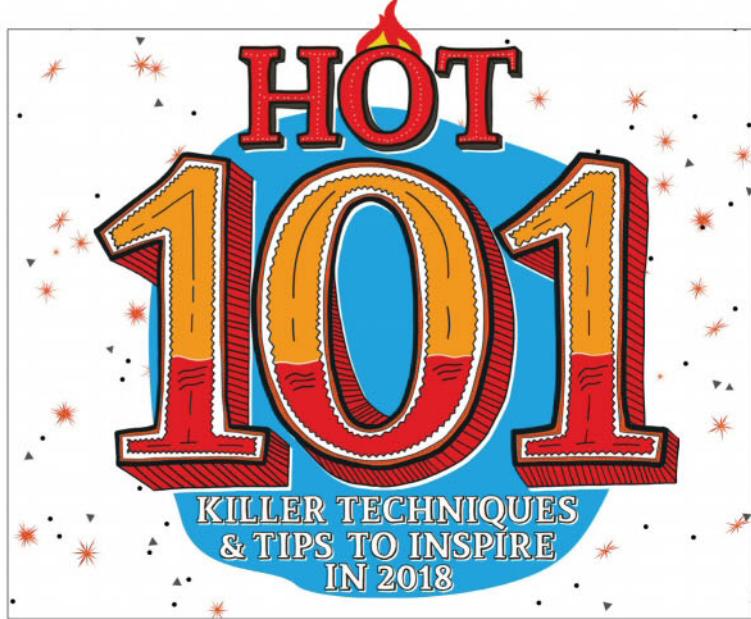
**Assets** - 30 Cheerful triangle patterns, and Hope Poster Pop Art Generator from Sparklestock ([sparklestock.com](http://sparklestock.com))  
- Tutorial files and assets



[www.filesilo.co.uk/webdesigner](http://www.filesilo.co.uk/webdesigner)

# This issue's panel of experts

Welcome to that bit of the mag where we learn more about the featured writers and contributors...



## HOT 101

This issue we have a collection of industry experts imparting their well-formed knowledge on a host of topics that will make you a better designer and developer in 2018. Discover design tips from Tobias Van Schneider, portfolio secrets, how to prototype with Origami, what's new in Node 9 and much more. **Page 16**

• In broad terms, it (creative coding) refers to the production of something that is expressive in nature rather than having a purely practical use •

### Matt Crouch



Matt is a frontend developer based in London. A developer's life is often taken up creating run-of-the-mill sites. In this issue, Matt shows how those skills can instead help you get creative with code. **Page 46**

### Mark Shufflebottom



Mark is a Professor of Interaction Design at Sheridan College. This issue he is making waves with WebGL. He creates an animated liquid background effect to make a header that reacts to mouse movement. **Page 84**

### Tobias Van Schneider



Creative heavyweight Tobias has worked for some of the biggest names in the industry, including Spotify. This issue the co-owner of Semplice reveals five essential tips to set you on the way to design stardom. **Page 32**

### Simon Jones



This issue Simon covers the basics of Origami Studio, a high-fidelity prototyping tool from Facebook, which enables designers to create sophisticated site and app prototypes without the need for coding. **Page 60**

### Steven Roberts



Steven is a Frontend designer and developer from Middlesbrough. His recent passion has been SVG. This issue he goes a little leftfield and selects ten YouTube dev channels that he uses to help improve his skills. **Page 58**

### Luke Harrison



Luke is a web developer from Sheffield, who is all about scalable and efficient frontend architecture. In this issue, he explores how to build a web form with great UX that works effectively across device types. **Page 90**

### Tom Wittlin



Tom is a freelance digital creative director and has headed a host of design projects, including Kelly Hoppen's site redesign. This issue he offers six rules on how to make your portfolio stand out. He also likes to wear a scarf. **Page 52**

### Tam Hanna



Tam has a wealth of experience in a breadth of different programming languages. This issue he takes time out to take a closer look at Node. He reveals five essential features that you need to know in version 9. **Page 56**

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Cutting-edge features, techniques and inspiration for web creatives

Chat with the team and other readers and discuss the latest tech, trends and techniques. Here's how to stay in touch...

steve.jenkins@futurenet.com • @WebDesignerMag • www.creativebloq.com

## Cover focus



# FileSilo

96 Get the latest must-have resources and videos

- 98 minutes of expert JavaScript video guides from Pluralsight
- 30 Cheerful triangle patterns
- Hope Poster Pop Art Generator



66 Voice search is more than convenience, it is changing the way search engines handle search queries

COMMENT - Paul Betteridge - p11



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Web gurus take you step-by-step through professional techniques



### 84 Create lush liquid WebGL effects

Learn how to use the three.js library to make a low polygon animated liquid wave effect

### 90 Build a web form with great UX

Discover the techniques and best practices to create a highly optimised UX for all device types

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### 82 Implement a glitch effect

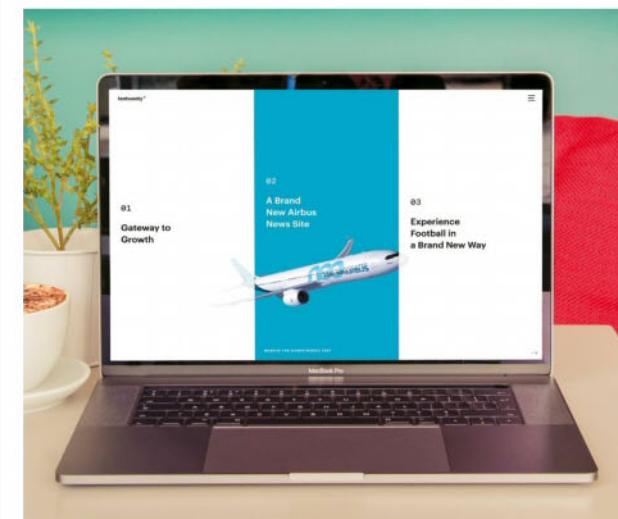
<https://vintage.agency>

Create a text effect to add ambience

### 88 Interactive pop-up navigation

[www.tenttwenty.me](http://www.tenttwenty.me)

Add interest to menu selections with images



# Header

The tools, trends and news to inspire your web projects

## Learn the Generate conference way

Sign up for the next Generate conference to listen and learn from industry experts

**A**s the web evolves there is always something new to learn. And what better way to boost your skills than by listening to the experts. Our very own Generate conference is awash with them and 2018 sees a host of contemporary, must-know topics presented by an incredible selection of industry gurus. So where can you get to see this fine array of talent in the coming year?

2018 sees not one, but two Generate 3-day conferences. The first of the year kicks-off in the city that never sleeps, New York City. To be precise the conference will reside at the glorious Metropolitan Pavilion in Manhattan's desirable Chelsea neighbourhood from Wednesday 25th April - Friday 27th April 2018. Check out the venue site (Generate will take place on The Level) <http://bit.ly/2Bjpbv>.

So what's happening? The 25th April is Workshops day with four separate workshops dedicated to Modern Frontend

Performance Strategies and Techniques; Information Architecture for Everybody; Essential Web Animation Techniques; and An Intro to ReactJS. Then it's on to Thursday and Friday where you can get to see the speakers in action. The first day kicks off with Story First: Crafting Products That Engage by Donna Lichaw. The

day off with his Should Designers... talk. Then it's on to the after-party - the perfect time to mingle, make new friends and talk to the conference speakers.

Onto the Friday and the day begins with Tragic Design; followed by How The Largest Human Rights Organization In The World Uses Design Systems To Win On The

**“The conference will reside at the glorious Metropolitan Pavilion in Manhattan”**

morning session continues with How I Cut My Working Hours In Half And Somehow Managed to Get More Done by developer Jason Lengstorf; Choose Your Animation Adventure by Val Head; and What's New In JavaScript? by Wes Bos.

After lunch it's How To Make Sense Of Any Mess by Abby Covert; Using CSS Grid In The Real World by front-end developer Brenda Storer; and Dan Mall finishing the

Web, Content Strategy For Slow Experiences; and Planet Of The APIs. To view the full New York line-up head to [www.generateconf.com/new-york](http://www.generateconf.com/new-york).

In September 2018 Generate London returns to the fabulous Royal Institution for three days and is guaranteed to be packed with insight, inspiration and practical take-aways. To keep up with the latest news visit [www.generateconf.com/london](http://www.generateconf.com/london)



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## STAT ATTACK

### FACEBOOK

How popular is the social media platform around the world?

#### Europe



#### North America



#### Africa



#### Asia



#### Oceania



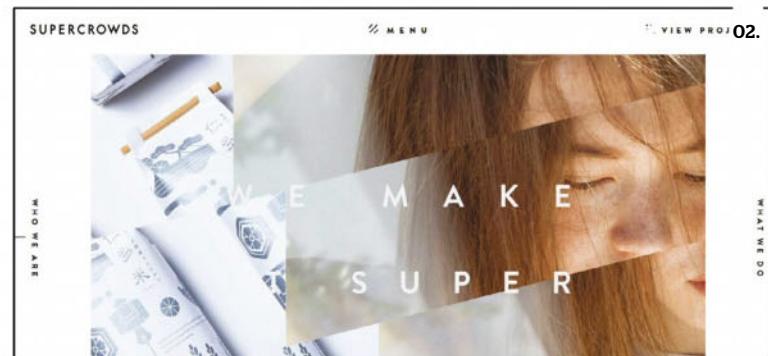
Source: gs.statcounter.com

# Sites of the month

01.

The website for Folk. Inspired by Marikha features a warm, earthy color palette. A large red arrow icon points right in the top left corner. The main title 'Folk. Inspired by Marikha' is displayed in a large, bold, red sans-serif font. Below it, a subtitle reads 'We shape brand strategies that are inspired by people.' in a smaller, red sans-serif font. The background is a light beige color with a subtle texture. A red vertical bar runs along the left side of the page.

Next person



**01. Folk**  
[folkstrategies.com/en](http://folkstrategies.com/en)  
 Canadian creatives combine smart user interaction with cool colours and design.

**02. Super Crowds**  
[supercrowds.co](http://supercrowds.co)  
 This Tokyo creative firm takes transitions to another level. Make sure you see these.

**03. La Shop Studios**  
[lashopstudios.com](http://lashopstudios.com)  
 Discover this site's gorgeous waveform effects as the user interacts with the title.

**04. Maria Callas**  
[maria-callas.com/en](http://maria-callas.com/en)  
 Official site for the legendary singer. 3D forms mesmerise and engage the viewer.

## Graphics

Yeaah! Studio - Fall 2017

[bit.ly/2Aree3X](http://bit.ly/2Aree3X)

Yeaah! Studio is a French design studio and independent apparel brand, which produces beautiful illustrations.



## Colour picker

Déco in

[bit.ly/2zavHQb](http://bit.ly/2zavHQb)



## Typesetter

TT Tunnels

[bit.ly/2Am1E67](http://bit.ly/2Am1E67)

A modular font family with narrow proportions and a large number of pronounced visual compensators.

ABCabc  
01234567

## WordPress

Gaströ

[gastrobar.edge-themes.com](http://gastrobar.edge-themes.com)

A multi-talented WordPress theme with a focus on food and making that food look good with great photography.



# webkit

Discover the must-try resources that will make your site a better place

The screenshot shows the Parcel.js homepage. At the top right are links for 'Documentation' and 'GitHub'. The main title 'PARCEL' is in large, bold, white letters, with the subtitle 'Blazing fast, zero configuration web application bundler' in smaller white text below it. The central image is a 3D rendering of an open cardboard box, with file icons like '.CSS' and '.JS' floating above and inside it. Below the box are two buttons: 'Get Started' and 'GitHub'.

## Parcel

[parceljs.org](http://parceljs.org)

So what is Parcel? In a nutshell, it is a blazingly fast, zero-configuration web application bundler. So, what does it have to offer? There are automatic transforms using Babel, PostCSS, and PostHTML when needed and it has out-of-the-box support for JS, CSS, HTML, file assets, and more - no plugins needed. And, it has very fast bundle times.



### deeplearn.js

[deeplearnjs.org](http://deeplearnjs.org)

This is an open-source library that brings machine-learning building blocks to the web. It offers two APIs, enabling users to train neural networks in a browser.



### Chhota!

[chhota.ga](http://chhota.ga)

Chhota is a simple tool. It is a frontend url shortener without the need for a database. All you need is a single line of code to add to a page.



### Prettier

[prettier.io](http://prettier.io)

Prettier describes itself as an 'opinionated code formatter'. It removes all the original styling and ensures that outputted code is in a consistent style.

## TOP 5 Web conferences - Feb 2018

Get yourself a seat at the biggest and best conferences coming your way soon



### Vue.js Amsterdam

[vuejs.amsterdam](http://vuejs.amsterdam)

An event that enables you to discover, engage and learn with the Vue.js community.



### ng-europe

[ngeurope.org](http://ngeurope.org)

The Original European Angular Conference is back. Again it brings you awesome people in the community.



### Rolling Scopes Conference

[2018.conf.rollingscopes.com](http://2018.conf.rollingscopes.com)

Are you a frontend person? Then check out this for all the latest hot topics.



### Awwwards Berlin

[bit.ly/2B9Z2te](http://bit.ly/2B9Z2te)

The well-known portfolio site brings great speakers, a great venue and a great party.



### Developer Week

[developerweek.com/](http://developerweek.com/)

A weeks of events directed at developers. Includes a JavaScript conference, AR/VR and more.

# Voice search: Adapt to succeed

There is a power shift in search. Find out how to take advantage



**Paul Betteridge**  
Digital Market Director  
[hampshireseo.co.uk](http://hampshireseo.co.uk)

“ There is far more to voice search than mere convenience and the ability to multi-task, it is changing the way search engines handle search queries ”

**T**hanks to the rise of mobile and digital assistants – such as Apple’s Siri, Microsoft Cortana, Amazon’s Alexa, and Google – voice-activated searches and commands have become more mainstream. And since more people are using voice search, it’s directly affecting how they search, and how businesses need to adapt their websites and digital marketing to stay on top of these ranking opportunities.

According to comScore, 50 per cent of all searches will be voice searches by 2020 – a major reason for this growth is convenience and ease of use. But there is far more to voice search than convenience and the ability to multi-task, it’s changing the way search engines handle search queries and how users search for the information they need.

Voice search is uniquely tied to real-time, in particular local searches, with longer tail natural language searches typically reflecting immediate needs with stronger intent. This is an exciting opportunity for businesses and marketers to increase conversion and stay on top of this evolving niche. So how can you stay on top of the rankings?

If you want your website to be found, it needs to be mobile friendly. Your focus should therefore be on creating mobile-friendly pages, with content that loads quickly. Use the free Google Test My Site tool ([bit.ly/2aAXzOV](http://bit.ly/2aAXzOV)) to see how easily a visitor can use your website on a mobile device. People also read mobile content differently than they do with desktop content, bear this in mind when creating your content and design.

Amend your keyword targeting, in favour of longer tail keywords and be conscious of ‘the why’ behind what users are searching for. This is because people talk differently than they type, consider how you would speak naturally and search for things verbally via voice search. Inevitably these will be longer keyword phrases, for example ‘What is the best Italian restaurant near Bournemouth station?’

In line with longer tail keyword targeting, add an FAQ resource to your site. This will include dedicated landing pages, filled with content that list the questions and answers your audience has – who, what, when, where and why queries – as well as being optimised with keywords and metadata for search engine optimisation. Ultimately, you need to provide value to your users as well as the search engines.

Make the most of advanced SEO techniques, such as Schema data markup, since this will enable you to comprehensively describe what the data on your site means. Add this to your HTML and improve the way your pages are represented in SERPs. This will ultimately boost your visibility since the search engines will find it easier to understand who you are and what you do. For example: Structured data can be used to mark up all kinds of items from products to events to recipes. The following URL will help you understand the basics and how to implement it across your website: [developers.google.com/search/docs/guides/intro-structured-data](http://developers.google.com/search/docs/guides/intro-structured-data).

Most people use voice search to get information about physical places they want to visit, voice search can recognise ‘near me’ searches and turn to the Google My Business listings to populate these results. Utilising local listings can therefore increase your chances of appearing. Make sure your Google My Business account is up to date and select all the relevant categories. Take advantage of other local listing directories, in particular the free ones, to increase your search engine real estate and opportunity. Start by visiting [google.co.uk/intl/en/business](http://google.co.uk/intl/en/business).

Also take advantage of localised paid placements, such as Google’s Ad Words. For example, location extensions will enable your business address, phone number, and directions to be displayed alongside your adverts. This is crucially important if you want to show up in the strongly commercial ‘near me’ searches. Google Maps Local Search adverts will also help you reach the right people, at the right time.

# webkit

Discover the must-try resources that will make your site a better place



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  - Algebraic data types and pattern matching
  - Row polymorphism and extensible records
  - Higher kinded types
  - Type classes with functional dependencies
  - Higher-rank polymorphism

## HELLO, PURESCRIPT!

```
import Prelude
import Control.Monad.Eff.Console (log)

greet :: String -> String
greet name = "Hello, " <> name <> "!"

main = log (greet "World")
```

[QUICK START GUIDE](#)

[TRY PURESCRIPT](#)

## PureScript

[purescript.org](http://purescript.org)

PureScript's tagline is "A strongly-typed functional programming language that compiles to JavaScript". It offers an extensive collection of libraries, ideal for development of web applications. For those who want to learn it has plenty of documentation and tutorials. Want to take PureScript for a test run? Head to [try.purescript.org/](http://try.purescript.org/)



### Vuetron

[vuetron.io](http://vuetron.io)

Are you using Vue or Vuex? If you are then you need to take a look at this tool, which is ideal for testing and debugging your applications.



### Muuri

[haltu.github.io/muuri](http://haltu.github.io/muuri)

Looking for responsive, sortable, filterable and draggable grid layouts? Then check this library out. It offers more than you think.



### Reshader

[reshader.com](http://reshader.com)

Reshader describes itself as "A micro, highly-customisable JavaScript library to get the shades of colours". Detailed instructions are found on the website.

## TOP 5 WordPress themes for January 2018

Need to get yourself a good-looking site fast. Check out these smart themes



### Craftly

[bit.ly/2jcgpBy](http://bit.ly/2jcgpBy)

A big image slider takes centre stage, followed by a personal intro. A shop section means users can display their wares.



### Nørebro

[norebro.colabr.io](http://norebro.colabr.io)

This is a theme for creative professionals, and offers a host of smart and stylish page designs and design options.



### Kazla

[bit.ly/2B7lbvF](http://bit.ly/2B7lbvF)

Big, bright, bold and in-your-face colours make this theme hard to miss. It's all about the visual with content at a minimum.



### Hares

[bit.ly/2ASn4lj](http://bit.ly/2ASn4lj)

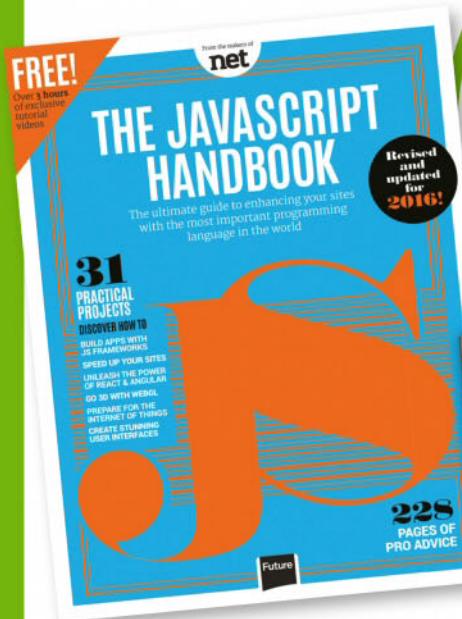
Rough and rebellious, this collection of home pages offers big background images with stylish graphical overlays.



### Griddr

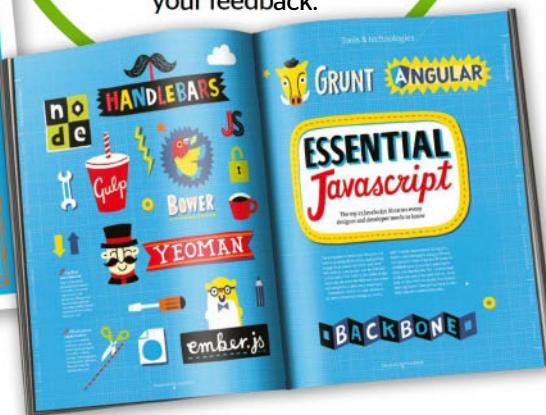
[bit.ly/2Cyi240](http://bit.ly/2Cyi240)

If you like neat lines and layouts this grid layout template is just for you. Perfect for keeping text and images apart.



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Each and every issue, we do our best to create a magazine that you love to read, and we're always looking for ways to make it even better. Once again, we'd like your help in improving Web Designer magazine, and all you need to do is answer some very quick questions about yourself - we're really looking forward to hearing from you.

Steven Jenkins  
Editor





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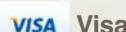
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# HOT 1001

KILLER TECHNIQUES  
& TIPS TO INSPIRE  
IN 2018

TOBIAS VAN SCHNEIDER

Tells you how  
to become  
**DESIGN ROYALTY**

**DAZZLE**  
with  
**16 FREE**  
**COOL AS...**  
**FONTS**

*Make a*  
**MILLION**

IMPRESS WITH  
**Creative  
CODING**

**DATA VISUALISATION**  
WITH THE  
**WOW FACTOR**

What's new in  
**NODEJS 9**

**5 NEW**  
**DESIGN**  
JOBS FOR THE  
**FUTURE**

A new year brings with it renewed enthusiasm, new technologies and a willingness to learn. The world of web designers and developers is never dull. There is always something new to learn. You know that something exciting is just around the corner. You know you will be making new discoveries that will excite and re-energise your very soul.

This issue **Web Designer** decided to go a little left-field and do something a bit different to help you become a better designer and developer in 2018.

We wanted to include the practical, we wanted to include the helpful and we

wanted to provide quick snippets of intrigue, interest and essential resources. So, what's on offer in this 47-page special? We're not sure where to start, but we will go with creative heavyweight Tobias van Schneider. He reveals his five tips to help you become design royalty (p32). Looking for visual stimulation, then feast your eyes on some beautiful data visualisation projects (p26). Hoping to get more creative with your coding skills, then we're here to help (p46). Want to prototype with Origami, we show you how (p60). Need some gorgeous free font combos? (p38). We have this and a whole lot more. Enjoy.

**"The world of web designers and developers is never dull. There is always something new to learn. You know that something exciting is just around the corner"**

**POWER UP YOUR  
PORTFOLIO**

**prototype  
like PRO  
with facebook  
ORIGAMI**



# NEW WAYS OF WORKING

**Workspaces bring community and creativity.  
Web Designer visits THIS Workspace to find out more**

Freelancers and businesses don't want to stagnate, they want to create and produce. Workspaces such as THIS Workspace provide the perfect environment for this to happen. In need of inspiration? In need of advice? In need of interaction to stimulate your creative juices? Then head to your nearest workspace and sign up to discover the benefits today.



**JOSHUA WINTERTON**  
**Partner at THIS Workspace**  
**[www.thiswork.space](http://www.thiswork.space)**

*I head up THIS Workspace, operating it with our brilliant on-site teams to attract the best community of entrepreneurs, freelancers and established businesses, ranging from software developers, graphic designers, charities, branding agencies to journalists, photographers and tech companies. We design workspaces from the ground up, seeking out iconic buildings in central locations, and give them purpose. We have an exciting expansion plan ahead and we look forward to attracting the very best of the UK to our workspaces around the country!*





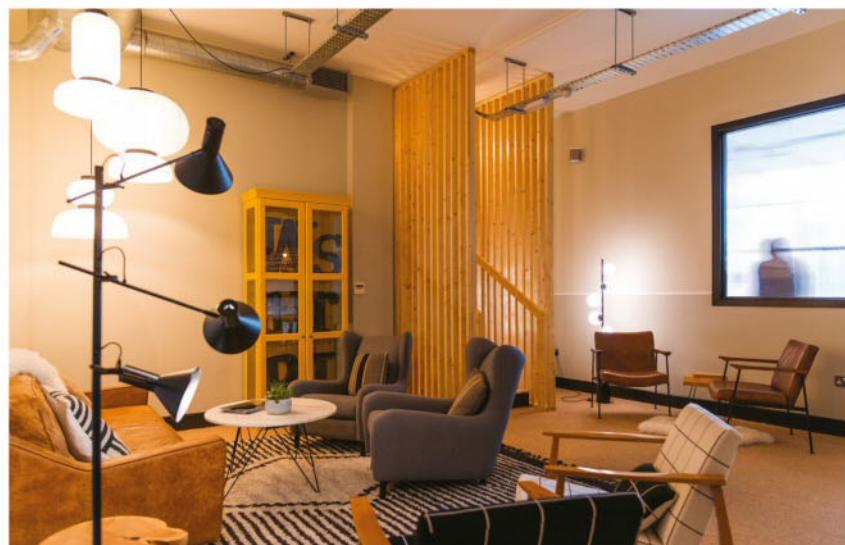
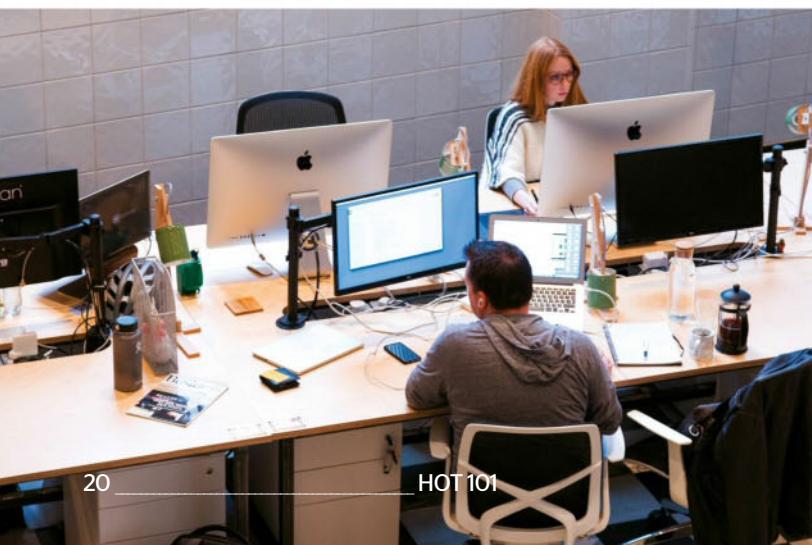
**CHESTER RIGHTON**  
**Opportunity Maker for**  
**THIS Workspace**  
**[www.thiswork.space](http://www.thiswork.space)**

*THIS Workspace is Bournemouth's biggest creative co-working space located in the historic Old Print Rooms in the Echo Building. Home to an ever-growing community of entrepreneurs and businesses ranging from web designers, VR specialists, social media agencies, authors, charities and more. If you're interested in a beautifully designed workspace to rent by the desk or studio, please enquire today.*





**EMILY MELLING**  
**Digital Marketing Manager at**  
**Yes I'm A Designer**  
**yesimadesigner.com**  
*Apart from the fact it's an absolutely beautiful and inspirational space to rent a desk in, our team enjoy working around other professionals and developing new connections within the local creative community. We were very excited by the idea of being able to network on a daily basis.*





**JASON MACKENZIE**  
**Head of Bottle Bournemouth &**  
**president of the Chartered Institute**  
**of Public Relations**

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

*When Bottle was thinking about opening a Bournemouth office, we knew we needed a creative space – but THIS Workspace has exceeded our expectations. In the heart of the town, steeped in the heritage of storytelling, there was no better place for us to take root than in the Echo Building. The superb customer service and stylish ambience is an added bonus. Highly recommended (but don't tell everyone, it's our secret).*



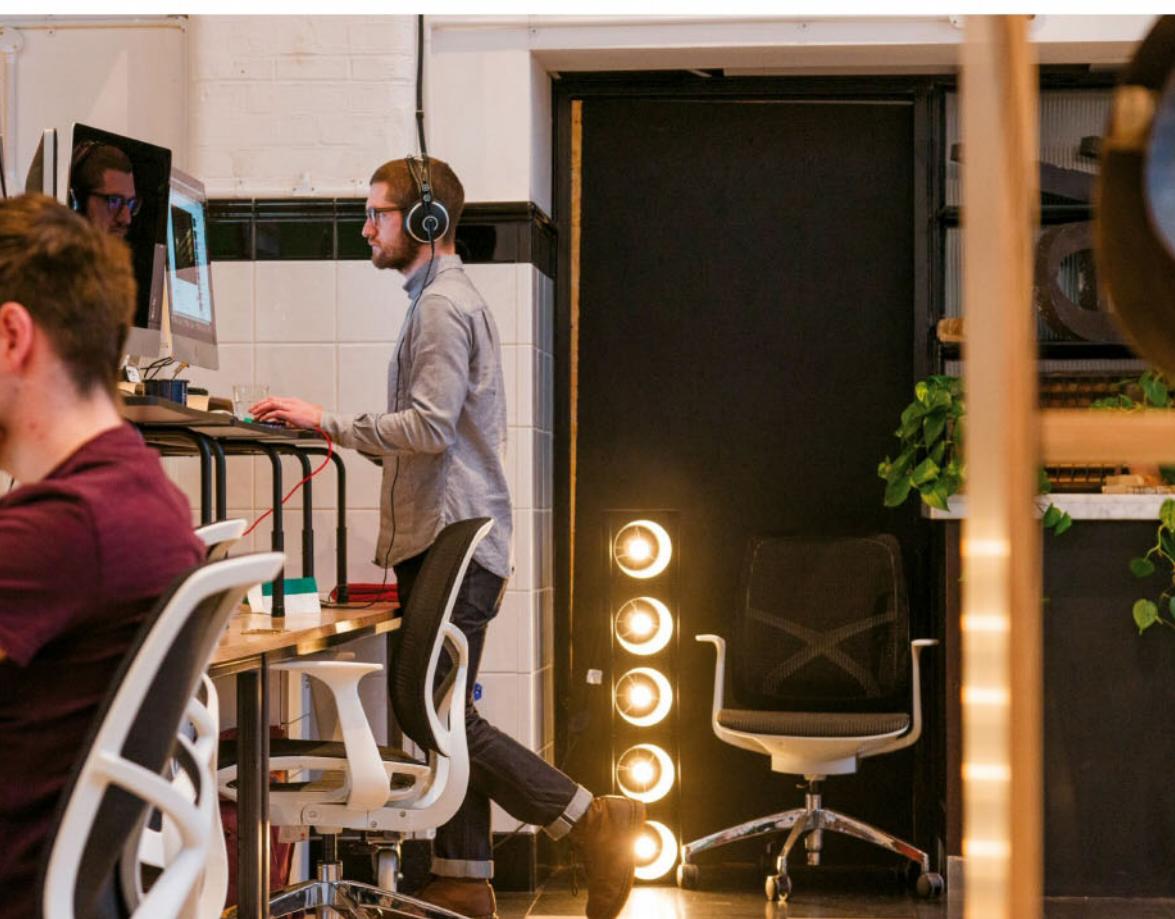


**SOPHIE SELCOE**  
**Freelance Graphic Designer & Illustrator**  
[sophieselcoe.com](http://sophieselcoe.com)

*I was delighted to have won a month's membership at THIS Workspace for having one of the best portfolios at an incredibly inspiring Portfolio Review event they hosted through Behance. My experience since at THIS Workspace has been one that has opened so many doors, through contacts I've made and advice shared by such an inspiring, creative group of people. I've since taken the leap to work as a freelance designer and I hope to continue my membership.*



## NEW WAYS OF WORKING



**KASIA NOWAK**  
**Owner of Peppermint Love Photography**  
**[peppermintlovephotography.com](http://peppermintlovephotography.com)**  
*I was looking for an office space that would be spacious, with great community and inspire me to be creative. THIS Workspace certainly ticks all the boxes and more! I love seeing how my work and productivity have improved by being around like-minded people and in the space that is so beautifully designed. I work here everyday and feel proud to invite my clients for meetings too. No more working from home and procrastinating!*

# GOODBYE TO UX DESIGNERS

As the web evolves so do job roles. Current roles will disappear and new appear.  
Here are five jobs that look set to be part of the design future

## FULL-STACK DESIGNER

Similar to full-stack web developers who code for both front- and back-end technologies, full-stack designers will have skills in multiple design disciplines. The emergence of this role is already motivated by employers needing to become more efficient with their budgets - whether it's to be 'price competitive', or public sector organisations responding to the government's austerity cuts. Full-stack developers will offer better value to employers by allowing for smaller team requirements and less downtime due to more flexibility to deploy skills.

## INSTRUCTIONAL DESIGNER

A combination of graphic and UX design, but with a primary focus on delivering content for learning. This type of design is applied to all forms of digital media from web pages to ebooks and apps. The obvious role for instructional designers is in supporting education organisations such as universities for creating custom content for their courses. Additional demand for instructional design is likely to emerge as more businesses embrace technology such as self service supermarket checkouts - hence needing content to instruct their customers.

## SCIENTIFIC DESIGNER

They say knowledge is power - whether that's for PR communications, making business decisions or helping people to live a healthy lifestyle. The rise of digital technology and the Internet has allowed more data than ever before to be captured. The problem with data is that it's just data. While some have no problem making 'sense' of data through statistical analysis techniques, the average person can only see 'nonsense'. This is where the role of scientific designer emerges - to present knowledge from data as easy-to-understand visuals.

## INTELLIGENT CONTENT AUTHOR

The opposite of a scientific designer, an intelligent content author will produce content that either captures or reacts to data. This type of designer will evolve from UX design to embrace AI to allow content to adapt itself to what it knows about users. Data will come from multiple sources, including popular digital assistant technologies such as Alexa, Siri and Google Assistant. Design content will be hosted as either independent content or as part of an external platform such as with chatbots for Facebook's Messenger service.

## AR/VR DESIGNER

The emergence of smartphones and the revival of AR/VR headset technology (see Microsoft HoloLens and Oculus Rift) at an affordable price means that the mainstream public now have access to content using these abilities. Programmes for marketing, education and other activities have an opportunity to benefit from this medium through providing memorable experiences that engage their audiences. A medium is only useful if content is available to grow its potential - hence the role of AR/VR design as a specific design specialism.





# NEXUS INTERACTIVE ARTS WEBAR EXPERIMENTS

[www.nexusinteractivearts.com/webar](http://www.nexusinteractivearts.com/webar)

<https://nexusinteractivearts.com/webar/weathAR/media/marker/marker.jpg>

“ Our interest in web-based AR is driven by our desire to create AR experiences that are a hyperlink away; no download, completely integrated into a browser. Our studio is exploring how emerging technologies can shape the future of storytelling. The camera has become one of the most important features of our toolkit; a doorway to contextual information about where I am and what I can see at that moment. ”

  
**LUKE RITCHIE**  
HEAD OF INTERACTIVE ARTS

HOT  
**101**

# DATA VISUALISATION WITH THE **WOW FACTOR**

Who wants to read detailed data reports when you can look at beautiful designs. Visit each one to appreciate their power



## Why Age? Should We End Aging Forever?

[bit.ly/2gTPSlm](http://bit.ly/2gTPSlm)

Kurzgesagt - In a Nutshell

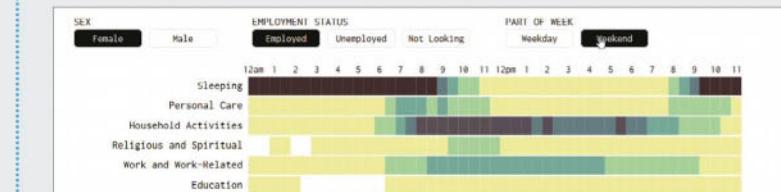
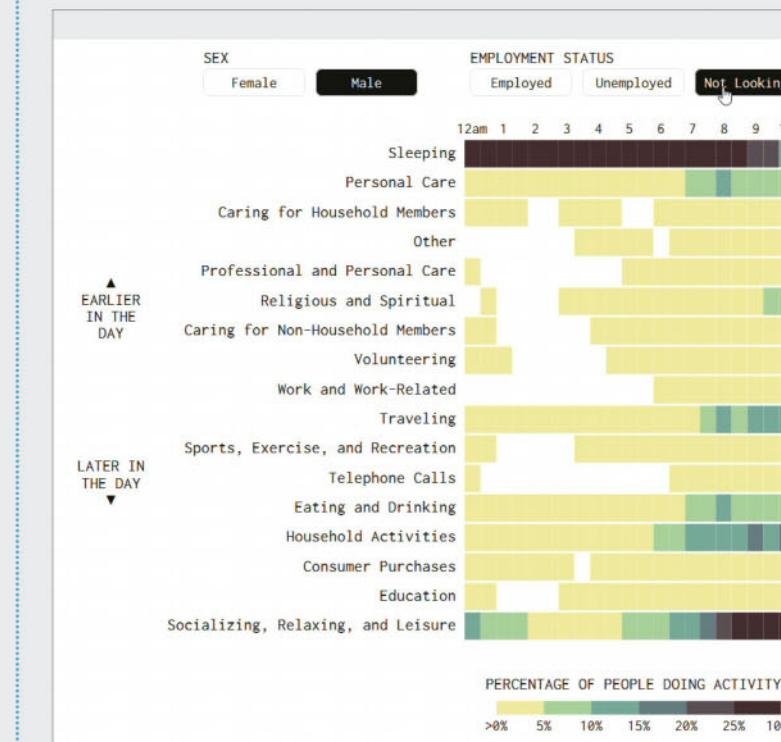
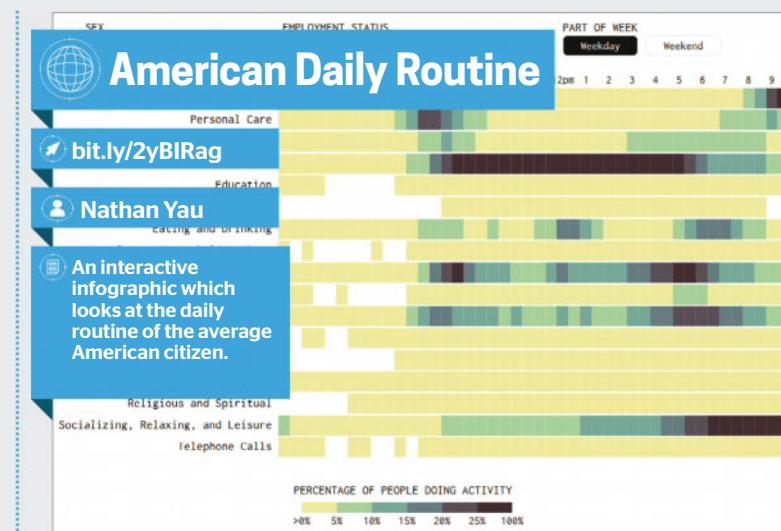
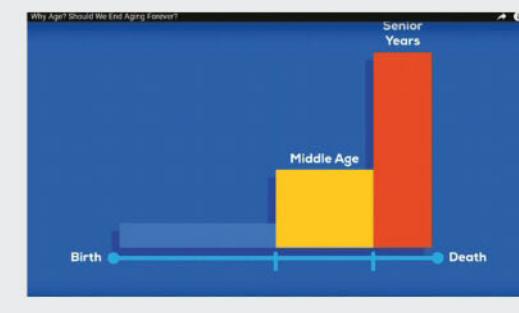
This is a video that uses data in an engaging storytelling format with gorgeous graphics. This is just one of many.

|| ▶ 🔊 1:20 / 6:48



**Above**  
The illustrations are colourful and engaging.

**Below**  
The illustrative theme carries on throughout, adding visual information with charts and stats.



**Top**  
The order of the daily activities changes with the options you choose.

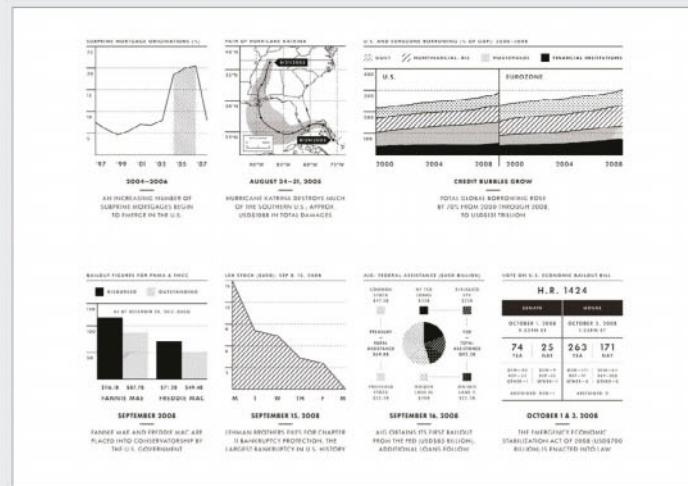
**above**  
You can choose by employment status, sex and part of the week for different stats sets.

# Global Warning

[networkkosaka.com/Global-Warning](http://networkkosaka.com/Global-Warning)

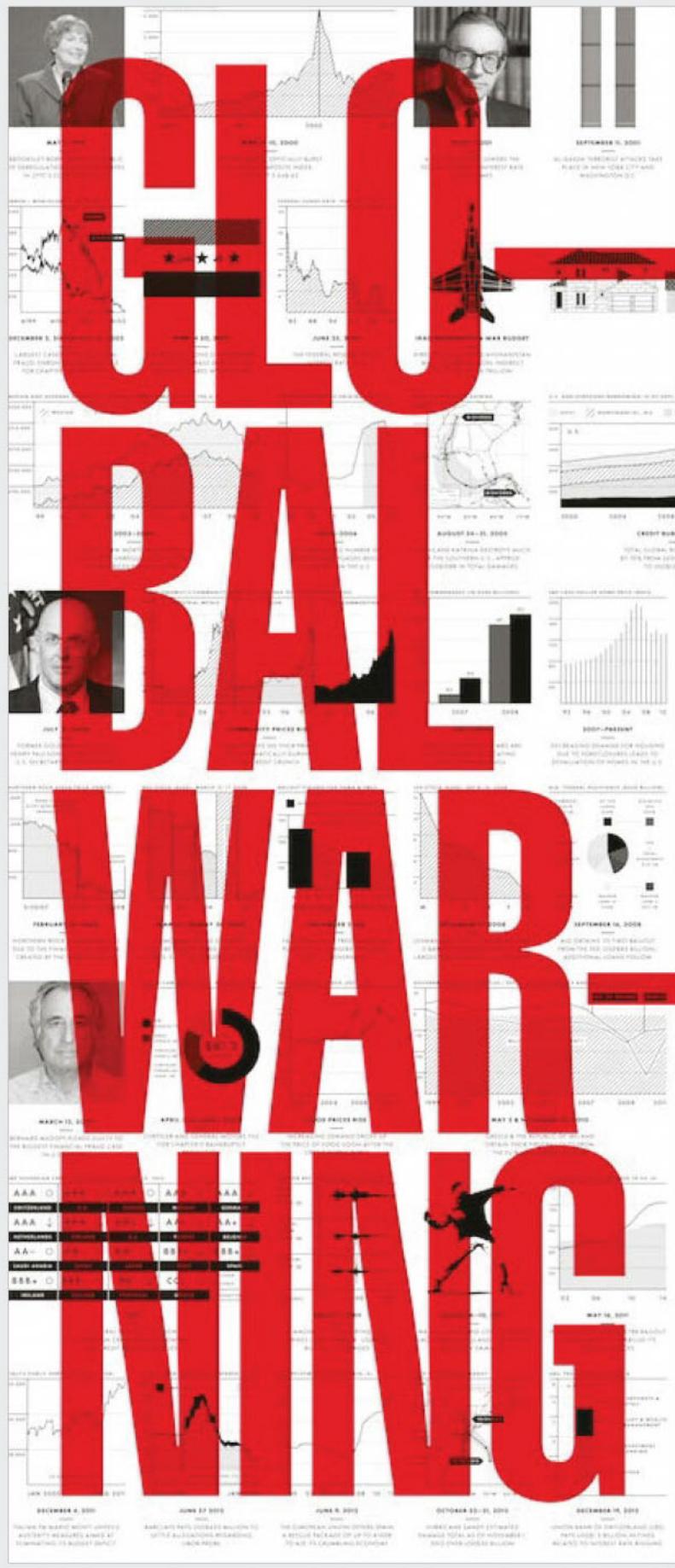
Derek Kim

**This A1, free-to-download poster is a collection of graphs imparting vast amounts of information.**



**Above**  
The stats are placed in easy-to-digest charts.

**Right**  
The title is split across the height of the poster and drops the opacity to make the info visible.



## All the Government Barbecues

R\$ 15.000

[bit.ly/2znH7wU](http://bit.ly/2znH7wU)

Rodrigo Menegat

This infographic represents what government expenses are being spent on. In this case "churrascarias".

9.000

R\$ 6.122 (US\$ 1,958)  
⌚ 30 sep 2011  
▣ 20 Armed Cavalry Reg.

R\$ 6.168 (US\$ 1,972)  
⌚ 7 may 2012  
▣ Ministry of Defense – Internal Administration Dept.

R\$ 7.847 (US\$ 2,509)  
⌚ 23 apr 2015  
▣ Ministry of Defense – Internal Administration Dept.

R\$ 10.595 (US\$ 3,388)  
⌚ 21 sep 2016  
▣ 62 Infantry Batallion

R\$ 8.000 (US\$ 2,558)  
⌚ 22 aug 2016  
▣ 62 Infantry Batallion

6.000

R\$ 6.102 (US\$ 1,951)  
⌚ 4 sep 2014  
▣ Ministry of Defense – Internal Administration Dept.

3.000

2010

2011

2012

2013

2014

2015

2016

2017

R\$ 2.000.000

1.750.000

1.500.000

1.250.000

1.000.000

750.000

500.000

250.000

Confidential

Public

All these 2,277 purchases add up to R\$ 220 million

Barbecues are among these

Purchases

R\$ 220 mi

Withdraws

R\$ 60 mi

Untraceable government credit card expenses

$$+ = R\$ 280 \text{ mi}$$

**Left**  
How much is being spent on what. This graphic shows that a lot of expenses are confidential.

**Above**  
Simple circles in an equation show the difference between the two amounts.

The logo consists of a stylized globe icon with a grid pattern, enclosed within a circular border, followed by a large, bold letter 'D'.

Data Visualisation Weather Eindhoven

[bit.ly/2yDoqVz](http://bit.ly/2yDoqVz)

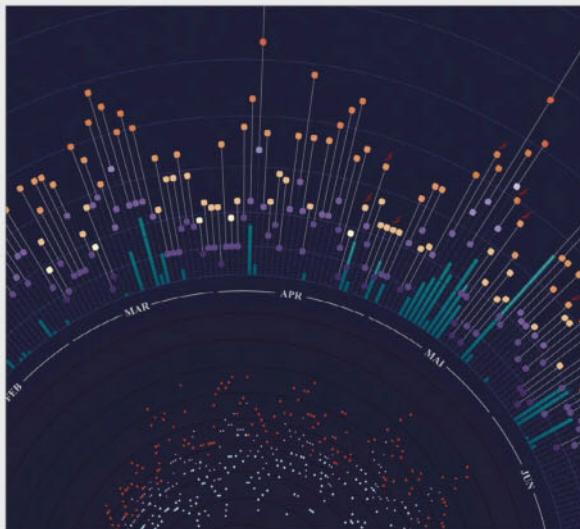
 studioterp.nl

A visualisation of the weather in the Dutch town of Eindhoven across the months of the year. Also see the studio's other work.

Weather Eindhoven 2014

*Maximum temperature 34 °C  
Average temperature 12 °C  
Minimum temperature -7 °C*

*Average windspeed 12 km/h  
Hardest windspeed 89 km/h*



Le

A close-up view  
of Eindhoven's  
weather month  
by month.

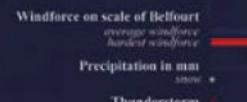
Right

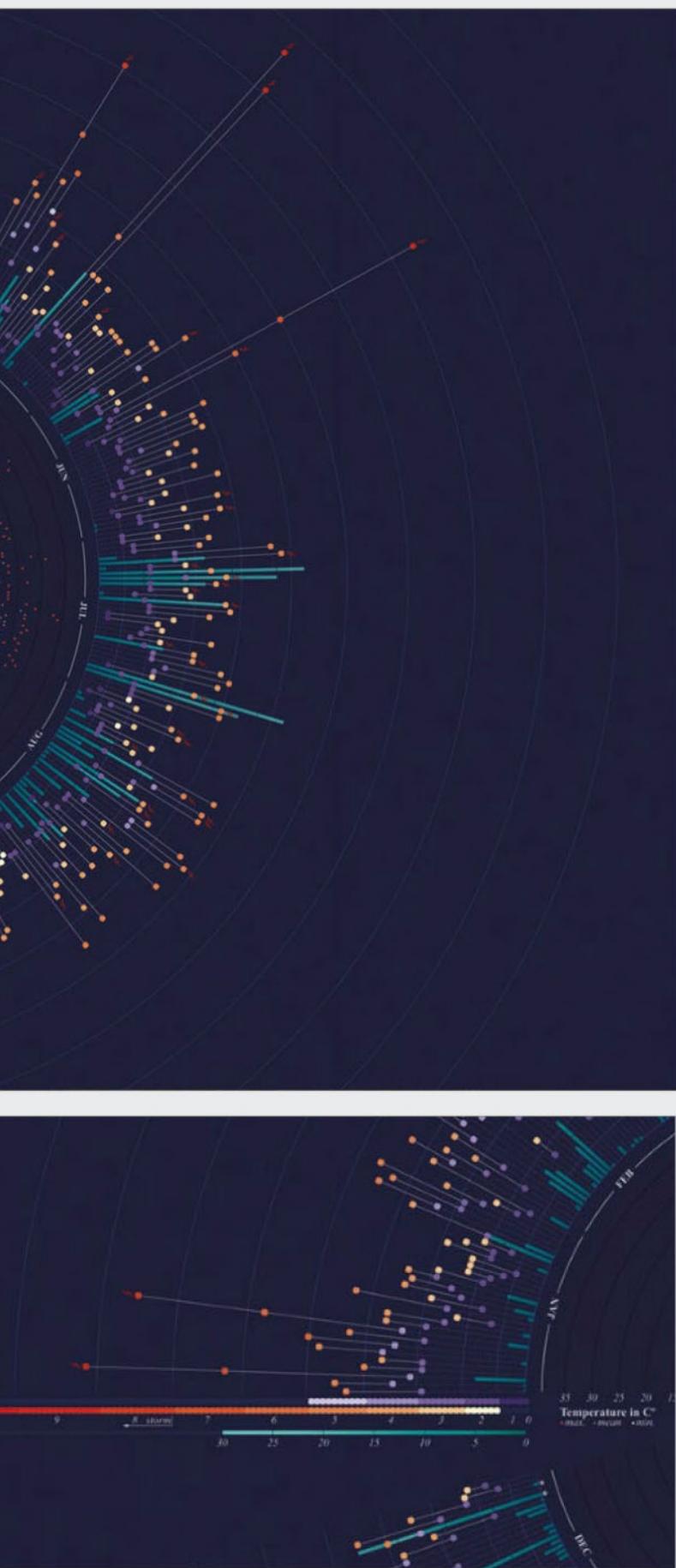
Windforce,  
precipitation,  
temperature  
and thunder-  
storm data are  
all included.

Weather Eindhoven 2014

*Maximum temperature 34 °C  
Average temperature 12 °C  
Minimum temperature -7 °C*

Average windspeed 12 km/h  
Hardest windspeed 89 km/h





**Figure it out**

fioapp.co/app

01 24 Mon. 18th Friedrich Riha (EST)

Not so much a representation of data that exists but data you add. Create your own patterns by adding data.

06 24 Mon. 18th United Kingdom (GMT)

07 24 Mon. 18th Paris, France (CET)

15 24 Mon. 18th Japan (JST)

17 24 Mon. 18th Sydney, NSW, Australia (AEDT)

01 :28 Mon. 18th Iowa, NH, United States (EST)

06 :28 Mon. 18th Poole, United Kingdom (GMT)

07 :28 Mon. 18th Paris, France (CET)

Add a location | Create an event

moscow

Moscow, Russia MSK

Moscow, ID, United States PST

Moscow Mills, MO, United States CST

Moscow, PA, United States EST

Moscow, TN, United States CST

06 29 Mon. 18th Poole, United Kingdom (GMT)

07 29 Mon. 18th Paris, France (CET)

15 29 Mon. 18th Japan (JST)

**Above**  
The app is populated by location. Type in the initial letters and choose a location to add a location to add a new segment.

**Middle**  
Automatically added data can be edited or deleted to create whole new patterns.

# How to become **DESIGN ROYALTY**

Creative heavyweight Tobias van Schneider reveals five essential tips to take your designs to the next level

## 1. FORGET THE IDEA OF OVERNIGHT SUCCESS

We love to celebrate success stories and put people we admire on a pedestal. But we forget even the most successful people had to start somewhere and worked hard to get where they are today. There is no such thing as an overnight success.

## 2. REMEMBER A SIDE PROJECT CAN CHANGE YOUR LIFE

Look at every task or project that comes your way, even the seemingly small and insignificant ones, as an opportunity. You never know where an article you write, a video you make or a design you create might take you. Say yes until you can afford to say no.

## 3. BE STUPID

The greatest ideas never make it into the world because we're too afraid of what other people think. We fear failure and come up with excuses. We overcomplicate and our idea dies before we've even begun. Keep it simple, be stupid.

## 4. TRUST YOUR GUT

With all the information in the world at our fingertips, we can easily talk ourselves in circles. Information often fails us, but intuition almost never does. Your intuition is the sum of your experiences, learnings and a little magic. Do what feels right.

## 5. DON'T DO IT FOR MONEY

Of course we need money to live, but it shouldn't be our main motivator. Aim to make what you need to get by. This will open up opportunities and relationships you wouldn't otherwise consider, and work that actually excites you. Money usually ruins the fun, but fun brings the money.

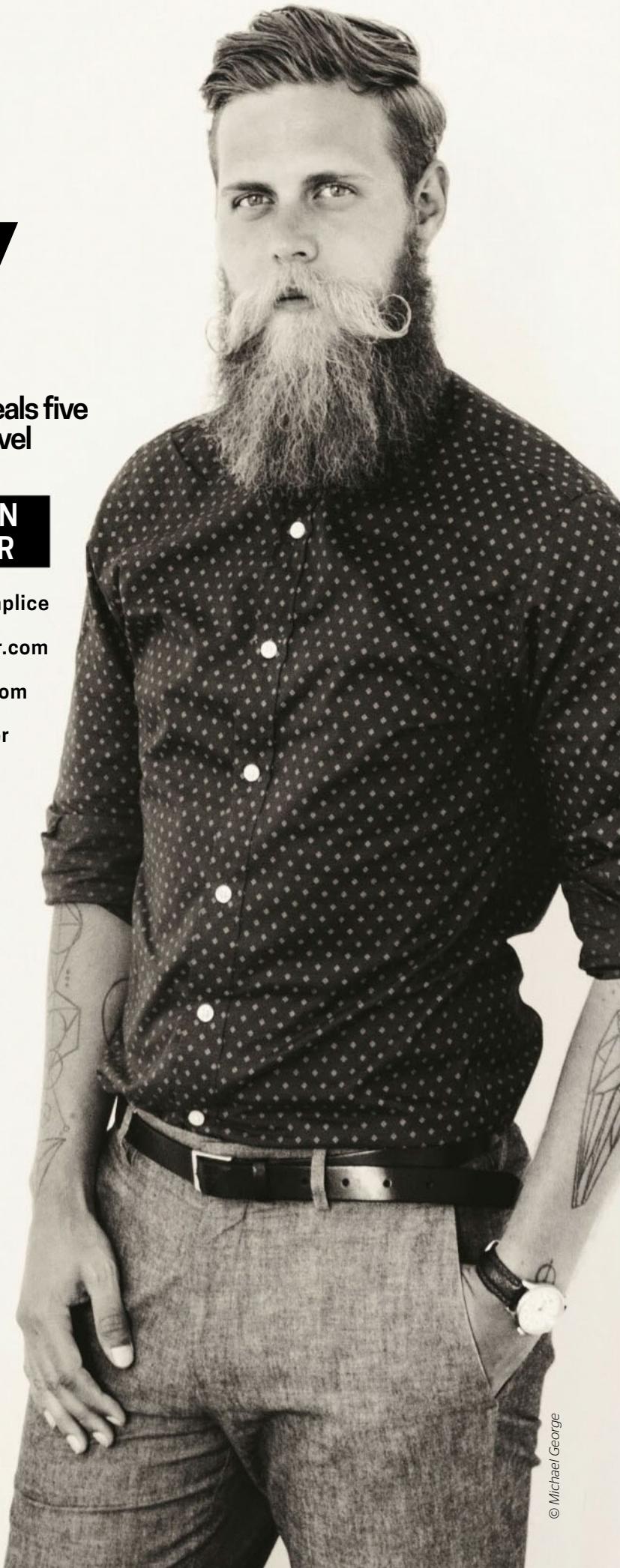
## TOBIAS VAN SCHNEIDER

Co-founder of Semplice

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

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

@vanschneider





# AUGMENTED REALITY POSTER FOR AMERICAN FILM FESTIVAL

<https://xr.plus/jt8>

<https://xr.plus/jt8>

“

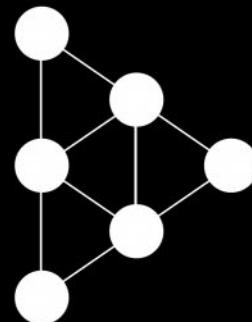
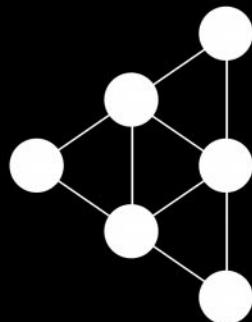
People love Augmented Reality, but don't like to install mobile apps. So we made a web platform to share AR content directly on browsers using JavaScript technology. You can think of it as the 'Vimeo for Augmented Reality.'

”



# EVERYONE

15 POWER TIPS FOR TWITTER, FACEBOOK, AND INSTAGRAM



## FACEBOOK POWER TIPS

### 1 GET LOCAL

If you are only going to do one thing with social media from now on then it should be this. Join as many local community groups as possible and post regularly in them. Get known, provide advice, answer questions. Just participate. People buy from people they know. So make sure everyone knows you.

### 2 KNOW YOUR AUDIENCE

Every single Facebook tip boils down to one thing. Get to know the people around you, and make sure they know you. Talk to people, answer their questions for free, be the guy everyone likes, the first person they think of. Then when they need something, you'll have already sold it.

### 3 MEMES

People love to share funny pictures. The picture itself isn't going to get you any business, but becoming known as a person who is funny isn't going to do you any harm at all. Social media is about interaction. Be the person that everyone likes. Try to make what you share relevant...

### 4 INTEGRATE EMAIL MARKETING

Do you have a regular newsletter? If not then shame on you, go start one now. Then integrate the sign up with your Facebook page. There's no point in going to all of the effort of making people like you if you don't leverage it to get an opportunity to pitch your business.



### RECOMMENDED APP **TAB SITE**

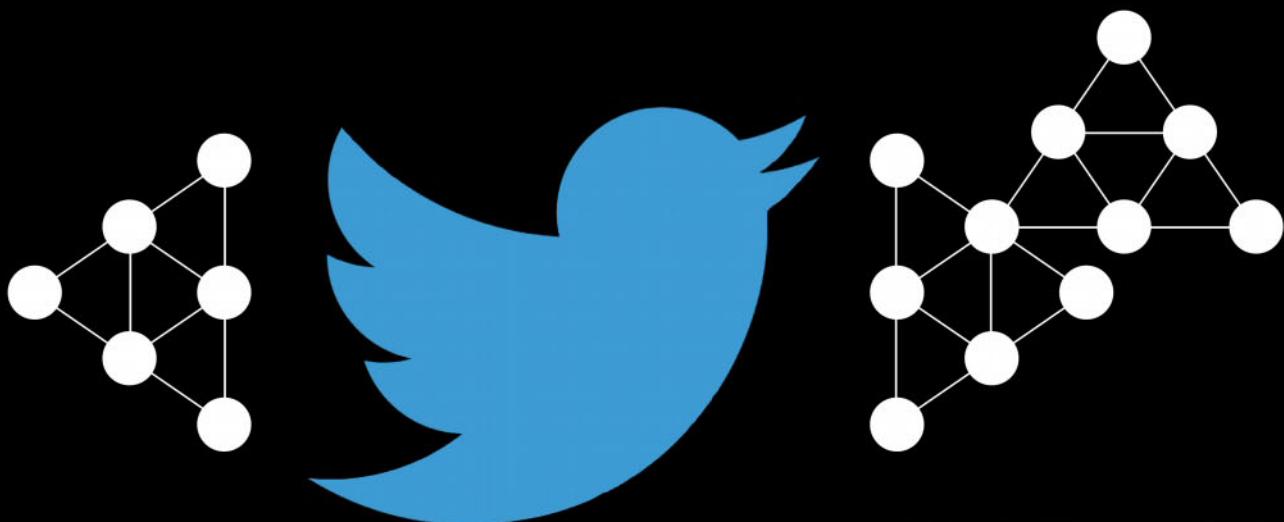
[www.tabsite.com](http://www.tabsite.com)

Enables you to create tabs in Facebook, so you can run competitions, sweepstakes, and special offers.

### 5 RETARGETING

We know it kinda goes against the ethos of this list to suggest you simply pay for adverts, but Facebook's retargeting system rocks. And even better it doesn't have to cost much. The more people see you the more likely they are to buy, so retarget to make sure they see you again!

# LOOK AT ME



## TWITTER POWER TIPS

### 1 QUANTITY

The average lifespan of a single tweet is measured in minutes. Even assuming you have a good audience then tweeting once a day is only ever going to reach a tiny fraction of them. You should be aiming to post multiple times a day. Retweet yourself if you have to.

### 2 BECOME THE EXPERT

If you aren't tweeting links to interesting articles about your industry then you are missing a trick. Portray yourself as being knowledgeable and at the cutting edge without having to write your own content. That a real win-win situation.

### 3 CONVERSATION

It seems a little odd to think of Twitter as a place for conversations when you remember the character limit, but it really is. Answer people, compliment them, thank them for retweeting you. Show them the person behind the tweets, and you will reap the rewards.

### 4 MOVING PICTURES

Everyone likes a good GIF right? Get yourself over to Giphy and start using them as answers. You'd be amazed at how many conversations are taking place on Twitter right now with nothing but GIFs. Come and join in.



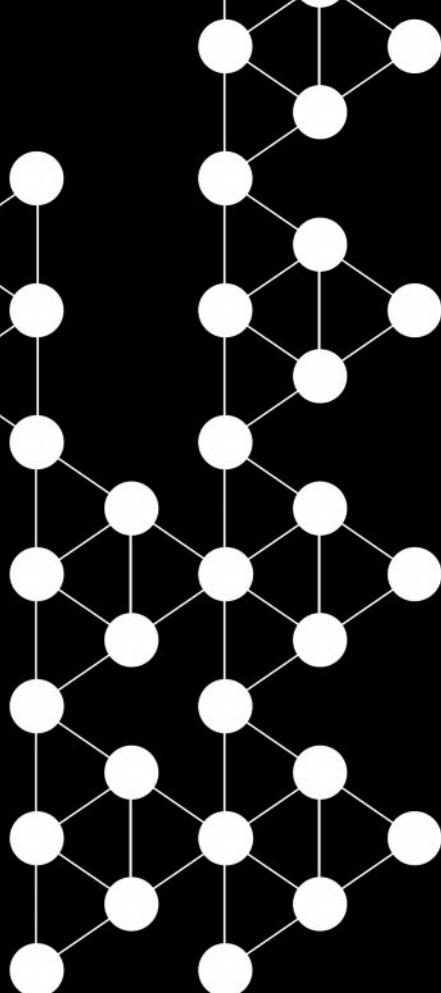
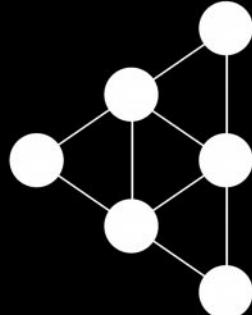
### RECOMMENDED APP TWEETDECK

[tweetdeck.twitter.com](http://tweetdeck.twitter.com)  
Do you want to manage multiple Twitter streams at the same time? Then TweetDeck is the thing for you!

### 5 RIDE THE COAT-TAILS OF FAME

Tag people. The more followers the better. Make sure they are relevant to your business, and your tweet is relevant to them. All it takes is one retweet, or reply from a big name in your industry for people to notice you.

**“Make a recognisable look for everything you do and soon people will start to know it is you”**



## INSTAGRAM POWER TIPS

### 1 GET ON BRAND

Creating a content strategy helps keep you on track when deciding what to post. Make a recognisable look for everything you do and soon people will start to know it is you before they even see your name. Help your potential customers see the world your way to make them feel connected.

### 3 USE VIDEO TO CONNECT

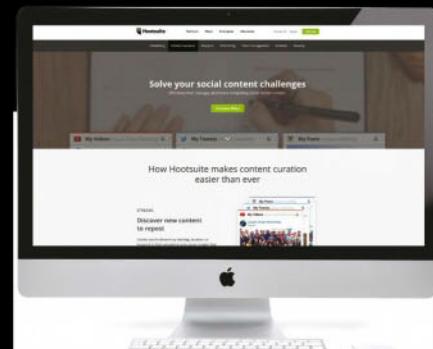
Because Instagram is so focused on photo sharing, people often forget about video. Lots of people don't bother because of the length restrictions, but if you're happy to record live then you can have video of up to an hour in length.

### 2 #USE HASHTAGS

Hashtags are massive on Instagram. Unlike on other social media sites where they have been shown to have a negative effect, hashtags genuinely help people find your content. Use trending hashtags to get visibility, and create your own brand hashtags for others to use. Just make sure that you monitor them!

### 4 REMEMBER THE COMMUNITY

Whatever your feelings about Instagram, it's still social media. Which means it's about interaction. Like your customers' pics, especially if they have your products in them. Reply to comments on your images, and make sure to comment on other people's. Don't forget to tag people too!



### RECOMMENDED APP **HOOTSUITE**

[hootsuite.com](http://hootsuite.com)

Many professional marketers would be lost without Hootsuite. It's a one-stop-shop for everything social.

### 5 COMPETITIONS

As a general rule of thumb the sort of person who is active on Instagram is creative and likes taking pictures. Running a competition with a specific hashtag is a lovely way to drive awareness of your brand while letting people do what they already like to do anyway.

# generate

The conference for web designers

(mt)  
mediatemple

# NEW YORK | 25-27 APRIL 2018



DONNA LICHAW



WES BOS



ABBY COVERT



DAN MALL



VAL HEAD

and  
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## Shopify [www.shopify.co.uk](http://www.shopify.co.uk)

Shopify is one of the biggest and the most well known eCommerce solutions available for the general public. Currently there's three different packages: the basic one starting at \$29 per month, ranging to \$299 a month for scaling your online shop. Shopify charges a 2.2% fee with an extra 20p charge for all online sales, but this is not the case if you use their Shopify Payments platform to process sales on your site. Not only is Shopify great because of its ease, but anyone can set up an online website directly with their packages, which include 24/7 support, a website or blog, free SSL certificates and fraud analysis - taking all the boring tedious stuff

away from you. However, Shopify, as a blogging or online store platform, often cannot keep up with a CMS such as WordPress with its content management ease and SEO features. Other issues arise when you want to switch to another platform, as most features are locked in, meaning a transition to another platform may not be so easy. In conclusion, Shopify is all about easy setup, quick sales and expanding your business online with ease as a regular internet shopper, but as a developer it may seem frustrating with the limited support for custom code or scripts that you wish to add.

**Score: 9/10**

## WooCommerce [woocommerce.com](http://woocommerce.com)

WooCommerce is one of the most popular free WordPress plugins available. It gives users the ability to set up an online shop with ease. You can sell your product anywhere and make your WordPress website or blog available to take digital and physical orders through the power of WooCommerce.

Customisation, to separate yourself from the rest, is key, and WooCommerce provides such features with themes and more plugins to change the styling of your shop and expand accessibility and other features. WooCommerce provides great security when processing transactions, taking all the worry away from you as an owner, and your customers.

Another great feature of WooCommerce is its vast range of

analytic tools. These are great for engaging with customer purchases and activity, crunching stats and monthly orders - making the whole process of analysing your data simple.

On the other hand, WooCommerce, although free, can become very expensive very quickly with the need for specific themes and plugins that have attached fees. You can customise your shop on your own if you have the skills, but otherwise you'll need to buy a premade theme if you're not so tech savvy. In conclusion, WooCommerce is a great, free plugin for WordPress and provides amazing tools for analytics and secure transactions, but may soon become costly with any required customisation.

**Score: 8/10**

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## BigCommerce [www.bigcommerce.com](http://www.bigcommerce.com)

BigCommerce is a paid hosting service starting at \$29.95 per month for online shops processing physical or virtual transactions, boasting big clients such as Toyota, Kodak and Martha Stewart. They aim to attract customers with web design skills and the ability to personally customise their sites, but also provides the ability to buy and sell themes for BigCommerce shops.

The platform also gives you the opportunity to list your products on Amazon, eBay, Facebook and more, and comes with a free trial to test out their suite of tools. With a range of prices, BigCommerce provides solutions for scaling your business from small, frequent transactions all the way to enterprise solutions for

mass, high-volume businesses. The core selling features of BigCommerce include the full CMS features to allow quick changing of content with ease, the ability to provide discounts and coupon codes to customers and search engine optimisation for your website. There's even the ability for savvy users to tweak the CSS and HTML.

On the other hand, BigCommerce places limits on your annual sales – at the standard package you're limited to a \$50,000 processing fee per annum. If you choose Braintree for payments you may encounter a 2.9% fee per transaction on credit cards from PayPal too, however Braintree is an added option.

**Score: 7.5/10**

**volusion** [www.volusion.com](http://www.volusion.com)

Volusion, like all other good eCommerce platforms focuses more on the selling and less about being bogged down by design and tedious tasks. The starting package begins at \$15 per month and offers 100 products, a secure checkout, online support and 1GB of bandwidth – but more on the bandwidth later.

They provide tools to quickly design and deploy a website with their simple editor and theme picker, providing 11 free themes, and 38 premium themes that come at a one-time fee starting at \$180 per theme. Contrary to other eCommerce platforms, Volusion has no transaction fees, meaning you keep all your profits! Going with your monthly package will also get you free 24/7 customer support, a great

feature for starting out with online eCommerce shops, ensuring you have a dedicated support team around you for any questions.

On the other hand, you're placed on a strict bandwidth limit on your site, so the more users you get visiting, the more bandwidth you're going to need. Have large images or content? Well, they're going to eat up your 1GB of monthly bandwidth pretty quickly. You'll soon have to buy more bandwidth to keep your store up and running, especially during peak times.

Volusion doesn't offer free SSL certificates or any blogging functions, something deemed quite critical for marketing and providing a secure transaction environment.

**Score: 6/10**

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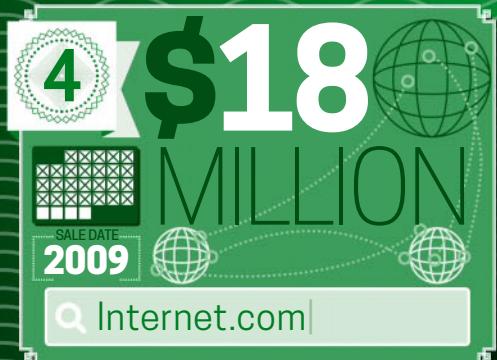
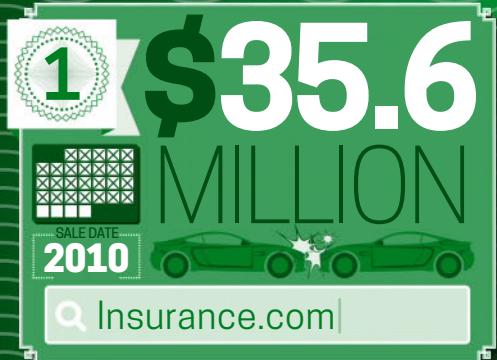
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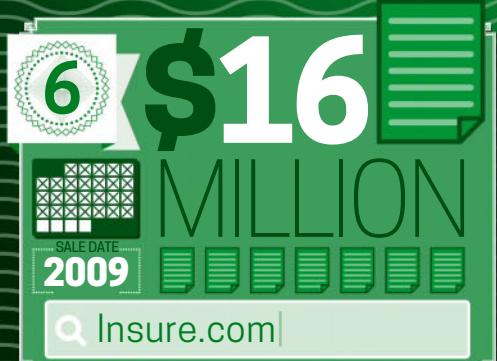


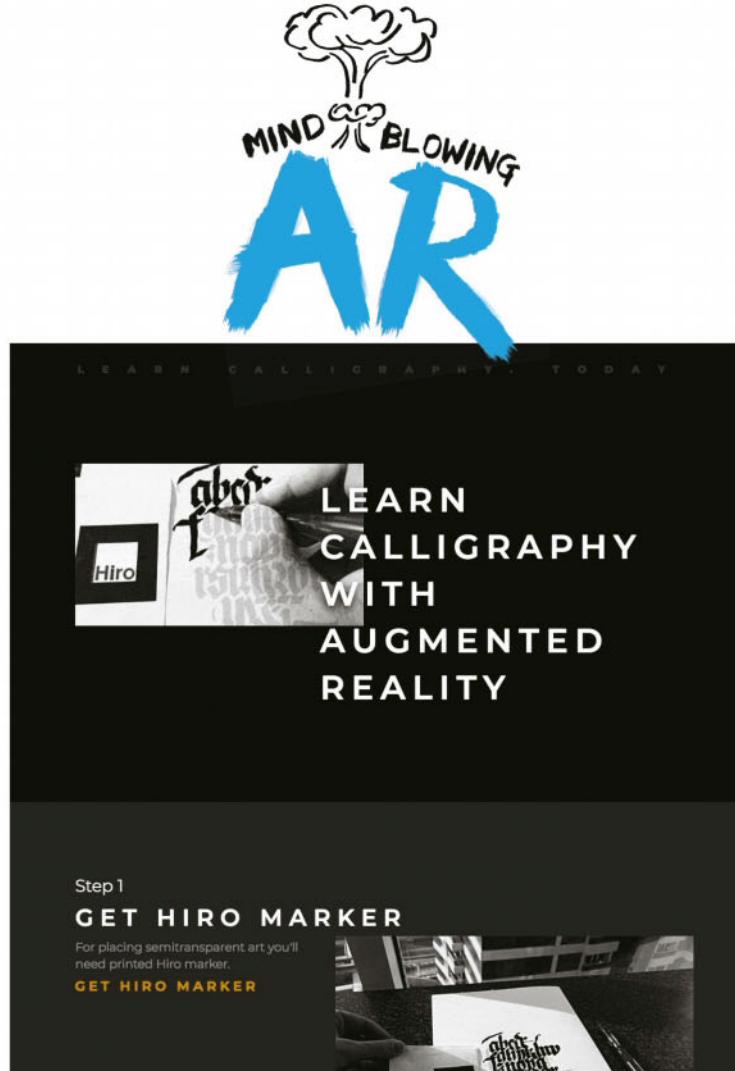
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... HOW MUCH!!

According to Wikipedia these are the most expensive domain recorded. However, other domains have cost more, but these typically include content as well as the domain. **LasVegas.com** is reported to have cost a whopping \$90m, while **CarlInsurance.com** very nearly tops the \$50m mark. Unbelievably **Cars.com** was valued at \$872m. For a bit of fun why not find the (approx) value of a domain you own. Take a trip to [www.siteprice.org](http://www.siteprice.org)

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“ The best digital products are found on the intersections of different fields. As a designer I like beautiful calligraphy, and when I found AR.js library I decided to build a product with a mix of augmented reality and calligraphy. ”

**VOLODYMYR KURBATOV**  
FREELANCE VR/AR PRODUCT DESIGNER

# 6 WAYS TO GET INTO **CREATIVE CODING**

**LET YOUR IMAGINATION  
RUN FREE BY PLAYING  
AROUND IN CODE. SEE HOW  
LIBRARIES, BROWSERS AND  
APIS CAN COME TOGETHER  
TO CREATE MESMERISING  
VISUAL DISPLAYS**

**I**t is difficult to define exactly what 'creative coding' means. In broad terms, it refers to the production of something that is expressive in nature rather than having a purely practical use. It is a chance to learn and explore how various different technologies can come together to create impressive works of art.

What form that takes is entirely up to the creator. Anything from data visualisation to image manipulation could be considered 'creative coding'. The web is flexible enough to open up opportunities in different areas of art and design.

Here we look at the different ways you can experiment with code and create stimulating visual results.



## TOP 4 LIBRARIES AND FRAMEWORKS

### SKIP THE SETUP AND START GETTING INVENTIVE

#### p5.js [p5js.org](https://p5js.org)

Processing is the holy grail for creative coders. It provides a language and an IDE to enable designers and non-technical people to create stunning visualisations without getting buried in the technicalities.

The p5.js library takes the principles of processing and applies them to the web. It delivers the same kinds of abstractions, which provide simplicity to the beginners and offer powerful control to experts.

The bulk of the work happens within two functions - one controls the project setup, while the other draws to the page in a loop for the life of that project. The library supplies plenty of global methods and variables to update the page within these functions. For example, calling `frameRate(60)` lets p5.js do the hard work of maintaining a constant 60fps.

#### sketch.js [soulwire.github.io/sketch.js](https://soulwire.github.io/sketch.js)

Weighing in at under 5kb, sketch.js is a tiny framework that helps developers get up and running with creative JavaScript. It's light enough to embed in any website, but provides plenty of features along with it.

It's possible to hook into methods that react to events within the projects. While this includes the usual callbacks, such as the animation loop, sketch.js also opens up events such as keyboard input and window resizing.

Touch and mouse inputs are treated the same, which makes all projects touch-friendly by default. While it is possible to target either input type specifically, it takes the worry out of dealing with the small differences between the two event types. It can also calculate the deltas between these points automatically to make physics calculations easier.

#### D3 [d3js.org](https://d3js.org)

While D3 has long been the go-to library for creating graphs and charts, that isn't all it's capable of. Its data-driven approach makes it great for creating attractive visualisations - either informative or abstract. When combined with a rich data source such as the Twitter API, it makes infographics easy to create.

By manipulating DOM elements, such as SVG, D3 will work with any assets already a part of an application. It provides a structure around which they can be transformed to provide emphasis or to animate onscreen.

There are plenty of ways to access D3 through other libraries and frameworks as well. Specially created components for React, directives for Angular, and plugins for most other front-end frameworks are readily available, for example.

#### three.js [threejs.org](https://threejs.org)

Working in 3D with WebGL can be complicated at the best of times. Working out how shaders and camera perspectives work in such a wide-reaching API can take away from the creative aspects of a project and slow everything down.

With three.js it's possible to skim over these tricky aspects and focus on the visuals. It is a 3D JavaScript library, which works with WebGL to easily create beautifully smooth interactions with minimum effort.

The library provides many built-in methods for creating objects in the scene. Everything can be altered just like any other JavaScript object and will update accordingly. Complicated techniques, such as texture mapping, are provided out of the box and are usually just a case of setting the appropriate option on the object.

# GET SMART WITH DATA SOURCES AND APIs

## GET NEW DATA FROM ELSEWHERE AND KEEP YOUR PROJECT FRESH

### Twitter

With over 320 million active users in 2017, Twitter is a wealth of information. People are talking about every conceivable topic by posting pictures and video alongside their unfiltered reactions in real time.

This makes it a goldmine for a creative coding project. The official API can bring back the tweets in the format needed along with other metadata that is open for analysis. This data can then be visualised in new and exciting ways.

The Twitter API provides four defined 'objects' that can be retrieved – tweets, users, locations and entities. Entities include extra information linked to those objects including hashtags and media. Values on these objects are fixed and will only ever be extended upon, which means you will never lose access.

Tweets themselves can be searched for with a query to a single endpoint. These searches can either be for a string or can be more descriptive, such as for images or tweets with a positive sentiment.

Visualising Twitter data can make a great connected design piece. Combining multiple data points such as location and sentiment can create a project that is also informative, such as

graphing live tweets about a topic from around the world.

While there are plenty of opportunities to use the output from Twitter, the API also allows for applications to post messages to Twitter. These can come from any source provided that it's connected to the API.

All endpoints in the API require some kind of authentication. For most



**The Twitter API provides four defined 'objects' that can be retrieved**

projects that is only an application key, but authenticating can be tricky when done manually. Thankfully there are a few packages that make working with the Twitter API a little easier.

The npm module 'twitter' is the catch-all client library when working through Node. It supports regular endpoints as well as streaming, which may be useful for real-time projects.

### Instagram and Flickr

Creative coding projects are often visual, which makes image and video sharing APIs an attractive prospect for inspiration. Thankfully, sites such as Instagram and Flickr open up their data and allow developers access to that content, as well as the surrounding metadata.

Instagram has become one of the web's most popular image-sharing platforms. As a result, it is a rich source of images to use in creative projects.

The API is no different. It provides access to images, videos, comments and tags, as well as ways of searching through this information to find what is needed for the project.

Access within the API will be initially limited to a small pool of accounts and images. To remove some of these restrictions, Instagram will need to review the project themselves, which can be time-consuming and fruitless for creative coding projects.

Depending on the project, the initial sandbox mode may suffice.

Flickr has a more readily accessible API. It is a resource of high quality images available at multiple resolutions. Many of the photo endpoints only require an application key to work, which makes set up and fetching much easier.

The 'flickr.photos.search' endpoint is the most commonly used and gives access to most of Flickr's content. It can be filtered and sorted by date, location and even license as necessary. Other endpoints can get more detail on the photo, such as comments or EXIF data

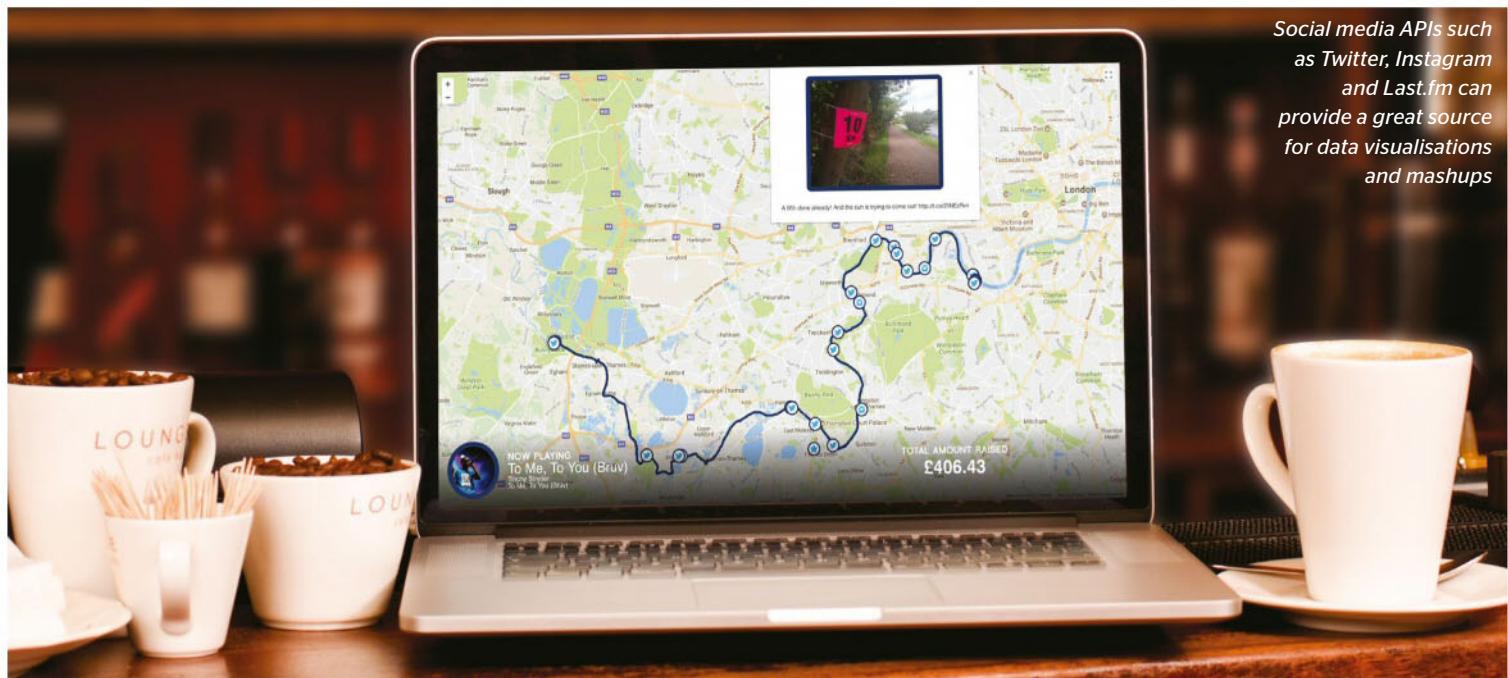
Getting the API to work exactly how the project needs it to can be difficult, particularly if writing information back



**Flickr has a readily accessible API. It is a resource of high quality images**

to Flickr. Luckily, plenty of packages exist to help use it with JavaScript, including the company's own 'flickr-sdk' on npm.

It's important to note that all images remain the property of their owners. For personal projects this will not be an issue, but if it's being shared be sure to either seek permission or credit the owner.



*Social media APIs such as Twitter, Instagram and Last.fm can provide a great source for data visualisations and mashups*

## Camera and Microphone

The web is usually limited to pointing and clicking with a mouse, but that is not the only way of providing input. Today's browsers are equipped with new APIs to pull in data from different external sources, including cameras and microphones.

Making projects that are visually aware is a great way to get users involved. By using vision as an input over a traditional keyboard and mouse, users are able to interact in different ways, such as face tracking or image recognition. As most devices now come with a camera built in, it is no longer the barrier it once was and works out great for the web.

Listening to the user is also a great alternative to manual input. Voice recognition could control navigation, or users could provide their own audio samples to use within their experience. It could also serve as an alternative to a button press. By extracting pitch and volume, these can then be mapped to what normally would be a button press, which could be used to control anything from colour to movement.

Access to a camera and microphone is possible through the navigator object.

```
navigator.mediaDevices.  
getUserMedia({  
  audio: true,  
  video: { width: 640, height: 480  
}}
```

```
})  
.then(function(stream) {  
  // Access input  
})  
.catch(function(error) {  
  // Provide fallback option  
});
```

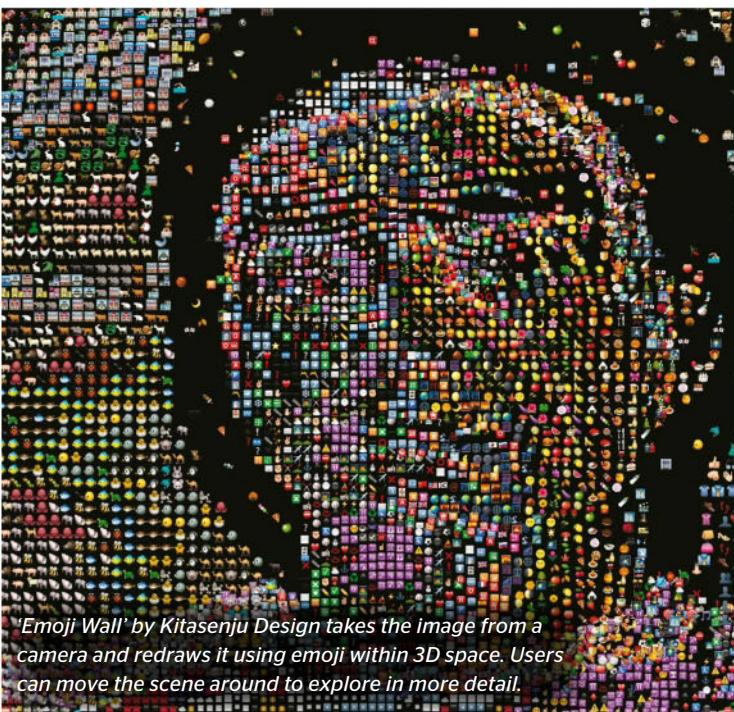
The code has to specify exactly what is needed from the input devices. The call to `getUserMedia()` will trigger a permissions dialog that the user must



**By using vision as an input over a traditional keyboard and mouse, users are able to interact in different ways**

accept before continuing. Once accepted, these features are available as streams, making them more memory efficient.

All major browsers support this API, including mobile. If the browser cannot meet the exact requirements, the promise will reject and not work. It's important to supply an alternative experience, such as an image upload form, where access is not possible.



*'Emoji Wall' by Kitasenju Design takes the image from a camera and redraws it using emoji within 3D space. Users can move the scene around to explore in more detail.*

## MOBILE DEVICE SENSORS

### WORK WITH THEIR UNIQUE INPUTS

The world of mobile presents a completely different set of opportunities when it comes to creative coding. The wide variety of form factors and sensors open for use within the browser can make for some distinctive experiences.

Mobile devices are almost exclusively touch interfaces. Browsers have the ability to detect and track multiple touches at once. This means that projects do not have to be led by a single point and can be manipulated in a much more intuitive way.

```
window.  
addEventListener("touchstart", e  
=> {  
  e.preventDefault();  
  const touches = e.  
changedTouches;  
});
```

All touch events use a 'changedTouches' property on the event. This holds a reference to all the touch points that changed dependent on the type of event, rather than a separate event for each touch point. By tracking these, it's possible to map gestures or paint with touch.

Accelerometers and gyroscopes are mostly used for changing from portrait to landscape mode, but these are also up for interpretation. Different methods of interaction can be created by using the device itself as a control mechanism - whether that is specific coordinate movements or more gesture-based, such as a shake.

```
window.addEventListener("deviceo
```

```
rientation", e => {  
  console.log(e.gamma);  
});  
window.addEventListener("deviceor  
ation", e => {  
  console.log(e.acceleration);  
});
```

APIs provide access to this information, but the values returned will vary by browser as they do not all use the same coordinate system. Libraries such as p5.js provide special values and hooks like 'rotationX' or 'deviceShaken()' to help abstract away the differences.

Mobile devices also have the ability to determine their exact position using geolocation. Being able to get the exact location of a device can open up new possibilities and make for a more streamlined experience.

```
navigator.geolocation.  
getCurrentPosition(pos => {  
  console.log(pos.coords); });
```

Access is provided through the navigator object. The value returned is the lat-long co-ordinates of the device, along with other data such as altitude or speed if the device supports it. Browsers will use the fastest method of detecting location, such as the IP address. However, this may not always be the most accurate.

Combining these inputs in creative ways is the key to making something special. For example, using the device's location and orientation to create a virtual stargazing experience.



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# MULTI-SCREEN EXPERIENCES

## BREAK FREE FROM THE DESKTOP

Desktop browsers provide reassuring familiarity when it comes to creative projects. But by experimenting with different displays, users can get a more personalised experience which works for them.

The principles of responsive design still hold true for creative coding projects as well. Users should be able to enjoy them regardless of device, whether that's desktop, mobile, or projected on a giant screen.

These differences can also be used to enhance the project further. By using media queries in CSS, mobile users could get an experience tailored to the smaller, handheld form factor. Since mobile users tend to be just one person, these visitors could be offered a more personalised view of a bigger platform, for example.

Paper Planes, by company Active Theory ([paperplanes.world](http://paperplanes.world)), encouraged users to create virtual planes on their phones. These could then be 'thrown' and show up on the desktop version of the site. There, visitors could watch as planes flew

around the world and see where they had come from.

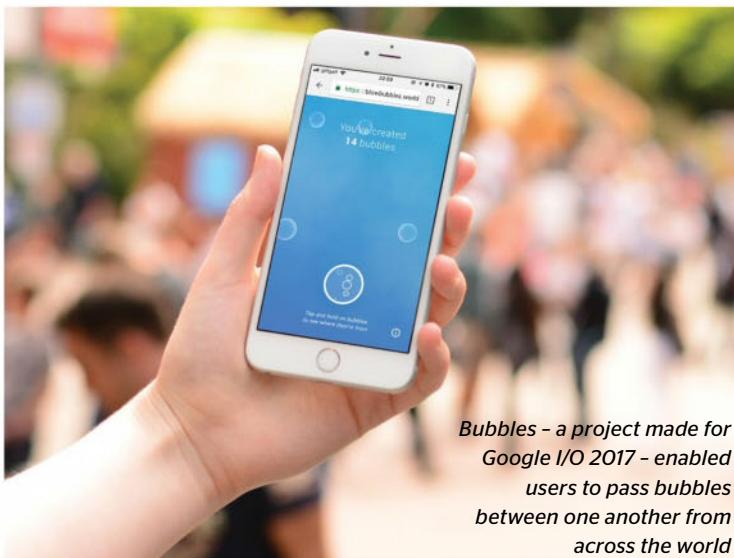
Interactions such as these can be made easier with WebSockets. Communication between a browser and the server is event based, avoiding the need to poll the server, which can often be wasteful and prone to delays. Projects such as Socket.io can make setting up WebSocket protocols easier.

Direct communication between devices can also have a powerful effect when users are together in the same room. Seb Lee-Delisle's PixelPhones project ([seb.ly/?p=2415](http://seb.ly/?p=2415)), for example, turned a crowd of screens into a makeshift display. Once all were connected, everybody became part of the experience.

WebRTC is a set of JavaScript APIs that makes real-time communication between browsers easier. It needs a server to set up a connection, media is sent directly between browsers, which makes interactions quick and simple to create. Now supported by all major browsers both on desktop and mobile.

**“**

**WebRTC is a set of JavaScript APIs that makes real-time communication between browsers much easier**



# SELF-GENERATIVE ART

## LET THE BROWSER GET ARTISTIC

Even the most creative of coding projects can become stale after a while. An element of randomness can keep things fresh each time a piece of code runs. While that can come from user input, it can be interesting to see what code is capable off when it's let off the leash.

Instead of defining what the output of a block of code would be, define a set of rules for it to follow. When a random starting position is defined, the end results will vary completely.

Conway's Game of Life is a great place to start. In a defined grid, each square can either be 'on' or 'off' depending on the squares around it. By colouring the squares dependant on their state, it generates an image.

Repeating the process multiple times shows how groups of squares mutate over time. Tweaking the rules on which they change can dramatically alter the outcome.

Using JavaScript with a `<canvas>` element makes this visual process fairly simple. By using `requestAnimationFrame()`, JavaScript can re-evaluate its environment each frame. From there it is a case of using the output of the last frame as input for the next frame and let the program take care of itself.

*Infinitown, by Little Workshop, generates a procedural city that is unique each time you visit*



# WEBVR AND BLUETOOTH

## STEP OUT OF THE BROWSER

While browsers are getting more capable and powerful every day, there is only so much that one viewport can provide. Thankfully, browsers are also expanding out of the browser too.

Virtual Reality (VR) has the ability to immerse the viewer in ways not possible before. WebVR is an open specification that allows access to these immersive worlds to the masses through the browser. It also helps bridge the gap between different device types, such as Google Cardboard and the HTC Vive.

Frameworks, such as A-Frame, can help bypass any complications by providing ready-to-go building blocks for VR experiences. Since these are built for performance and reliability,

they leaves the creator free to make a great user experience.

Bluetooth is another option and an opportunity to forego a screen entirely. Chips are readily available and can be combined with different output devices to emit sound and light - all controlled by the browser through the Web Bluetooth API. The interface is promise based, which makes asynchronous communication somewhat easier.

Browser support varies as these technologies evolve. WebVR is currently supported in various states by development builds of Edge, Firefox and Chrome. Web Bluetooth only has support from Chrome right now, but others are considering it.

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**Expires  
28 Feb  
2018**

# POWER UP YOUR PORTFOLIO

CREATIVE DIRECTOR TOM WITTLIN REVEALS 6 ESSENTIAL RULES TO IMPROVE - AND IMPRESS

1

## SCREENSHOTS AREN'T ALWAYS BEST

Obviously you'll be chuffed to bits with your sparkling new design so you'll want to drop it in as many iPhone and Mac templates as you can, but that isn't always the most attention-grabbing approach.

Try using client photography as the 'hero' image on your landing page, then of course, use your screengrabs once you're into a particular case study. If the client's photos aren't all that (very probable), look at what you've put on their homepage. Could you use their logo and their colours to send the message as opposed to tiny images of screenshots?

**"GET AS MANY TESTIMONIALS OR QUOTES AS YOU CAN DIRECTLY FROM THE PERSON YOU WORKED WITH ON THE PROJECT"**

# 2

## ATTENTION-GRABBING TITLES

Instead of starting your case study off by saying “Look at the new redesign of XYZ.com”, you can make this more engaging by saying something along the lines of “Improved new customer interactions and conversions by 24%” by picking out key stats from Google Analytics.

If they don’t have any specific statistic that you can flaunt or they’re something like a barrister, no bother, just instead talk about improving the user experience through a more simplistic navigation, more effective mobile website or even just bringing their site into the 21st century.

# 3

## LET THE CLIENT SING YOUR PRAISES

Get as many testimonials or quotes as you can directly from the person you worked with on the project. This helps enormously for people to understand your capability to work with others, not just your design/coding skills.

Given how much of our work requires human interaction, it is vital for prospective clients to understand that you know how to manage yourself - and relationships.

In addition, it's useful to ask clients to add their comments to your LinkedIn. Quite often that may be a client's first interaction with you as opposed to coming onto your website. The old adage of word of mouth being the strongest form of advertising is still alive and well...





# 4

## ALL ABOUT THE DETAIL

In your case studies, pick up on the small details you agonised over and the reasons why. For example, talk about the complexity of a JavaScript-driven menu that allows you to navigate to the lowest level in the site in just a couple of clicks to improve UX. As long as you don't get too geeky, this will illustrate how you approach work – with clear attention to detail.

Ask how a fine furniture maker might talk about the beautiful mahogany cabinet he's just made that took him 3,000 hours to produce. He'd likely mention joins, hinges, handles and polishing. When you consider your work is akin to a traditional craftsman, you can begin to see more than just graphics and code.

# 5

## TELL A STORY

It's easy to just explain what you did when talking about a project, but it can be far more interesting to explain why you did it. By weaving the redesign or project into a narrative you can begin to draw in the audience a little more than a simple deluge of facts and figures.

For example, as opposed to "we redesigned and built the new eCommerce store for XYZ.com", you could begin with explaining who they are, what their current scenario was and the solution you came to help evolve them out of their current predicament.



# 6

## DON'T GET COCKY, KID

There's nothing worse than a pretentious designer's overly 'designed' website, which they've thrown all the bells and whistles at to showcase their abilities, but neglected to provide clear routes to see the work itself.

I should know, because as a junior, I spent every waking hour redesigning my own website to chuck in more wizardry that I'd learnt, only to realise that basically all anyone needs is a nice, simple, clean looking page with a clear list of all the work completed, complete with the ability to jump into it, and an easy way of moving back to the list, or jumping to the next item. Oh – and make sure your images are big, bold and extra clear. On mobile and desktop!

## 5 ONLINE PORTFOLIO SITES FOR DESIGNERS

### Awwwards

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

One of the more established design award sites with an enormous following. Get featured if you can!

### Instagram

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

Put your work where people are - use simple snapshots of your latest work with clear links to your site and good hashtags.

### Dribbble

<https://dribbble.com>

A kind of 'Twitter for designers' where you can post teaser shots of your latest work.

### Behance

[www.behance.net](http://www.behance.net)

Perhaps the world's most famous designer 'resume and portfolio' site. A great way to meet other designers, too.

### LinkedIn

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

Tactically a strong move. Not as sexy as the others, but a great way to grab an individual's attention.

"IT'S EASY TO EXPLAIN  
WHAT YOU DID, BUT IT  
CAN BE FAR MORE  
INTERESTING TO EXPLAIN  
WHY YOU DID IT"

# What's new in Node.js 9?



**Node.JS is a godsend to JavaScript developers. The latest version of the “browser-breaking device” brings a neat set of new features. Let’s take a look...**

## 1 HTTP/2 ON HAND!

Google's HTTP/2 protocol speeds up the delivery of web content by reducing redundancies in the server-client-communication process.

While the new version of this technology has been supported in Node.JS for quite some time, using it required the use of an additional, pesky flag. Node.JS 9 does away with that - simply fire up the runtime, include the 'http2' module and enjoy the significantly increased processing speeds. However, do keep in mind that the benefits can only be harnessed if the client also fully understands the HTTP/2 protocol and how it works.

```
const http2 = require('http2');
const fs = require('fs');

const server = http2.createSecureServer({
  key: fs.readFileSync('localhost-privkey.pem'),
  cert: fs.readFileSync('localhost-cert.pem')
});
server.on('error', (err) => console.error(err));
server.on('socketError', (err) => console.error(err));
```

## 2 NO-HASSLE ERROR HANDLING!

Developers creating the error-handling parts of an API face a difficult trade-off - returning textual errors makes emitting them to the console easier, while using numeric constants simplifies programmatic handling. Node.js 9 now gives developers the best of both worlds - a set of error codes specified in [https://nodejs.org/api/errors.html#errors\\_node\\_js\\_error\\_codes](https://nodejs.org/api/errors.html#errors_node_js_error_codes) can be used to facilitate error comparisons. Eliminating string constants from programs is considered a superbly efficient refactoring - if there is one feature in Node.JS you ought to use, it definitely is this one.

### OLD

```
if (err.message === 'Can\'t set headers after they are sent.') {
```

### NEW

```
if (err.code === 'ERR_HTTP_HEADERS_SENT') {
```

## 3 VARIOUS UNDERLYING UPDATES!

As complex as Node.JS is, it also makes use of various libraries contributed by third parties. Almost all of them received updates in the last few months - the Node team used the release of the new version to upgrade. This brings a variety of improvements - for example, the V8 interpreter received optimisations leading to impressive improvements.

Sadly, this improvement also meant that some old experimental or deprecated APIs were removed - be careful when updating a solution.

## 4 PLAY CLEANLY!

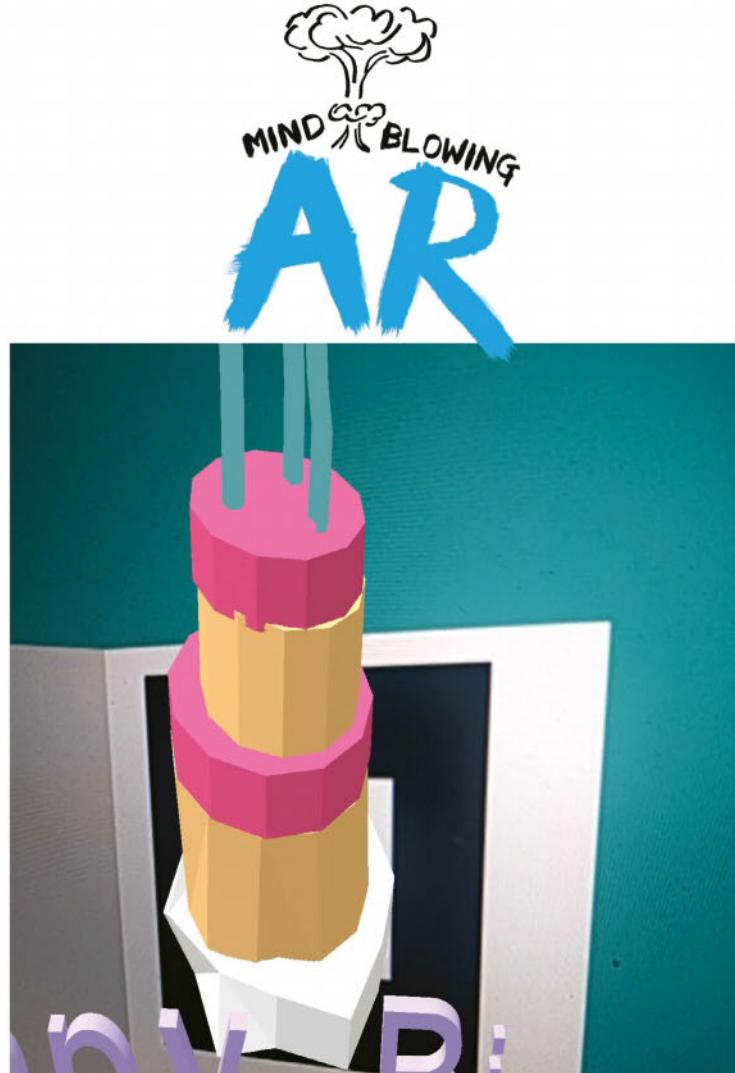
Like most large software products, Node.JS had its fair share of oddities. For example, the HTTP error 400 was not supported - if bad data came in via a HTTP stream, the socket was closed. This behaviour caused grief when the 'opposing' end expected a formally correct implementation. Node.JS 9 busts a lot of these problems, making sure that the product plays nicely with various other components. In addition to that, read-only flags and method return values were adjusted; this is intended to make errors show up much, much faster.

## 5 POWER TO THE ASSERTIVE!

Well-placed statements simplify the detection of error conditions. The latest version of Node.JS allows additional error codes in asserts, thereby allowing statement logic to expose information on why the test on hand failed.

One other particularly neat feature involves the exposure of the 'isDeepStrictEqual' method. Its signature has been modified to return an error code instead of throwing, thereby permitting developers to harness its comparison capabilities outside of a debugging environment.

```
const { isDeepStrictEqual } = require('util')
const isEq = isDeepStrictEqual({
  a: '1'
}, {
  a: 1
})
```



# AR BIRTHDAY CARD

<http://bit.ly/2ohb7Kk>

<https://arexp.glitch.me/birthday-card/preview.html>

“

First a QR code takes you to the corresponding site. A-Frame and AR.js combine on this webpage to see the marker and position the cake appropriately, revealing a fun birthday message. It's definitely been my favourite card to make!

”



**ANDRES CUERVO**  
VR/AR ARTIST

# WATCH, LISTEN &



## 1 freeCodeCamp

[bit.ly/2AwivqM](https://www.youtube.com/c/freeCodeCamp)

freeCodeCamp is a website and community for learning frontend web development, with a particular focus on JavaScript. Its YouTube channel has handy pre-made playlists grouping videos into particular topics. It also has really interesting videos entitled 'A day

at' which give an insight to working at some of the largest companies in the United States of America.

**SUBSCRIBERS: 221k**

## 2 The Coding Train

[bit.ly/1TdluDY](https://www.youtube.com/c/TheCodingTrain)

The Coding Train is an awesome YouTube channel where Daniel

Shiffman posts his creative coding tutorials. Daniel's presentation style is what makes this channel - he is both funny and engaging, and manages to keep his tutorials and content interesting even when discussing difficult and sometimes dry and complicated subjects.

**SUBSCRIBERS: 374k**

## 3 Ana Tudor

[bit.ly/2kk5iXk](https://www.youtube.com/c/AniTutor)

You will have no doubt seen Ana Tudor's work before. She's regularly featured on the CodePen homepage for her amazing mathematical coding skills. Recently she's been making videos documenting how these demos were created. The maths is heavy and she talks fast, but watching these demos come together is absolutely mind-blowing.

**SUBSCRIBERS: Not Shown**

## 4 LevelUpTuts

[bit.ly/1j7caFy](https://www.youtube.com/c/LevelUpTuts)

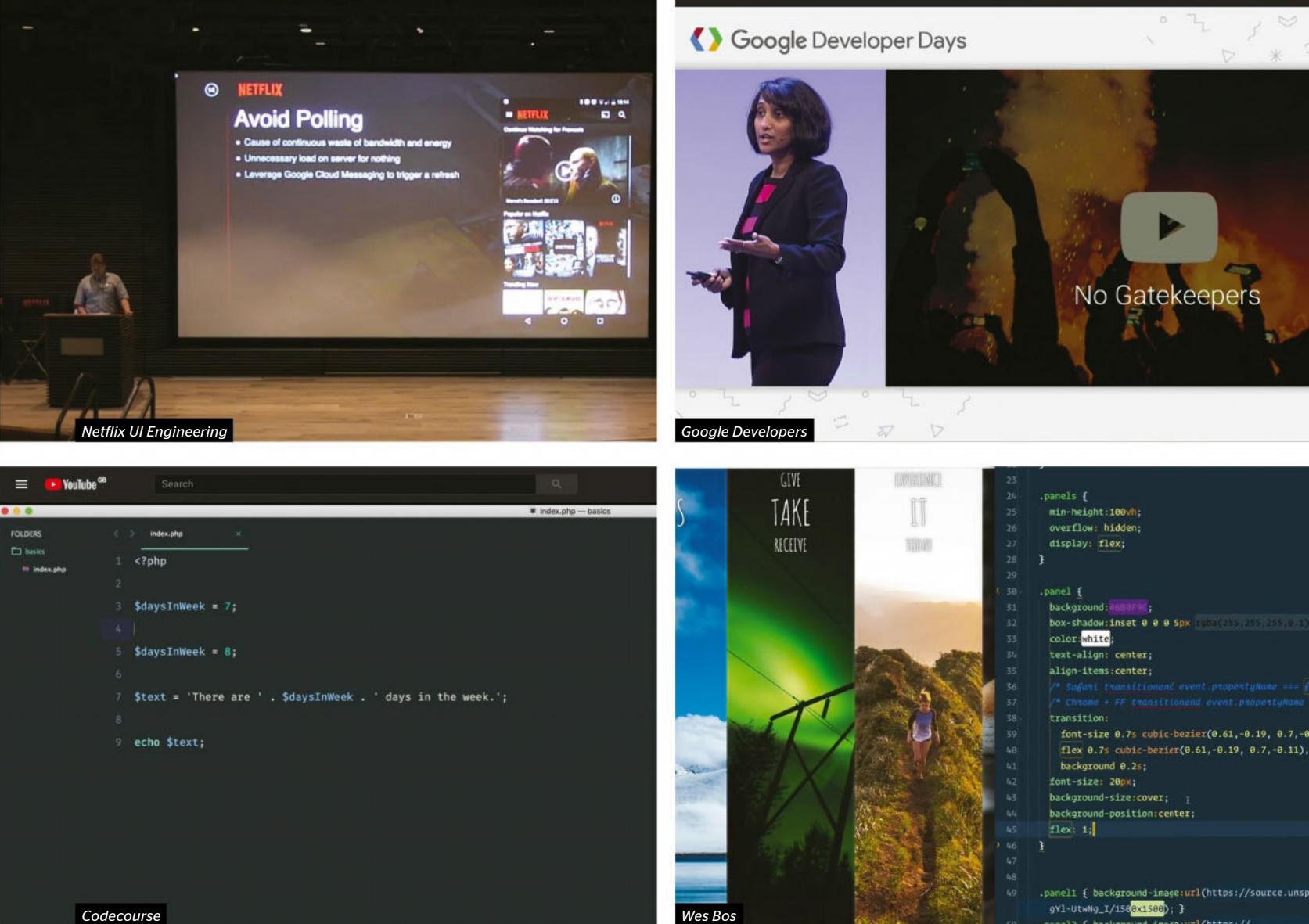
LevelUpTuts is a great YouTube channel presented by Scott Tolinski. Scott has a very distinctive, calming and reassuring tone of voice. His videos cover a wide range of frontend topics covering everything from HTML and CSS to WordPress to React and everything inbetween. He's also recently started a podcast with Wes Bos called Syntax.

**SUBSCRIBERS: 215k**

## 5 LearnCode.academy

[bit.ly/1yALuAi](https://www.youtube.com/c/LearnCodeAcademy)

The LearnCode.academy YouTube channel is focused on teaching JavaScript frameworks covering React, Node.js and Angular, as well as the basics of JavaScript and ES6. The tutorial videos are broken down into short, easy-to-digest parts, enabling



# LEARN

## 10 YOUTUBE WEB DEVELOPMENT CHANNELS TO POWER UP YOUR CODE CREATION



you to go away and apply what you've learned before the next video.

**SUBSCRIBERS: 413k**

### 6 UX Mastery [bit.ly/2gk2xVc](https://bit.ly/2gk2xVc)

This channel doesn't have a lot of content and isn't posting new videos

every week like some of the other channels in round-up, however the content it does put out is always great.

The videos on the channel are illustrated explanations of UX concepts and skills, which are skilfully presented by industry experts.

**SUBSCRIBERS: 32k**

### 7 Netflix UI Engineering [bit.ly/2jvNsEr](https://bit.ly/2jvNsEr)

The Netflix UI team creates a product that is used by over 80 million people, providing its service to countries all over the world on a wide range of devices. Essentially it know a thing or two about creating user interfaces and this channel documents its work.

**SUBSCRIBERS: 17k**

### 8 Google Developers [bit.ly/1oVAmLk](https://bit.ly/1oVAmLk)

The Google Developers channel features talks, events, tutorials, best practices, tips and much more - there really is something for everyone with over 4,500 videos. There are also playlists for a quick access to particular topics and areas of interest.

**SUBSCRIBERS: 1.3M**

### 9 Wes Bos [bit.ly/2jxDZMY](https://bit.ly/2jxDZMY)

Wes Bos is the author of a number of online courses teaching a variety of frontend topics. His YouTube channel features a number of free courses, including the immensely popular JavaScript30 course. He also has courses covering flexbox, markdown and other web development subjects.

**SUBSCRIBERS: 34k**

### 10 Codecourse [bit.ly/2jwPww4](https://bit.ly/2jwPww4)

The Codecourse YouTube channel is PHP focused. It contains playlists covering different subjects and frameworks. With a number of beginner topics this channel is great for someone just getting into web dev. Good for intermediate programmers looking to learn frameworks.

**SUBSCRIBERS: 278k**

# BUILD WITH **ORIGAMI**



USING THE LATEST AND GREATEST PROTOTYPING TOOLS CAN HELP YOU GET USER FEEDBACK EARLY ON, AND MAKE SURE THAT WHAT YOU BUILD OFFERS THE VERY BEST USER EXPERIENCE



We've all encountered software which is frustrating to use, and with the range of tools available to help, it's inexcusable these days not to apply a thorough focus on user experience design and evaluation. Developers don't want to build an entire app before it's shown to users, and designers are looking for the ability to quickly iterate without code. This is where prototyping tools like Origami Studio can really help. You should be prototyping early and iterating often, and you'll quickly see the benefits.

**SIMON JONES**  
SOFTWARE ENGINEERING DIRECTOR



It's now common to progressively iterate on prototypes with increasingly high fidelity, and a flourishing user experience industry has grown up around this critical set of activities

In a world where users have high expectations of their experience on the web and mobile, prototyping and user evaluation is key. A good or bad user experience can make or break your site or app, and therefore you often won't want to jump straight in and build the final product only to have to go back and change much of your code at a later stage.

Instead, it's now common to progressively iterate on prototypes with increasingly high fidelity, and a flourishing user experience industry has grown up around this critical set of activities. Ultimately, getting software right at the prototyping stage saves you time and/or money later on.

There are many approaches you can take to prototyping, and numerous tools out there to assist. Of course, almost every designer has their opinion on which tool or tools work best. One of the newest on the block is Origami Studio, developed by Facebook and available free for macOS. Origami Studio, which actually started its life as a plugin for Quartz Composer (a visual programming language within macOS's Xcode development environment) before becoming a standalone tool, has gained a great deal of attention over the last year. This is not only because it is built by a big-name developer, but also because of the combination of power and simplicity it brings to developing high-fidelity, interactive prototypes.

# 3 REASONS TO USE ORIGAMI



## REAL-TIME PREVIEWS

The preview window in Origami is always open, so you can constantly see the state of your work while you're modifying it, without the need to save and build or open in a browser as is the case in some other tools. Then there's the Origami Live mobile app which allows you to mirror your Origami Studio prototype on an actual mobile device.

## HIGH-FIDELITY INTERACTIONS

Prototyping isn't just about the visual look and feel of a site or app, but also about understanding user interactions and making sure the functionality is simple to learn and use. Often interaction is modelled by stitching static prototypes together, but Origami offers a more sophisticated 'Patch' framework to allow interactions to be modelled with a high level of fidelity without the need for programming.



## NATIVE PLATFORM SUPPORT

Origami Studio leads the way in providing support for native mobile platform features such as direction, vibration, and haptic feedback. Want to respond to 3D Touch events on an iPhone? Origami has built-in functionality to simulate this and let you respond to the level of force. A wide range of different devices are supported.

## PROTOTYPING APPROACHES WHICH IS THE BEST WAY?

### STITCH TOGETHER STATIC MOCKUPS

This can be a quick, easy way to get started, especially to show visual design. It's not uncommon for designers to use Illustrator, Sketch, or similar to create static mock-ups, then show directly to users to evaluate or distribute to developers. Interactions can be expressed using annotations or voice-over. This approach is often used for low-fidelity prototypes preceding higher-fidelity design, using wireframing tools like Balsamiq.

### USE AN INTERACTIVE PROTOTYPING TOOL

Origami Studio is one of a number of both free and commercial high-fidelity prototyping tools out there. Proto.io is another popular one. These tools bring a great balance between being able to throw something together quickly without needing to code, while enabling interactive functionality to avoid any ambiguity for developers or users. However, it does mean a new skillset and tool to learn.

### JUST CODE A PAGE

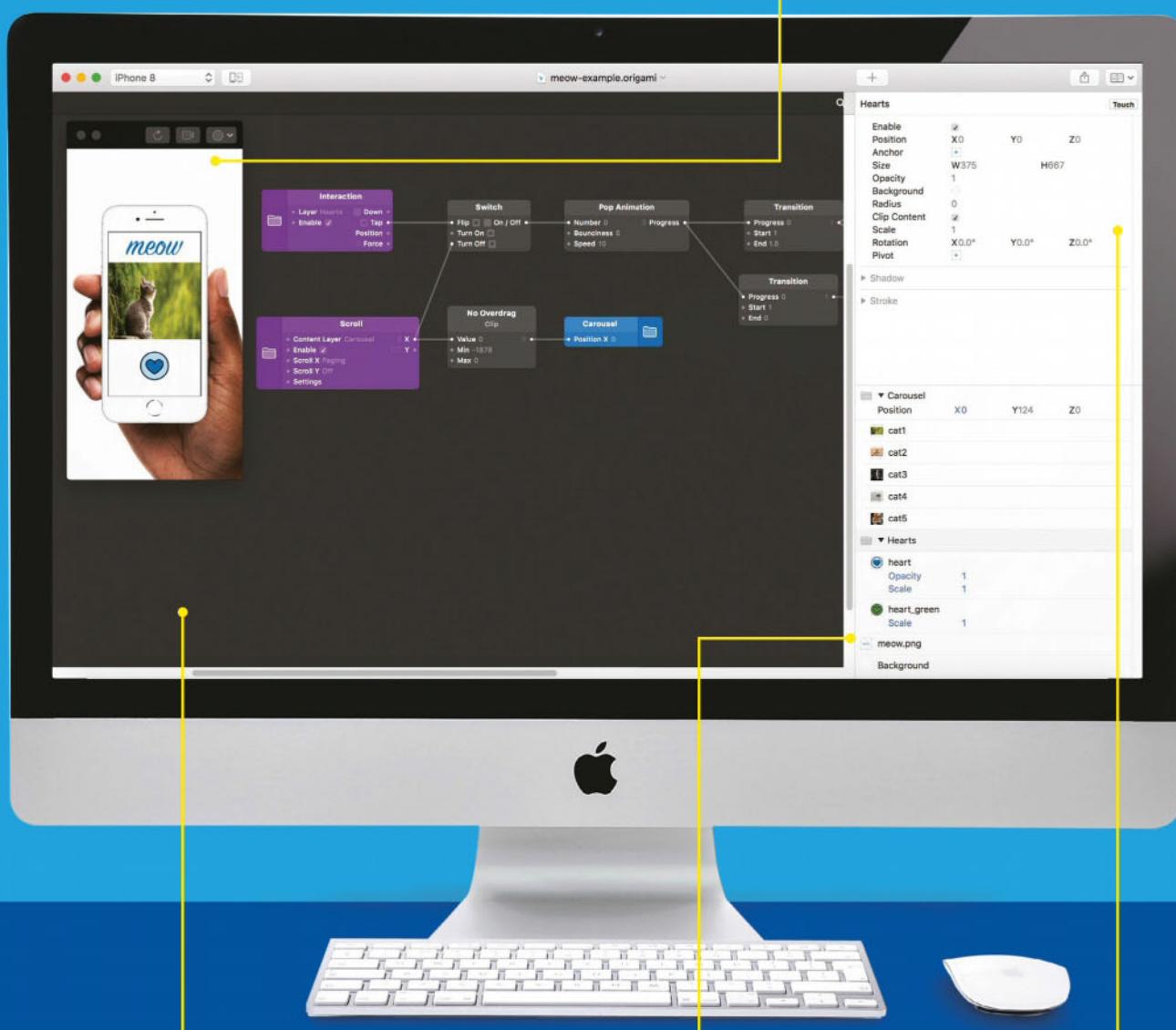
Sometimes it's easiest to code up the basic functionality to test it out. This is particularly true if there isn't a separate designer working on the app, and made easier by the extent to which frameworks prefabricate components. This gives the highest fidelity experience to users if you're evaluating, but may mean that iteration is more time-consuming. It also abstracts you from any constraints of the functionality available in prototyping tools.

# GETTING TO KNOW ORIGAMI STUDIO

## YOU'LL SPEND ALMOST ALL YOUR TIME WITH WORKING IN A SIMPLE MAIN VIEW

### INSTANT UPDATES

Origami Studio's preview area allows you not only to view the appearance of your prototype, but also to test out interactions with it. You can select from a range of different media including phones, tablets, laptops and smart TVs to display your work on. The best part, however, is that it's always open and updates instantly when you make changes to the design or functionality, so you'll be able to see the impact straight away.



### INPUTS & OUTPUTS

The behaviour of prototypes in Origami Studio is controlled via 'patches', which are essentially functions that take inputs (such as user interactions or numeric values) and generate outputs which can then be used to modify attributes of the visual layers in your prototype. For example, a patch that outputs a value between 0 and 1 can be used to control the opacity of an image. Pre-defined patches that ship with Origami are linked together into a visual flow to create complex behaviour.

### READY-MADE LAYERS

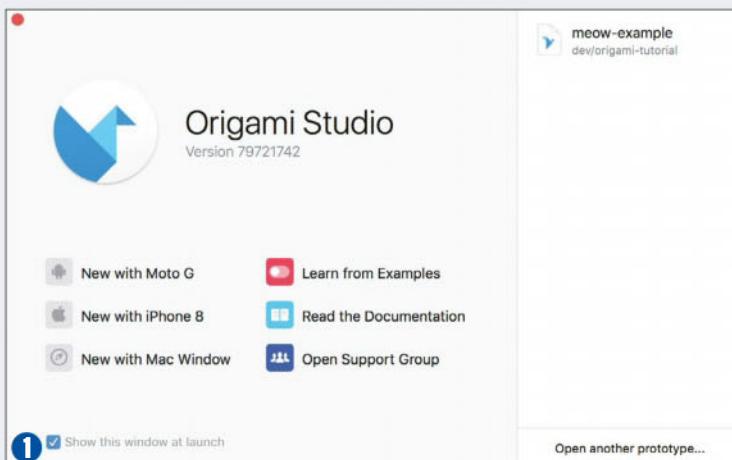
In the bottom right of the Origami Studio window, you'll see a list of all layers present in your prototype. This behaves as you might expect if you've worked with layer-based graphics tools before, and you can drag to reprioritise layers, group them together, and so on. Typically your layers might include images, text and static colours, but Origami also ships with a selection of pre-fabricated ones such as mobile keyboards and status bars to allow you to more easily mimic an actual device.

### WORKING WITH LAYERS

Since Origami Studio is a layer-based system (think similar to Photoshop), depending on which layer of your prototype you currently have selected, it will display a set of properties you can modify. This allows you to position layers on the screen, resize them, recolour, and so on. Most critically, dragging the output of a patch to a property will link them, enabling the patch to control the behaviour of that layer. The + symbol just above this area enables you to add new layers to the screen.

# YOUR FIRST APP

HERE'S HOW TO EASILY GET INTERACTIONS WORKING



## 1. A NEW PROTOTYPE

We're going to create a prototype for a mobile app which will allow us to swipe through pictures of cats and 'like' some of them. Once we've installed Origami Studio, we'll create a new iPhone 8 prototype from the splash screen.

## 2. ADDING LAYERS

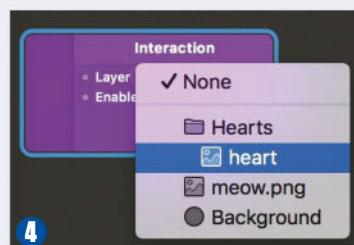
We can start to add some layers to our prototype straight away. In this case, we'll add a logo positioned at the top of the screen. We add the layer using the + button in the top right and selecting 'Image Layer'. We can then resize and position it appropriately by highlighting and modifying the layer's properties. After our brand, we'll also add a heart image at the bottom of the screen to serve as our 'like' button.



## 3. CREATING AN INTERACTION

We need to make our heart button respond to user interactions. You'll notice that in the preview window, the cursor changes to represent touch on a mobile device. To respond to this, we need to create a 'Patch', which is essentially a function in Origami that takes inputs and produces outputs. Double-click the empty grey area to bring up a list of new patches,

and search for 'interaction'. Place your patch and it should appear on the screen.

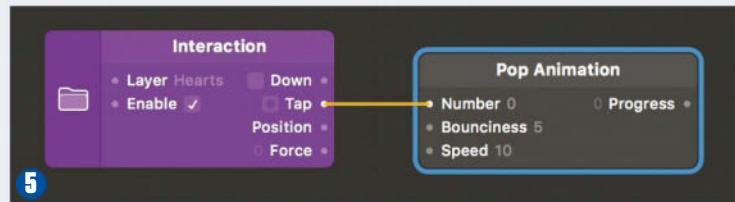


## 4. LINKING INTERACTIONS TO LAYERS

At the moment, your patch will respond to touch anywhere on the prototype. Test it out by clicking and you'll see the 'Down' and 'Tap' properties changing in real time. If you select the 'Layer' property in the patch, you can link it to the layer containing the heart image, and it will now only respond to clicks on that specific area.

## 5. ANIMATIONS

Now we want to have something happen when our interaction triggers. Create another patch, this time a 'Pop Animation'. This is used to create a springy effect. Leave the properties as they are for now, but we'll create a link between the Tap output of the Interaction we created previously and the Number input of our new Pop



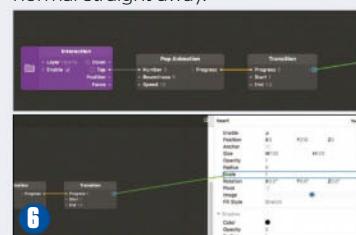
## ORIGAMI IN ACTION

Discover the potential of what Origami Studio can produce by visiting the Example Gallery  
<https://origami.design/examples>

Animation. We do this by clicking and dragging between the small circles next to each. If you click the heart now, you'll now see the interaction triggers a change in the 'Progress' output of the Pop Animation.

## 6. TRANSITIONS

The next thing we need is a Transition patch. This will allow us to specify low and high values to move between as the Pop Animation's Progress output changes. We can then link the Transition's output values to the Scale property of the heart image layer to tell Origami to resize it when it's clicked. You should now find that clicking the heart causes it to animate a brief change in size. It's not quite right, however, since it pops back to normal straight away.



## GETTING THE MOST FROM YOUR PROTOTYPES

5 THINGS TO THINK ABOUT WHEN EVALUATING DESIGNS WITH USERS

### 1. IDENTIFY YOUR USER GROUPS

Testing with real users is important, and often yields surprising results. But equally important is ensuring you test with the RIGHT users who represent typical usage of your app. Personas and looking at usage data/metrics can be very useful for this.

### 2. PLAN YOUR TASKS AND QUESTIONS

Generally you'll want to set your evaluation users tasks which reflect typical activities to be performed with your app. You should also plan neutral, non-leading questions to pose during this process.

### 3. ENCOURAGE USER CONTRIBUTION

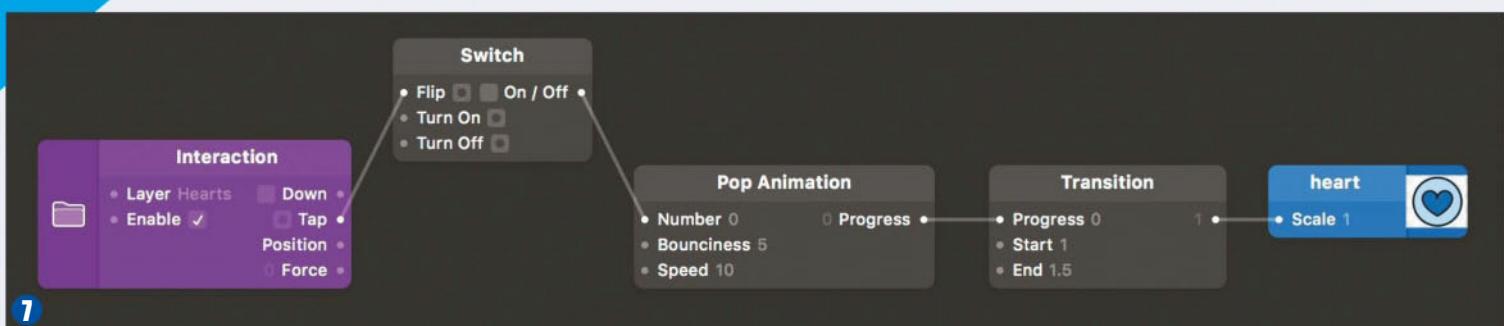
When you evaluate prototypes, you're not just trying to make yes/no decisions on elements of your design. You should also encourage subjective feedback and improvement or feature suggestions from your users. But beware of scope creep!

### 4. ITERATE ON YOUR DESIGN

Typically it takes a few rounds of prototyping, at progressively higher fidelity, to achieve a great design. Allow time to go back to the drawing board and re-work your prototypes once you've gathered feedback, then repeat the process again.

### 5. BE OPEN TO BEING WRONG

We all take pride in our work, and when a user gives feedback, it's sometimes tempting to spend time explaining why we did something a particular way. This isn't really a good use of time or energy, though. Take the feedback, and acknowledge that you might have got it wrong.



You should then be able to click the heart to toggle it between small and large states.

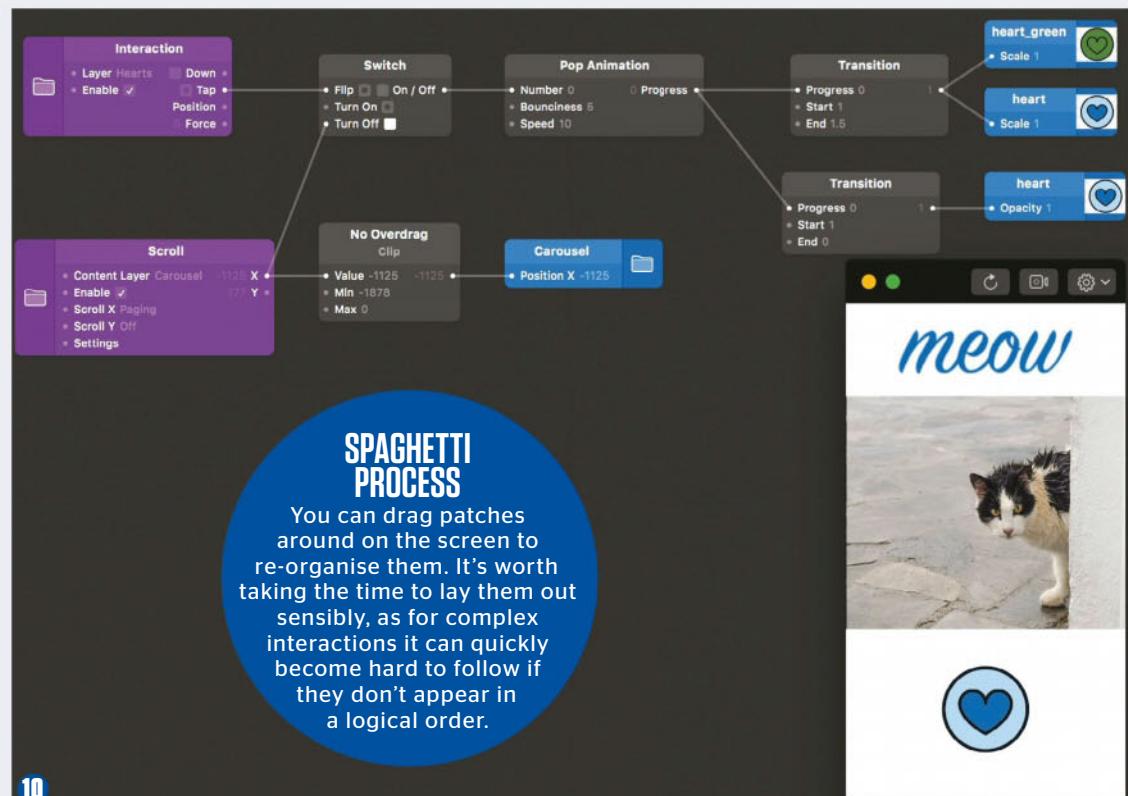
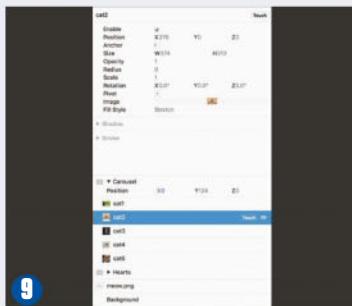
## 8. MORE COMPLEX BEHAVIOUR

Congratulations! You've now created your first interactive feature, using the most common patches that you'll find you use time and time again. We can add more patches to create more complex behaviour. Let's create a different coloured heart layer directly behind our current one, then add new patches both to scale it simultaneously, and modify the opacity of our original layer so it's made visible. Now, when you tap the heart, it will toggle larger and smaller, but also appear to change colour.



## 9. CAROUSEL

To finish our prototype, let's add an image carousel with the cats we want to allow users to 'Like'. To do this, we first need to add a group of layers. Each image will be a separate layer, with increasingly offset x co-ordinates so that they essentially sit side-by-side in a row with only one visible on screen at any one item.



## 10. SWIPING LEFT AND RIGHT

The last thing we need to do to make it work is enable left and right swipes to scroll the carousel. To do this, we first need to add a group of layers. Each image will be a separate layer, with increasingly offset x co-ordinates so that they essentially sit side-by-side in a row with only one visible on screen at any one item.

patches, you can begin to create more advanced behaviours. There are plenty of guides on the Origami Studio website, which explain how to implement popular functionalities commonly seen in apps.



## 11. NEXT STEPS

That's it. You've created a very basic app. You can also use Origami Studio's built in 'frames' to place it onto a device background, which can help give a professional finish. Now that you're familiar with the basics of using

## SHARING WITH ORIGAMI

There are a few ways to share your prototypes with others. Since Origami Studio is free, you may wish to just distribute the .origami file itself if you're sharing with other Mac users. However, Origami also offers the option to record video of a journey through your prototype. At the top of the preview window is a "Record Prototype" button which will switch to full-screen mode and let you interact with it while recording. Another way of utilising prototypes is with the Origami Live companion app which will display your prototype on a real mobile device while connected to your Mac.

# TIME TO STEP OFF THAT TREADMILL

With so many demands from work, home and family, there never seem to be enough hours in the day for you. Why not press pause once in a while, curl up with your favourite magazine and put a little oasis of 'you' in your day?



**PRESS PAUSE**  
ENJOY A MAGAZINE MOMENT

To find out more about Press Pause visit:

**pauseyourday.co.uk**

# Digital Makers

Zeta are a team of artisans that wield today's digital tools to deliver engaging content to waiting audiences. With a deep understanding of each digital channel, brands partner with Zeta to develop new experiences that push the boundaries of mobile and the web

## WHO Zeta

**WHAT** Online Strategy • Content Strategy  
Web Development • eCommerce Development  
CMS Development • Responsive Web Design  
Organic and Paid (PPC) Search  
Email Marketing • Social Media Strategy  
Mobile applications • Android applications & iOS applications

**WHERE** Buildings 1 & 3 Winchester Place,  
Poole, Dorset, BH15 1NX

**WEB** [zeta.net](http://zeta.net)

## KEY CLIENTS

**Mouser Electronics**

**Mindje**

**Graphic Packaging**

**Winchester Science Centre**

**Salisbury Cathedral**

Zeta first opened its doors in 2000, where its original founder, Roger Allen, leveraged his IT contracting and sales experience to persuade businesses they needed to invest in their web presence. With the web still in its relative infancy, and the common perception being the web was merely a fad, the task was challenging to say the least. Despite this, the company grew steadily, until 2015 when it was acquired by the Berkshire Hathaway Group - the multinational conglomerate headed by billionaire investor and philanthropist Warren Buffett - providing funding to take the Dorset agency to the next level.

Why name the agency Zeta? Sam Allen - Operations Director explains: "When the agency was formed, there were just six members, resulting in the team choosing Zeta, the sixth letter of the Greek alphabet. The original domain chosen was zeta-commerce.com. It's now Zeta.net; easier to remember and less restrictive in terms of brand positioning, giving us the freedom to evolve."

The website of a design agency is, of course, an important calling card to prospective clients. Anna Lundström Silsbury - Project Manager - outlines how Zeta approach their design: "We believe an agency's site is very important; ▶"





**"We suggest if you are invited to attend an interview, always research the agency and ask lots of pertinent questions when prompted. Experience is very important. We recommend anyone who hasn't got much working experience to get themselves out there on internships, online projects, courses or work experience"**

**CRAIG DYBALL  
MANAGING DIRECTOR**



**"We believe an agency's site is very important; it provides an insight into their services, portfolio, ethos and approach, as well as their brand and its values. We know the first experience a prospective client has with a website quickly determines whether they wish to engage with a company or pass. For this reason, we are constantly evaluating our target market and what we offer on our site"**

**ANNA LUNDSTRÖM SILSBURY  
PROJECT MANAGER**



## TIMELINE

**2000**  
Zeta agency founded by six individuals. The name Zeta was taken from the Greek word for the sixth letter of the alphabet  
*employees: 6*

**2003**  
Created our first E-Commerce website using OSCommerce

**2005**  
The agency grew and moved from Weymouth up to Poole and Bournemouth, closer to London but still on the south coast  
*employees: 8*

**2007**  
Our first iOS app was created for Electropages using PhoneGap  
*employees: 9*

**2012**  
Our first Android app was created

**2015**  
Created a native iPad app for BMW  
*employees: 14*

**2015**  
The company is acquired by the Berkshire Hathaway group  
*employees: 15*

## ASTRO ALGEBRA - APP

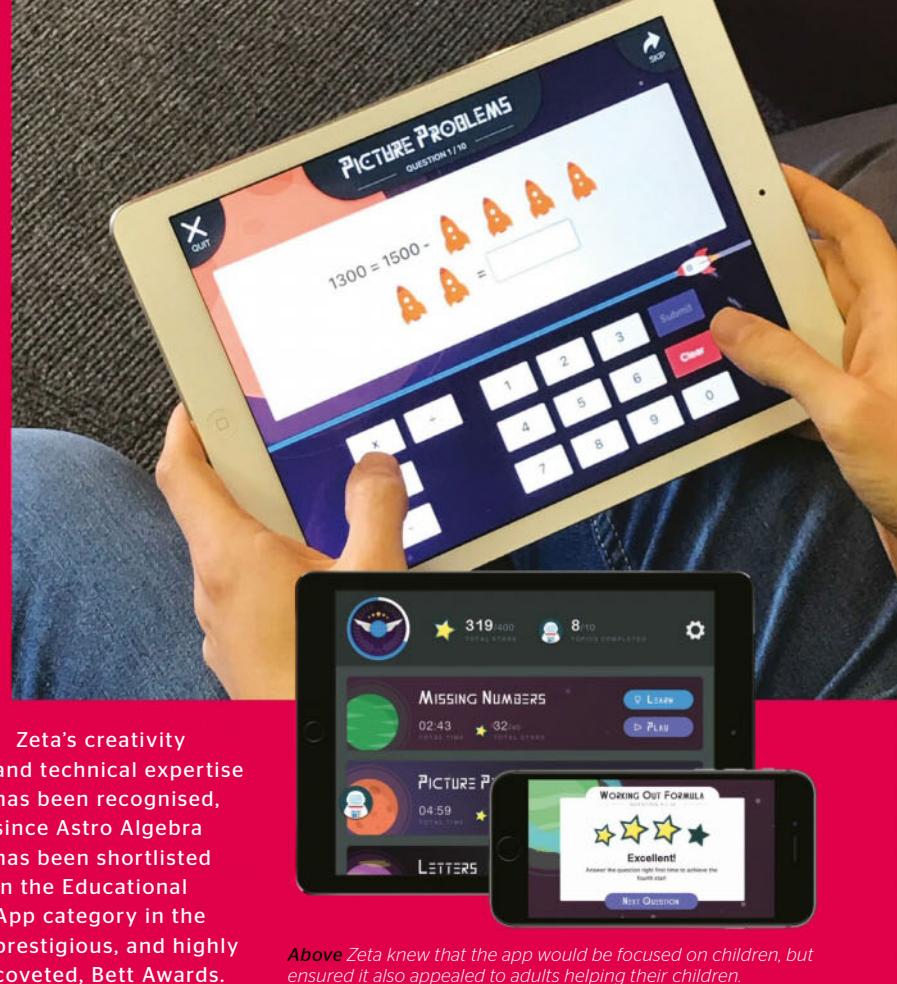
[apple.co/2inLEcq](http://apple.co/2inLEcq)

Zeta designed and built the space-themed Astro Algebra app for iOS, providing a fun way to learn and practise algebra. The app enables children to play quick-fire algebra questions whilst beating the rocket, earn stars and unlock space cadet badges.

Designed to support teaching, the app is simple and intuitive to use with a fun and appealing interface to keep users entertained whilst learning. Although aimed at children aged 10-13, the app caters for adults and parents helping with their children's homework.

With 1,000 algebra questions, ten different subjects, challenge and reward levels, learn-and-play features and sophisticated game logic, the app provides a broad learning experience, with a clear focus of being linked to the National Curriculum.

The app can be used on phones and tablets by children and their families at home as well as in a school environment as a teaching resource. Astro Algebra was recently launched on Apple's iOS App Store with plans to build an Android version next year.



Above Zeta knew that the app would be focused on children, but ensured it also appealed to adults helping their children.

it provides an insight into their services, portfolio, ethos and approach, as well as their brand and its values. We know the first experience a prospective client has with a website quickly determines whether they wish to engage with a company or pass. For this reason, we are constantly evaluating our target market and what we offer on our site."

Anna continues: "For example, a recent audit of our site highlighted the need to change our vernacular, positioning us as a more jargon-free agency. It also highlighted the need to show a more diverse range of clients and services. Other recommendations included changing the site content more regularly and the release of specialist papers and articles. As a result, we're building a new site, which is due to launch prior to 2018. Post launch, time is being dedicated to provide regular content updates."

Often, an agency will move through various stages of development. Initially clients are attracted via a number of

If a job requires new team members, we can do it. We won't take on a job we can't complete within budget or allocated timescales

channels. For Zeta, their takeover was a pivotal moment, as Sam explains: "Since being acquired, the momentum of the company has sped up significantly. Although the majority of new business comes from referrals and digital-related industry talks given by our staff, we will be actively pursuing new clients during 2018 via new account managers."

Craig Dyball – Managing Director – also says: "Due to our current client base, we have naturally evolved into specialising in the electronics industry, providing websites, apps and digital marketing for one of the world's largest eCommerce stores. We're also significantly involved within the tourism industry, providing the full spectrum of digital services. Involvement in these areas means we generally pick up synergistic clients as we go."

"Although our current project spectrum target is £15k-£250k, we don't shy away from larger projects due to the support from the Berkshire Hathaway Group, which allows us to expand quickly to cater for them."

In other words, if a job requires new team members, we can do it. We won't take on a job we can't complete within budget or allocated timescales. This approach preserves our long-standing reputation for reliability and delivery, keeping our clients happy. In addition to external clients, the internal clients serviced within the Berkshire Hathaway ►



## AGENCY BREAKDOWN

**CEO**  
Digital Marketing Specialists

**Operations Director**  
Mobile App Designer

**Office Administrator**  
Full Stack Web Developers

**Office Manager**  
Mobile Engineers

**Head of Projects**  
Digital Designers

**Marketing & PR**  
Net Web Developers

**UX & UI Designers**  
Systems Engineer



## WINCHESTER SCIENCE CENTRE

[winchestersciencecentre.org](http://winchestersciencecentre.org)

With 100 hands-on exhibits and a 360-degree cinema experience, the Winchester Science Centre is a hub for informal science learning and a popular visitor attraction for schools and the general public.

Entrusted with the Winchester Science

Centre's digital marketing, we manage their SEO, eCommerce tracking and Google AdWords campaigns, which are funded by a monthly Google AdWords Grant made available to non-profits organisations.

The careful execution of eCommerce tracking has allowed us to

improve ad optimisation. Combined with campaigns created by Zeta, this has resulted in a more effective use of the budget, resulting in higher conversion rates. In total, we created an additional eight new highly targeted campaigns that targeted specific audiences.

All keywords that were found to be successful in Google AdWords were then sent to our SEO team to ensure that we appear in the top three positions of the organic listings. Having a domain appear at the top of organic and paid listings in Google presents your brand as an authority and

increases the click-through rate.

The results speak for themselves with AdWords delivering a 670 per cent increase in clicks and a 124 per cent increase in click-through rates, with organic site traffic seeing an increase of 21 per cent after implementing our SEO strategy.



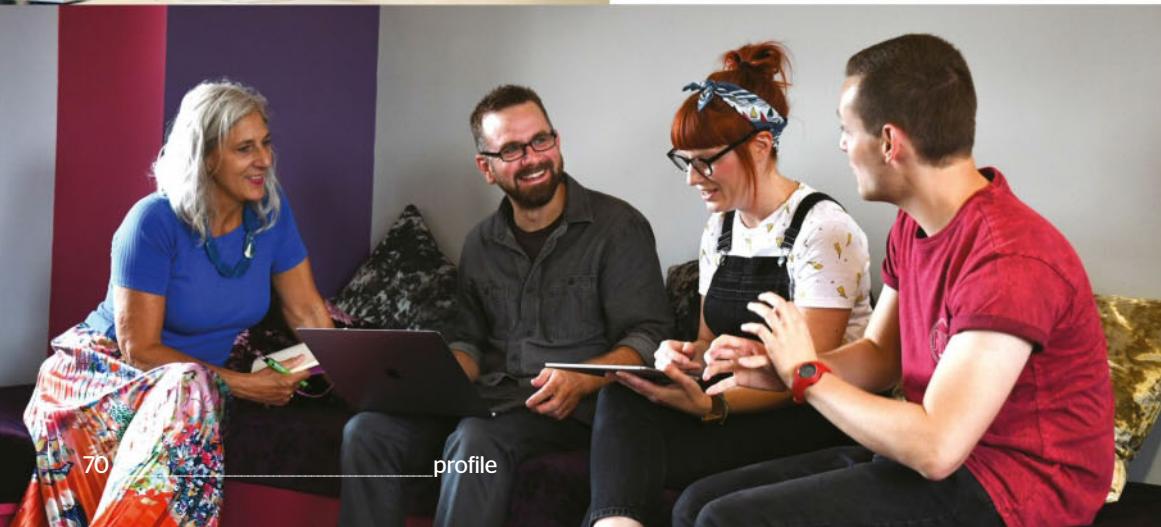
*Left* Digital Designer Caleb deep in concentration on Zeta's latest project. What would design studios do without the Post-it note?

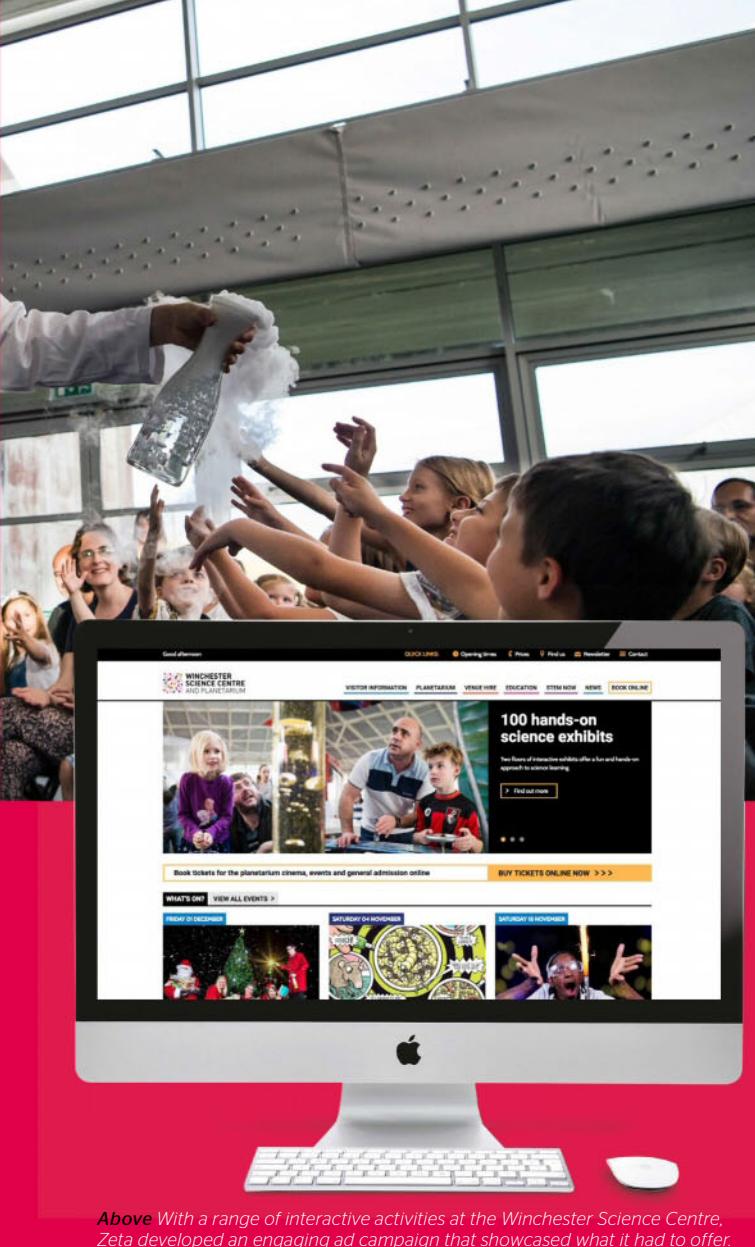
*Below* Mobile design has become a vital component across Zeta, Zofia, Paul, Becki and Joe discuss a tablet project.

Group means there's always plenty of up-and-coming work."

The workflow that an agency develops often needs to be agile to respond to the specific demands of each piece of work. For Zeta, flexible working has become second nature, as Anna explains: "Large-scale timelines vary depending on the scale of the project. Some projects are ongoing – such as Mouser.com – with dozens of ongoing, rolling projects with completion deadlines many years from now. For smaller, large-scale projects, we generally aim to complete them within six to seven months.

"Whichever type of project, we aim to break them down into manageable deliverables. This means our work can add value to a business, at a quicker pace, and be responsive to changes. The following roles are normally included in all web or app projects: Project manager, Team leader, UX designer, UI designer, Full-stack web developers, Native app developers, Marketing expert with SEO skills and QA testers.





**Above** With a range of interactive activities at the Winchester Science Centre, Zeta developed an engaging ad campaign that showcased what it had to offer.

"The project is then split into: Planning and exploration, wireframe, prototyping and design, backend and feature development, themes, content population, marketing review and testing and deployment. Generally, the most time-consuming parts of a project are the first and last stages. Ensuring the planning and exploration stage is undertaken meticulously is essential, as this forms the blueprint for the project. The final stage, testing and development, is equally important to ensure the project is delivered working correctly."

After the workflow is in place, the toolset that an agency chooses to use can be diverse. For Zeta, which works across multiple channels, the tools in use have been evolving for some years. Paul Barnes outlines their current approach: "During the design stages of a project we use Axure to create interactive wireframes and prototypes to outline all content requirements and client expectations. After the wireframes have been confirmed, we create hi-fidelity

## If CSS is to avoid becoming irrelevant in the near future, it will need to continue to add new features and capabilities



designs using the Adobe Creative Cloud suite and the Sketch app.

"To create our native applications, we use IDE's Xcode and Android Studio. Our web team uses open source applications, such as Sublime, to create its web projects. Our design team hands over assets to our development team using Axure, which outlines all navigation. For animation-based interactions we use Zeplin, allowing developers to pull assets and measurements from the designs.

"Using web tools, such as Cage App and Gather Content, we share designs and content with our clients to allow them access to the work in progress, and to give feedback during the project."

Caleb Kingcott - Digital Designer - also explains Zeta's approach to current design technologies: "Both CSS and HTML have been fundamental to web development for years, something we don't see changing anytime soon. However, we agree with the popular consensus that HTML and CSS will need to adapt to stay relevant for modern web development.

"Over the last few years, the biggest change in web development is the importance of targeting mobile devices. It wasn't too long ago that a mobile website was an afterthought for a developer, something that was a nice extra, which would only be seriously considered if the budget allowed. However, In April of this year, SimilarWeb published data suggesting mobile traffic makes up nearly 56 per cent of all web traffic. With this in mind, it's important that HTML and CSS adapt to this change in hardware.

"HTML has adapted and will continue to adapt to this change by taking advantage of mobile hardware. One example of this is HTML5 web storage, which gives a web app the ability to store large amounts of data locally. Future versions of HTML could even support further local features such as the device's camera and fingerprint scanner.

"CSS is used for styling, so the challenge of targeting mobile devices is catering for a smaller screen. CSS has accomplished this by making responsive web design possible, allowing websites to target many different screen sizes rather than just a desktop. If CSS is to avoid becoming irrelevant in the near future, it will need to continue to add new features and capabilities, which will give websites and web apps the ability to provide a visual experience that's on a par with mobile apps.

"JQuery is gradually being replaced by JavaScript frameworks, such as React, especially for web apps. Frameworks are far more capable, with a number of different features, so there has been a shift to these over libraries such as JQuery. However, the technology still remains relevant for websites and small web apps, which don't require a full framework, and JQuery still has a large market share, so is likely to be around for some time.

"Laravel 5 has appeared on the office radar recently. It's a useful PHP framework that makes web building easy and sharing projects between our developers simple. It's been around for a little while now, but we're beginning to utilise it more frequently, mainly because it's quick to implement and comes with a whole host of time-saving abilities, such as quick-build user authentication for applications."

Speaking further about the importance of designing for mobile channels, George Grover - UX and Design - says: "Zeta advocates building fully responsive website solutions that deliver an uncompromising experience across all devices without restricting or hiding key content. We plan, wireframe, prototype and design with a fluid mindset. We're always thinking about the content in



**"To create our native applications, we use IDE's Xcode and Android Studio. Our web team uses open source applications, such as Sublime, to create its web projects. Our design team hands over assets to our development team using Axure, which outlines all navigation. For animation based interactions we use Zeplin, allowing developers to pull assets and measurements from the designs"**

**PAUL BARNES  
UX / UI DESIGNER**



**“Zeta advocates building fully responsive website solutions that deliver an uncompromising experience across all devices without restricting or hiding key content. We plan, wireframe, prototype and design with a fluid mindset. We’re always thinking about the content in relation to the devices it will be used on to ensure it is presented appropriately”**

**GEORGE GROVER  
UX AND DESIGN**

relation to the devices it will be used on to ensure its presented appropriately.

“Often, this process is an ever-tightening, spiral workflow of planning, designing, testing, and iterating, which is repeated until the process satisfies all aesthetic and functional requirements. Responsive design is something our customers expect and has simply become a natural part of our overall workflow. Because we’re addressing responsive design right from the offset (using rapid prototyping), we’re investigating mobile user flow in parallel with desktop, before development starts.

“Making use of software, Sketch and Axure, we’re able to fully explore the breakpoints for different devices. Animated and dynamic elements help us understand the full story and ensure we’re equipped with all the info we need before development begins.”

Anna concludes: “Whilst using a fully responsive solution may require more resource and time early in the planning and design process, it pays back during the development process. During the development process a clear understanding of the holistic plan can be more fully understood – not to mention the cost and time advantages of running an entirely separate app for mobile, which may have dedicated pages and possibly a database. With a fully responsive solution, we keep ongoing maintenance and security costs down whilst ensuring professional consistency for all our clients’ brands.”

To deliver the high-quality work Zeta has become known for requires high calibre staff. As Craig succinctly tells Web Designer: “Our organisation is only as good as our team.” A level of inherent skill is important but, as Craig continues,



*Zeta understand that a quiet area is vital in their offices. The Bridge is breakout area for collaboration, quiet work or social meetups.*

understanding what drives each candidate Zeta interviews is much more important when finding the next person to join the team.

**Skills are important, but on top of this we are looking for self-motivated team players who are eager to progress their own abilities**

“We understand that most people don’t feel comfortable during the interview process, so our management team draw out the important information from candidates. Obviously, skills are important, but on top of this we are looking for self-motivated team players who are eager to progress their own abilities, solve problems and have a strong drive.

“Also, we suggest if you are invited to attend an interview, always research the agency and ask lots of pertinent questions when prompted. Experience is very important. We recommend anyone who hasn’t got much working experience to get themselves on internships, online projects, courses or work experience.

## MARVEL VIDEO SEO

[mouser.com/empowering-innovation](http://mouser.com/empowering-innovation)

Mouser creates a series of high-quality YouTube videos regarding space exploration, home automation and driverless cars. Grant Imahara from the Mythbusters was brought in to head up presenting.

For one specific series, Mouser partnered with Marvel to create viral YouTube videos around the Avengers' films. Zeta was tasked with online video promotion and managing their SEO to ensure their videos were accessible and reaching the right audience.

The strategy focused on promoting video content with blog content, referrer websites and targeting key phrases in YouTube and Google. Articles with the videos embedded on were created and posted on relevant publications and blogs. Titles and descriptions were also optimised with key phrases to help the videos be found in Google Web Search.

After the marketing success of this campaign, it was expanded to include the other Mouser YouTube series which were being produced.

And the results? For 15 targeted key phrases, Mouser videos ranked on page one of Google web search. The videos also appeared on the first page of Google video search for 40 different key phrases. And in total, the YouTube videos amassed over 4,500,000 views, 44,000 likes and 2,143 comments.



The screenshot shows the Mouser website's homepage. At the top, there's a navigation bar with links like 'Mouser.com', 'EMPOWERING INNOVATION TOGETHER', 'Shaping Smarter Cities', 'More Projects', 'Engineering Tools', 'Newest Products', and 'Technologies'. A large banner on the right features a photo of Grant Imahara with the text 'EMPOWERING INNOVATION TOGETHER'. Below the banner, there's a section titled 'NOW FEATURING' with a photo of two men, and another section titled 'MORE PROJECTS' with a photo of a drone in flight. Logos for Analog Devices, Intel, Microchip, and molex are visible at the bottom right.

Above For this project Zeta built creative content that got high profile trendsetters to share and mention the video. SEO was also carried out on YouTube and Google.

Below The video content produced around the Avengers' films needed Zeta's expertise to reach its target audience.



"We truly value our staff which is why it is vital that our working environment is pleasurable. The essence of a successful business is that the people actually enjoy coming to work and have time to develop their skills whilst being here too. We think that our success is directly linked to our location and lifestyle. We are only two hours by train from Waterloo with a five-minute walk to the station but much more importantly, Poole Harbour is only minutes away."

To meet the needs of its expansion, Zeta is now remodelling its Poole office space, as you read this.. The agency's trajectory is clear: with a deep understanding of not only the digital spaces it designs for, but also an appreciation of how communications is shaped by today's digital channels, Zeta is the maker of the environments we all live within.

The Zeta company profile page features a large, stylized 'Z' logo at the top. Below it, the word 'Zeta' is written in a bold, lowercase font, with '.net' in a smaller font underneath. To the left of the main text area, there are four large, bold letters: 'F', 'L', 'R', and 'J' in a pinkish-red color. The main content includes:

- FOUNDER:** Roger Allen
- YEAR FOUNDED:** 2000
- CURRENT EMPLOYEES:** 22
- LOCATION:** Poole, Dorset

On the right side, under the heading 'SERVICES', are listed:

- App Development**
- Digital Marketing**
- Web Design**
- Strategy**
- eCommerce**



# Lady Bird

Now Playing  
In Select Theaters

A24

Fb In Tw

Ind

## Lady Bird

<http://ladybird.movie>

Designer: Watsondg – <http://watsongd.com>

Development technologies jQuery, Underscore.js, HTML5 Boilerplate, Marionette.js

“Greta Gerwig’s coming-of-age movie *Lady Bird* presents a charming promo site that delivers fullscreen video clips via a drag-and-drop quiz”



“

LADY BIRD IS  
BURSTING WITH  
WIT, HUMANITY,  
JOY AND TRUTH.

Lindsey Bahr

AP

Ready To Fly?  
Take the Quiz



Now Playing In Select Theaters — [Get Tickets](#) →



#D30A1C



#EBDECC



#6C4B30



#2F475C

abcABC  
1234567890

**Above**

Sketchetik Fill by Ossi Gustafsson for Hiekka Graphics is a hand drawn font used on the site in Light

abcABC  
1234567890

**Above**

GT Sectra by Marc Kappeler, Dominik Huber & Noël Leu at Grilli Type is a calligraphic typeface used in multiple varieties

**LightBox**

Lady Bird

# Synopsis

*A California high school student plans to escape from her family and small town by going to college in New York.*

In *Lady Bird*, Greta Gerwig reveals herself to be a bold new cinematic voice with her directorial debut, excavating both the humor and pathos in the turbulent bond between a mother and her teenage daughter. Christine "Lady Bird" McPherson (Saoirse Ronan) fights against but is exactly like her wildly loving, deeply opinionated and strong-willed mom (Laurie Metcalf), a nurse working tirelessly to keep her family afloat after Lady Bird's father (Tracy Letts) loses his job. Set in Sacramento, California in 2002, amidst a rapidly shifting American economic landscape, *Lady Bird* is an affecting look at the relationships that shape us, the beliefs that define us, and the unmatched beauty of a place called home.

**Lady Bird**

A24

Fb In Tw

dtm

Now Playing In Select

**Above**

Subtle transition effects move between minimally tasteful sections including a synopsis, plus cast and crew lists



**Above**

A quiz element features a deck of drag-and-drop 'memories' that trigger clips from the movie



**Above**

A video section embeds the official full-length movie trailer into the site with custom overlaid playback controls

# Create a visually dynamic sliding quotes box

Use HTML, CSS and JavaScript to present an automatic sliding quotes box that can be easily updated

## 1. Initiate HTML document

The first step is to initiate the document that will define the HTML page. This consists of a HTML container that stores the head and body sections. While the head section stores links to external CSS and JavaScript, the body section will store the visible content created in the next step.

```
<!DOCTYPE html>
<html>
<head>
<title>Quotes List</title>
<link rel="stylesheet" type="text/css"
      href="styles.css" />
<script type="text/javascript" src="code.js"></script>
</head>
<body>
  *** STEP 2 HERE
</body>
</html>
```

## 2. HTML content

The page content consists of a container labelled with a 'data-player' attribute. This container stores the individual quote elements - represented as span elements. Each of these contain the content for the individual quotes; this example uses a h3 title followed by a paragraph element. This structure's presentation will be controlled via the JavaScript and CSS.

```
<div data-player>
  <span>
    <h3>Title 1</h3>
    <p>Text...</p>
  </span>
  <span>
    <h3>Title 2</h3>
    <p>Text...</p>
  </span>
  <span>
    <h3>Title 3</h3>
    <p>Text...</p>
  </span>
</span>
```

## 3. JavaScript initiation

Create a new file called 'code.js'. This file starts with the initiation of two features: a 'quote' variable used to describe the current quote to show, along with a function to update the quote. The updateQuote function searches for all quotes inside 'data-player' and updates their 'data-status' to be 'shown' or if their index position

matches the 'quote' variable. The quote variable is then updated for the next time updateQuote is called.

```
var quote = 0;
function updateQuote(){
  var nodes = document.querySelectorAll("[data-player] > *");
  for(var i=0; i<nodes.length; i++){
    if(i == quote)nodes[i].setAttribute("data-status","visible");
    else nodes[i].setAttribute("data-status","");
  }
  if(quote < nodes.length-1)quote++;
  else quote = 0;
}
```

## 4. Load event

The last part of the JavaScript code defines what happens after the page has completed loading. The page's quote display needs to be updated immediately, hence the call of the updateQuote function. This updateQuote function is also called every 6,000 milliseconds (six seconds) through the use of the setInterval instruction.

```
window.addEventListener("load", function()
{
  updateQuote();
  setInterval(updateQuote,6000);
});
```

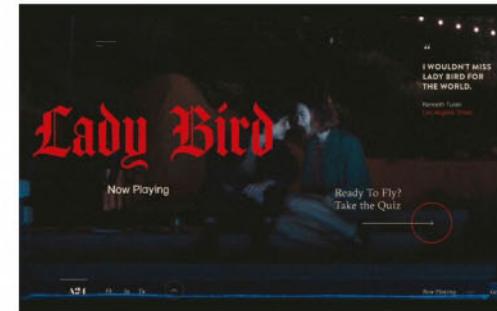
## 5. Initiate CSS

With the JavaScript complete, create a new file called 'styles.css'. The first rule in this file sets the HTML container and its body section to display across the full size of the browser window. A black background with white text is also applied, along with elimination of visible border spacing.

```
html,body{
  display: block;
  width: 100%;
  height: 100%;
  margin: 0;
  padding: 0;
  font-family: Helvetica, sans-serif;
  background: #000;
  color: #fff;
}
```

## 6. Quote player

The container for the quotes allows for consistent control of each quote. As well as needing to have a size and



default font size, relative positioning is applied so that the inner child items can be positioned in relation to wherever this parent container is located. This container is referenced via its 'data-player' attribute.

```
[data-player]{
  position: relative;
  width: 20em;
  font-size: 2em;
}
```

## 7. Quote items

Each of the quotes are child items inside the 'data-player' container. These children are set to display with the attributes they should animate towards when they disappear from view. This is set at 10em from the top of the container with opacity set to invisible. Any changes appear animated due to the applied transition rule.

```
[data-player] > *{
  display: block;
  position: absolute;
  top: 10em;
  left: 0;
  border: 1px solid #fff;
  padding: .5em;
  width: 100%;
  opacity: 0;
  transition: all 1s;
}
```

## 8. Visible status

The quote item selected via JavaScript's updateQuote function has a 'data-status' attribute set to 'visible'. This allows CSS to set a separate presentation rule to the other quote items. In this case, opacity is set to full visibility, as well as the vertical position being set to the top of the parent container.

```
[data-player] > [data-status="visible"]{
  opacity: 1;
  top: 0;
}
```

# how will we live

a playful research project by

NE SHARED  
OUSE 2030

SURVEY

ABOUT

SHARE: FACEBOOK / TWITTER

RESULTS

RESOURCES

SOUND: -ON- / OFF

# ONE SHARED HOUSE 2030

[onesharedhouse2030.com](http://onesharedhouse2030.com)

Designer: Anton & Irene – [antonandirene.com](http://antonandirene.com)

Development technologies jQuery, Modernizr, Backbone.js, HTML5 Video/Audio

“Projects like this allow us to experiment with disciplines & techniques”

# in the year 2030?

y anton & irene + SPACE10

apply now →



#FF3975



#640ECD



#000000



#FFFFFF

**abcABC  
1234567890**

Above

Univers by Adrian Frutiger for Linotype appears in 65 Bold typeface exclusively, providing a readability synonymous with corporate branding applications.

# Create an animated content background ping effect

Use HTML and CSS to create a background effect that will help draw attention to specific content

## 1. Initiate HTML document

The first step is to create the HTML document that's responsible for storing the page details and its content. The document has an HTML container, which stores a head and body section. While the head section's primary purpose is to link the external CSS file to the page, the body section will be used in Step 2 to store the visible page content.

```
<!DOCTYPE html>
<html>
<head>
<title>Background Ping</title>
<link rel="stylesheet" type="text/css"
 href="styles.css" />
</head>
<body>
  *** STEP 2 HERE
</body>
</html>
```

## 2. Page content

The page content consists of a main container for the primary page content, followed by a container for the 'ping' effect. The ping container requires an inner element to be controlled as the visible circle element. For SEO purposes, the ping container is placed at the bottom of the HTML.

```
<main>
  <h1>Content</h1>
</main>
<span class="ping"><span></span></span>
```

## 3. CSS initiation

With the HTML now complete, create a new file called 'styles.css'. The first step for the CSS is to define the

HTML and body containers. These need to cover the full browser window, along with having their default colours set. Margins and paddings are set to guarantee no visible border spacing.

```
html, body{
  display: block;
  width: 100%;
  height: 100%;
  margin: 0;
  padding: 0;
  color: #fff;
  background: rgb(21, 34, 47);
}
```

## 4. Main content

The page's primary content inside the main container needs to be placed above the animated background. This is achieved using absolute positioning so that a z-index of one can be applied. Left and top attributes are also applied so that the container is guaranteed to be positioned in the top-left corner.

```
main{
  position: absolute;
  z-index: 1;
  top: 0;
  left: 0;
```

## 5. Ping container

The ping container is required to be positioned in the top-left corner. A z-index of zero is applied, placing it below the main content container, meaning that the animation effect will not interfere with the primary content. Width/height are set to make the ping container cover the full size of the html/body container.

```
.ping{
  position: fixed;
  z-index: 0;
  top: 0;
  left: 0;
  width: 100%;
  height: 100%;
```

## 6. Ping circle

The child element inside the ping container becomes the animated circle. This step applies attributes to set this element's position to the top-left corner, sized to fit the full page and to have a solid red background colour. A 'ping' animation is also applied, set to repeat infinitely over a two-second duration.

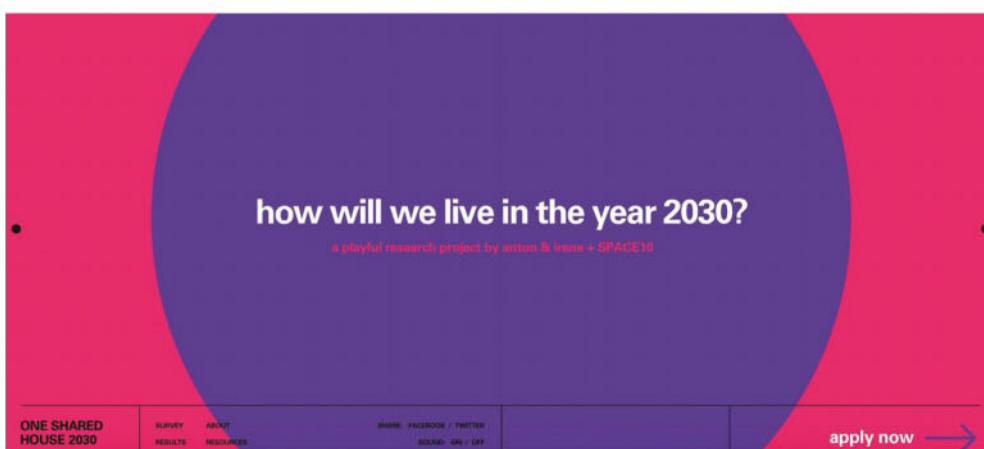
```
.ping span{
  position: absolute;
  display: block;
  top: 0;
  left: 0;
  width: 100%;
  height: 100%;
  background: #c00;
  animation: ping 2s infinite;
```

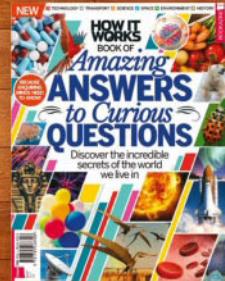
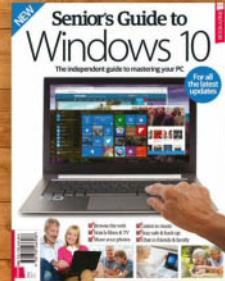
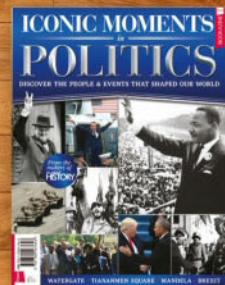
## 7. Animate ping

The ping animation sets the previous step to display as a circle at the centre of the container. This animation starts from invisibly positioned in the middle of the screen, upon which it appears at full opacity. The animation progresses towards displaying the circle to cover the full screen at zero opacity - that is, fading out.

```
@keyframes ping {
  0%{
    -webkit-clip-path: circle(0% at center);
    -moz-clip-path: circle(0% at center);
    clip-path: circle(0% at center);
    opacity: 0;
  }
  10%{ opacity: 1}
  100%{
    -webkit-clip-path: circle(30% at center);
    -moz-clip-path: circle(30% at center);
    clip-path: circle(30% at center);
    opacity: 0;
  }
}
```

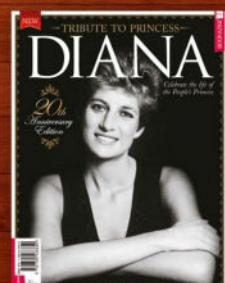
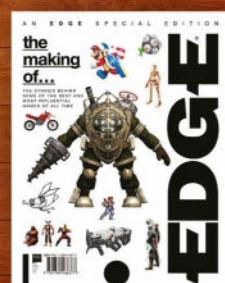
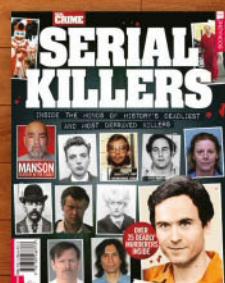
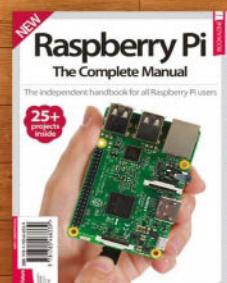
\*\*\*





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# web workshop

## Implement a glitch effect on hover

Inspired by <https://vintage.agency>

### Visible menu

The menu is available in the top right hand corner, and the bottom right corner has a link ready to take users right into the Portfolio.

**Site branding**  
The site branding remains visible on the screen and shows the main logo of the V in situ with the name. This helps to establish the animated version in the main display.

**Glitch text effect**  
Every once in a while, or when the user rolls their mouse over the text, the text gets some glitch effects that break up the text with animated rectangles.

**Interactive prompt**  
The user is prompted to scroll down the screen by an animated line at the bottom of the screen, which shows there is more content available.

**Animated logo**  
The Vintage logo is based on a stylised V shape and it is recreated on the site by being made up of points that animate and move with interconnected lines and polygons.



## EXPERT ADVICE

### Showing your flair

The Vintage site really shows off the talents of the studio. Every animation is executed with perfection and some of the subtleties of the text - drawing onto the screen and filling in with gradient lines - can almost be missed as other, more attention-grabbing animations take centre stage.



#### <comment>

What our experts think of the site

## Glass particles and a VR portfolio

We're happy to introduce you to the new Vintage website - with a pinch of glitch, interactive scroll, and a lot of love in every detail. Step into the first screen, discover a logo with a pulsating form of polygonal glass particles and go forward to the thrilling VR portfolio built with Web VR.

**Olga Shevchenko, Creative Director / Svetlana Lazareva, Motion Designer at Vintage**

## Technique

### 1. Creating a simple glitch effect

Creating a simple glitch effect can be done in so many different ways. Here we are going to do it by having an animated GIF over the top of the text, which will be turned on and off in the display. First up, add this code to the body tag of your page.

```
<div id="holder" onmouseover="glitch()">
<div id="glitch"></div>
WEB
<br> PRODUCT-
<br> ION
</div>
```

### 2. Styling the display

The content will use a specific typeface from Google Fonts called Work Sans. Grab the link from there and place it in your head section; then add the CSS to either style tags or a separate CSS file. The page is made black with white text and the holder is styled up for the text.

```
body {
background: #000;
font-family: 'Work Sans', sans-serif;
color: #fff;
}
#holder {
font-size: 6em;
width: 500px;
height: 300px;
margin: 0 auto;
position: relative;
}
```

### 3. Displaying the glitch

The glitch effect is going to be a background image that is placed directly over the top of the text. The important part here is that it is made invisible by reducing the opacity to zero so that it doesn't show up until the user interacts with the text.

```
#glitch {
position: absolute;
top: 0;
left: 0;
z-index: 10;
width: 100%;
height: 100%;
background: url(glitch.gif);
opacity: 0;
}
```

### 4. Hold everything

Add script tags to the end of the body section and create a cached reference to the 'glitch' div in the document. Then a variable named 'over' is set to false. This will be turned on and off when the user moves over the text.

```
var gl = document.getElementById("glitch");
var over = false;
```

### 5. Running the glitch

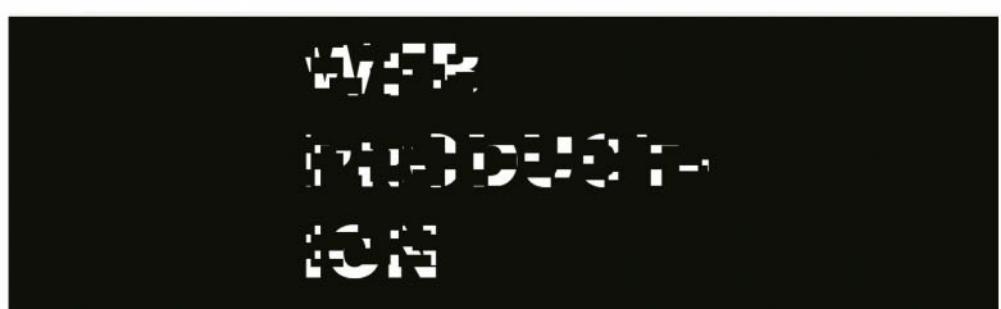
The glitch function is called when the mouse moves over the text. If the glitch is not running then the glitch visibility is turned on and it is turned off after one and a half seconds. You can experiment with this and use a random number to make it more unpredictable.

```
function glitch() {
if (over == false) {
gl.style.opacity = "1";
setTimeout(function() {
normal();
}, 1500);
}
}
```

### 6. Back to normality

The glitch effect should not stay on as it would be too annoying to the user, but as an interactive element it works well. Here, the code resets the opacity back to zero so that it isn't visible over the top of the text.

```
function normal() {
gl.style.opacity = "0";
}
```



# Create lush liquid effects with WebGL

Use the three.js library for WebGL to make a low polygon, animated liquid wave effect for a background header





ost web designers are constantly looking for ways to add a big impact to their site designs, as directed by clients to grab their

**users' attention.** This has evolved over the years from using a header graphic, to a slideshow under the menu. This later became full browser width, and now the vast majority of sites follow that same format. The sites that win 'site of the day' on the different web awards sites generally try and do something that is a little more unique than just having a giant slideshow. WebGL is great for this as adding something interactive can really grab the users' attention and show that this isn't the same as the other sites they've just visited.

To make a splash in this tutorial, a liquid, reflective surface will be added and this will be animated towards the camera with rolling waves moving forward. There will also be particles that will move forward to complete the look and feel. In the centre will be the site's logo, and the whole scene will react to the user's mouse movement so that the content shifts and makes the 3D really stand out. The logo is just a transparent PNG so this can easily be customised to your own design. The lights will also animate so that the colours will orbit around and highlight the different waves within the scene.

## 1. Initial variables

Open the start folder from the project files and drag this into your code editor. Open 'index.html' and you will see that the JavaScript libraries have already been linked up for you. Inside the empty script tags is where the code will go. Here WebGL is detected to make sure the project can be run, then a whole range of variables are added that will be used in the scene.

```
if (!Detector.webgl) Detector.  
addGetWebGLMessage();  
  
var SCREEN_WIDTH = window.innerWidth;  
var SCREEN_HEIGHT = window.innerHeight;  
var renderer, camera, scene, moverGroup,  
floorGeometry, floorMaterial, pointLight,
```

```
pointLight2, pGeometry;  
var FLOOR_RES = 60;  
var FLOOR_HT = 650;  
var stepCount = 0;  
var noiseScale = 9.5;  
var noiseSeed = Math.random() * 100;
```

## 2. More variables

The next block of variables handle how large the water floor should be and the speed that it will move along with initial mouse positions. The centre of the screen is worked out and the improved noise library is being used to create the surface of the water.

```
var FLOOR_WIDTH = 3600;  
var FLOOR_DEPTH = 4800;  
var MOVE_SPD = 1.9;  
var mouseX = 0;  
var mouseY = 0;  
var windowHalfX = window.innerWidth / 2;  
var windowHalfY = window.innerHeight / 2;  
var snoise = new ImprovedNoise();  
var textureLoader = new THREE.  
TextureLoader();
```

## 3. Calculating the mouse

Some final variables are added for the post processing effects of the scene. An event listener is added that checks the mouse movement. The scene is going to move in the display port to react to mouse movement. The function that is added here works out the amount of movement being allowed.

## 4. Post processing settings

The 'params' function is where all the settings for the post processing effects will be stored. If you need to change anything, this is the place to do it. The tilt shift blur is covered in the first four lines, then the film pass in the remaining lines. This is mainly for the screen intensity and noise intensity.

## 5. Final parameters

The last of the parameters is for the dark vignette around the edge of the screen. The 'init' and 'animate' functions are called to run. The 'animate' function will be created much later in the tutorial, but the 'init' function is created here. The camera and scene are set up to allow viewing of the 3D content.

```
effectVignette.uniforms["offset"].value =  
1.0;  
effectVignette.uniforms["darkness"].value  
= 1.3;  
}  
init();  
animate();  
function init() {  
camera = new THREE.PerspectiveCamera(70,  
window.innerWidth / window.innerHeight, 1,  
4000);  
camera.position.z = 2750;  
scene = new THREE.Scene();  
scene.fog = new THREE.FogExp2(0x1c3c4a,  
0.00045);
```

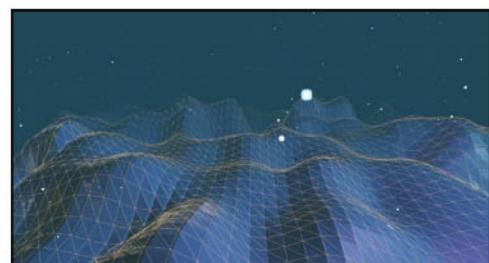
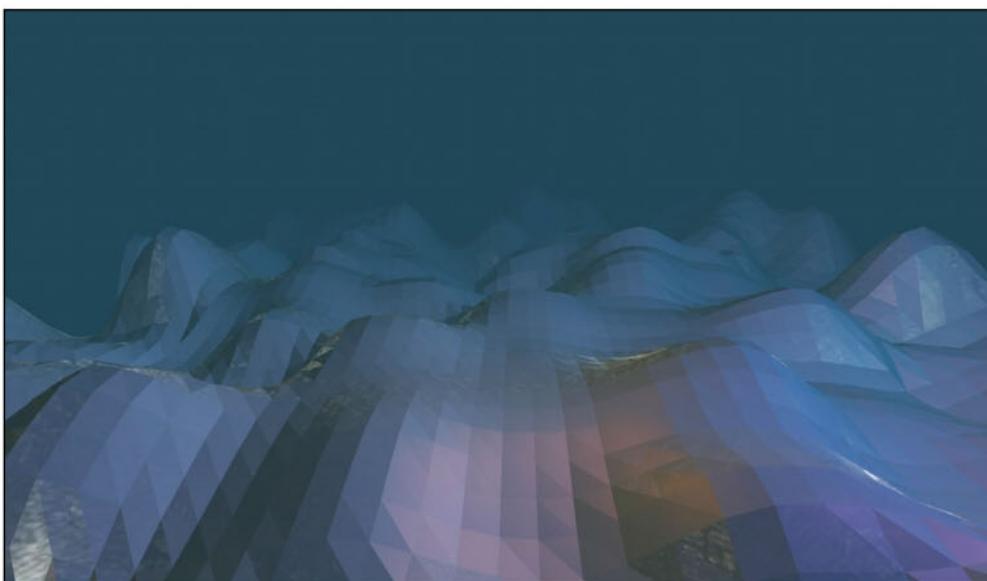
## 6. Letting the light in

In order to see the content of the scene, four lights will be placed. The first is a hemisphere light, which is used just to get the basic ambience of the scene. Next up is the centre light that is adding a light blue light in the middle of the scene. This is set off to one side in order to give some light to the whole scene.

```
var hemisphereLight = new THREE.  
HemisphereLight(0xe3feff, 0xe6ddc8, 0.7);  
scene.add(hemisphereLight);
```

## WebGL scene basics

A basic WebGL scene needs three things to make it work: a scene to hold everything, something to see in the scene such as a model, and finally lights to illuminate that model.



### Left

When the first liquid surface is added the reflection map on this is very obvious and the fog helps blend the background and surface together

### Top

Floating particles fill out the scene, and when all of this is animated in the render function, it brings a sense of movement towards the camera

## Tutorials

# Create lush liquid effects with WebGL

```
hemisphereLight.position.y = 300;
var centerLight = new THREE.SpotLight(0xb7f9ff, 1);
scene.add(centerLight);
centerLight.position.set(2500, 300, 2000);
centerLight.penumbra = 1;
centerLight.decay = 5;
```

## 7. Animated lights

The next two lights to be added, 'PointLight' and 'PointLight2' are coloured lights that will circle in opposite directions around the scene so that the light changes constantly in the view. The first is a pink light and the second is an orange light. The path and format for the reflection images are set in the last two lines.

```
pointLight = new THREE.PointLight(0xe07bff, 1.5);
pointLight.position.z = 200;
scene.add(pointLight);
pointLight2 = new THREE.PointLight(0xff4e00, 1.2);
pointLight2.position.z = 200;
scene.add(pointLight2);
var path = "img/";
var format = '.jpg';
```

## 8. Shiny surfaces

The liquid surface will have a reflective, shiny surface and this is done by creating a reflection cube. This is a cube with a 360-degree skybox placed inside it, which will be reflected onto the surface of the liquid. The 'urls' array contains the images to be loaded, then the material is set up.

## 9. Setting up some groups

The mover group will contain some particles that will be

## Logo light effects

By making the logo a 'double sided' material, the lights affect it on the front and back as they move around the scene.



### Top

Adding in the logo, which is a transparent PNG image, places this in the centre of the scene, and is easy to replace with your own logo later.

### Right

Every so often one of the post processing effects runs a glitch effect on the screen just to liven up and distort the screen, before returning to normal.

added later, while the floor group will contain the surface of the liquid. A new 3D object is created that will hold that surface. There will be two liquid surfaces; one will have the reflective material and the second will have the wireframe 'floorMaterial', as defined here.

```
moverGroup = new THREE.Object3D();
scene.add(moverGroup);
var floorGroup = new THREE.Object3D();
var floorMaterial = new THREE.MeshPhongMaterial({
color: 0xeeeeee, side: THREE.DoubleSide,
blending: THREE.AdditiveBlending, wireframe:
true
});
floorGeometry = new THREE.PlaneGeometry(FLOOR_WIDTH + 1200, FLOOR_DEPTH, FLOOR_RES, FLOOR_RES);
```

## 10. Making the surfaces

The two liquid surfaces are created here as 'floorMesh' and 'floorMesh2'. They are positioned and placed inside the 'floorGroup' then rotated to a good viewing angle in front of the camera. This isn't directly flat, but slightly angled as it looks better like that.

```
var floorMesh = new THREE.Mesh(floorGeometry, cubeMaterial);
var floorMesh2 = new THREE.Mesh(floorGeometry, floorMaterial);
floorMesh2.position.y = 20;
floorMesh2.position.z = 5;
floorGroup.add(floorMesh);
floorGroup.add(floorMesh2);
scene.add(floorGroup);
floorMesh.rotation.x = Math.PI / 1.65;
floorMesh2.rotation.x = Math.PI / 1.65;
floorGroup.position.y = 180;
```

## 11. Adding floating particles

The section of code here creates an empty geometry object and then places into it 2,000 vertices that act as the particles. These are distributed at random positions on the X, Y and Z axis. These will float just above the

surface of the liquid floor.

```
pGeometry = new THREE.Geometry();
sprite = textureLoader.load("img/sprite.png");
for (i = 0; i < 2000; i++) {
var vertex = new THREE.Vector3();
vertex.x = 4000 * Math.random() - 2000;
vertex.y = -200 + Math.random() * 700;
vertex.z = 5000 * Math.random() - 2000;
pGeometry.vertices.push(vertex);
}
```

## 12. Creating the look

The material defined here will set how the particles look. An image was loaded in the previous step and that is used as the image on each particle, once the material is created. This is then applied to each point of the geometry for all of the particles. These are then added into the scene.

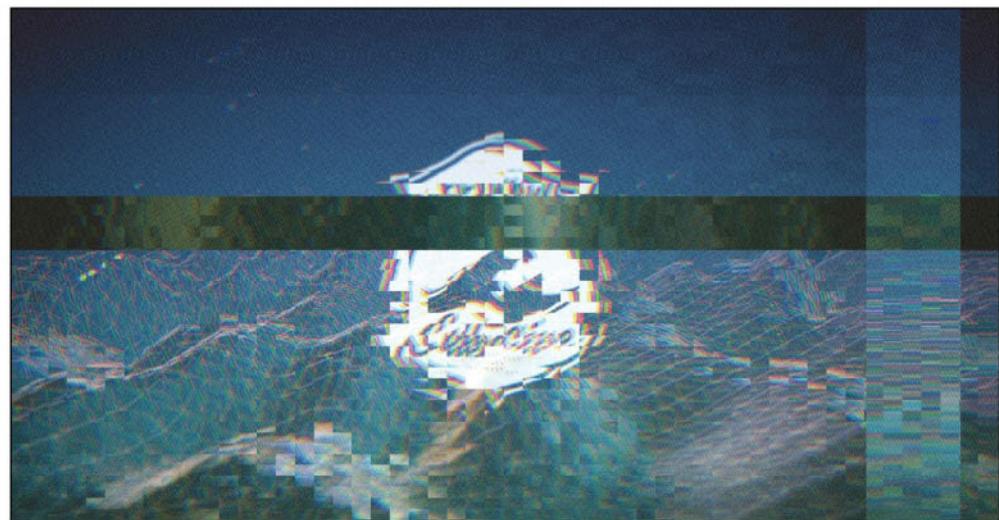
## 13. Adding the logo

A logo will be placed into the centre of the screen and this will be added onto a flat plane that will face the camera. The logo is made slightly transparent and given an additive blend so that it is more visible when lighter objects pass behind it. This is positioned and placed into the scene.

```
sprite = textureLoader.load("img/logo.png");
geometry = new THREE.PlaneBufferGeometry(500, 640, 1);
material = new THREE.MeshLambertMaterial({
transparent: true, opacity: 0.8, blending:
THREE.AdditiveBlending, map: sprite, side:
THREE.DoubleSide
});
var plane = new THREE.Mesh(geometry, material);
plane.position.set(0, 70, 1800);
scene.add(plane);
```

## 14. Adding the render settings

The renderer is set up to have smooth, anti-aliased edges





**The Book of Shaders**  
by Patricia Gonzalez Viva and Jen Louie

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

**Contents**

- About this book
- Getting started
  - What is a shader?
  - "Hello world!"
  - Uniforms
  - Running your shader
- Algorithmic drawing
  - Shading functions
  - Colors
  - Shapes
  - Matrices

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and now the background colour is set. This is added into the body of the document so that the scene is on the HTML page. The post processing effects are set up by having various render and shader passes initialised.

## 15. Making the pass

Once the film and glitch pass are added, an effect composer is created that composes all of the passes together. These are added one by one to the composer and it will eventually be rendered out to the screen for audience display.

## 16. Closing the 'init' function

The last few settings are added for the initialisation of the scene. The parameters for post processing are set, the setting of the waves is called and an event listener is added for whenever the browser is resized. This enables the display to be updated to fit the new dimensions.

## 17. Setting up the waves

The waves are created now for the surface of the liquid. This is done by moving through each vertex of the floor geometry on the x and z axis and moving it upward on the y axis. At this stage the 'for' loops are created for the x and z axis.

```
function setWaves() {
  stepCount++;
  moverGroup.position.z = -MOVE_SPD;
  var i, ipos;
  var offset = stepCount * MOVE_SPD /
  FLOOR_DEPTH * FLOOR_RES;
  for (i = 0; i < FLOOR_RES + 1; i++) {
    for (var j = 0; j < FLOOR_RES + 1; j++) {
      ipos = i + offset;
```

## 18. Making waves

Not all the vertices will be scaled upwards in the same

way. Those furthest away from the camera will be large, then the sides will be slightly less, and those nearest the camera will be scaled the least. This makes the back and sides slightly more interesting to look at.

```
if ((i > 30) || (j < 12) || (j > 48)) {
  floorGeometry.vertices[i * (FLOOR_RES + 1) +
  j].z = snoise.noise(ipos / FLOOR_RES *
  noiseScale, j / FLOOR_RES * noiseScale,
  noiseSeed) * FLOOR_HT;
} else if (i > 25 && i < 30) {
  floorGeometry.vertices[i * (FLOOR_RES + 1) +
  j].z = snoise.noise(ipos / FLOOR_RES *
  noiseScale, j / FLOOR_RES * noiseScale,
  noiseSeed) * (FLOOR_HT / 1.2);
} else {
  floorGeometry.vertices[i * (FLOOR_RES + 1) +
  j].z = snoise.noise(ipos / FLOOR_RES *
  noiseScale, j / FLOOR_RES * noiseScale,
  noiseSeed) * (FLOOR_HT / 2);
}
}
}
}
floorGeometry.verticesNeedUpdate = true;
```

## 19. Resizing and animating

When the window is resized, the function here is called from the listener that was set up in step 16. The camera, renderer and composer are all reset in here to match the new dimensions of the window of the browser. The animate function just sets itself at 60fps, calling the render function to update the display.

```
function onWindowResize() {
  camera.aspect = window.innerWidth /
  window.innerHeight;
  camera.updateProjectionMatrix();
  renderer.setSize(window.innerWidth,
```

## Post processing and shaders

Getting a good looking 3D scene is not just about the content that goes into the scene. Sure, a great looking 3D model will always look good on screen, but part of the way it can be enhanced and made to look even better is through post processing. What this does is take the entire screen display and run it through a shader. A shader is a very fast process that runs on your graphics card where all the pixels are affected at once with what the shader has been told to do. This scene uses five shaders. The first two are the tilt shift, so a shader is run for both horizontal and vertical blur. Then a slight film grain is added, a vignette and finally an occasional glitch effect. If you want to learn more about shaders check out <https://thebookofshaders.com>.

```
window.innerHeight);
composer.setSize(window.innerWidth,
window.innerHeight);
}

function animate() {
requestAnimationFrame(animate);
render();
}
```

## 20. Every frame of action

The render function is called every frame. The point lights are set to orbit around in the scene and the camera is positioned according to the mouse movement, with a little easing so that it moves gradually into place. The camera is set to always look at the centre of the scene.

```
function render() {
  var timer = -0.002 * Date.now();
  pointLight.position.x = 2400 * Math.
cos(timer);
  pointLight.position.z = 2400 * Math.
sin(timer);
  pointLight2.position.x = 1800 * Math.
cos(-timer * 1.5);
  pointLight2.position.z = 1800 * Math.
sin(-timer * 1.5);
  camera.position.x += (mouseX - camera.
position.x) * .05;
  camera.position.y += (-mouseY - camera.
position.y) * .05;
  camera.lookAt(scene.position);
```

## 21. Final steps

In the final step the particles are moved forward on their individual vertex, and if they get to the camera, they are placed back into the distance. This is updated and the setWaves function is called to make the waves roll forward. The scene is rendered by the effects composer.

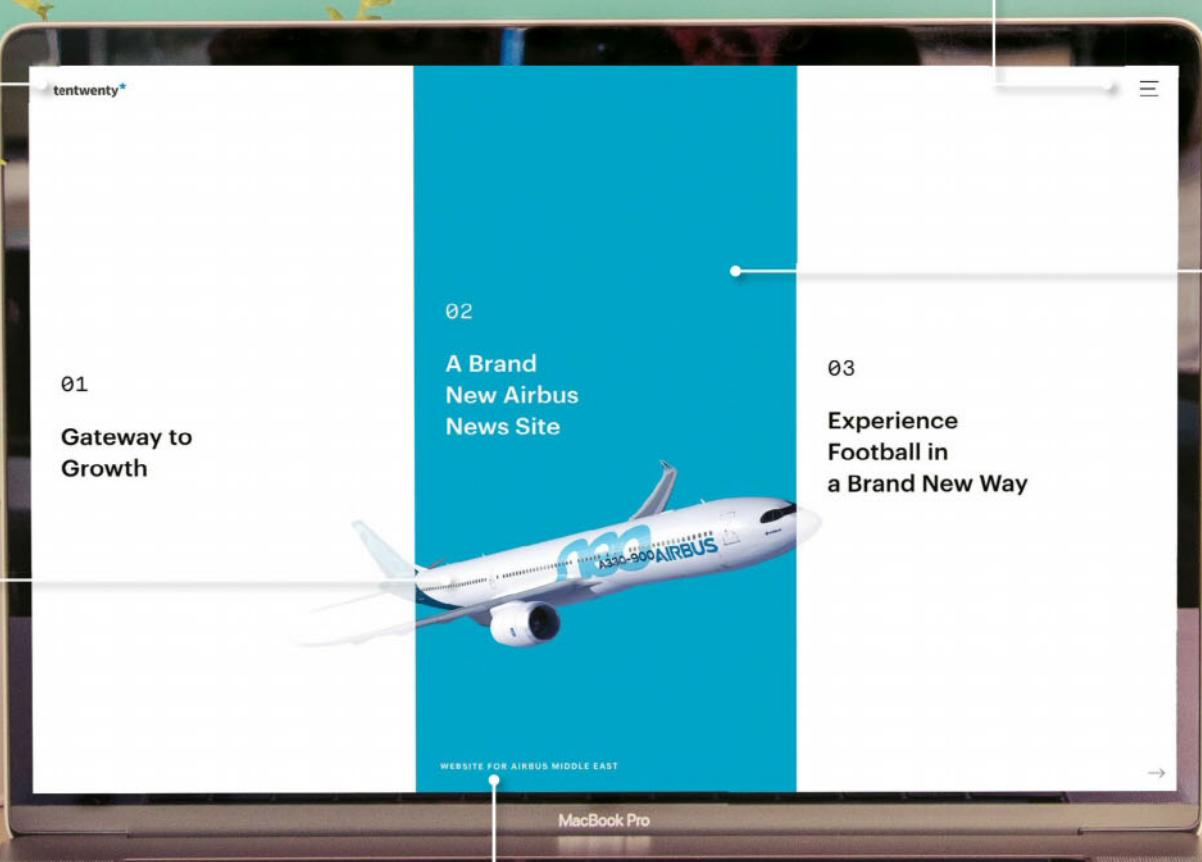
# web workshop

## Create an interactive pop-up navigation

Inspired by [tentwenty.me](http://tentwenty.me)

**The Company logo**  
The website company logo is always visible over the navigation. This is used in design strategy for supporting brand recognition.

**Simple navigation**  
A more traditional navigation option is available by clicking on the hamburger icon to present a simpler, to-the-point menu.



**Navigation image**  
Highlighted navigation options are accompanied by an associated image that describes the theme of the highlighted option's content.

**Option subtitle text**  
Subtitle appears positioned in a location that avoids conflict with the navigation image. Size and colour make it clear to read.

**Hovered navigation**  
The navigable columns change colour when hovered by the user pointer. This could be used to help users to distinguish each option.



## &lt;comment&gt;

What our experts think of the site

## Layout Design: Less is more

While adding visual effects may look appealing, it's important to develop a content layout strategy that supports your content's objectives. Consider how you can avoid overcomplicating your design to a point that distracts your visitors from navigating to the content you want them to read.

**Leon Brown - Freelance web developer and trainer**

# Technique

## 1. Initiate HTML document

The first step is to initiate the HTML document; defining the HTML container, which contains head and body sections. While the head section is used to store non-content elements, such as the reference to load the CSS stylesheet, the body section is used to store visible content created in Step 2.

```
<!DOCTYPE html>
<html>
<head>
<title>Animated Menu Navigation</title>
<link rel="stylesheet" type="text/css" media="screen" href="styles.css"/>
</head>
<body>
*** STEP 2 HERE
</body>
</html>
```

## 2. Navigation HTML

The navigation element is defined with HTML5's nav container to store the individual link items. Each of the links has the visible text wrapped inside a span element. This approach provides the ability for CSS to reference while keeping the HTML clean.

```
<nav>
<a href="#"><span>One</span></a>
<a href="#"><span>Two</span></a>
<a href="#"><span>Three</span></a>
</nav>
```

## 3. Initiate CSS stylesheet

With the HTML now complete, create a new file called 'styles.css'. The first rules in this file set the HTML container and its body to display across the full browser window/screen. A black background is also applied, along with a guarantee for no visible border spacing.

```
body,html {
display: block;
width: 100%;
height: 100%;
background: #000;
padding: 0;
margin: 0;
}
```

## 4. Navigation container

The navigation should be set to cover the full size of its parent element – that is, the previously defined body. A display mode of table is also used so that the widths of its

first level children can be automatically calculated.

```
nav{
display: table;
height: 100%;
width: 100%;
}
```

## 5. Navigation links

Each of the navigation links act as a container for addition child content – a span element in this case. We want automatic calculation of their width, hence a 'table-cell' display mode. They are also set to cover the full height of their parent.

```
nav a{
position: relative;
display: table-cell;
height: 100%;
color: #fff;
font-size: 3em;
overflow: hidden;
}
```

## 6. Image preparation

CSS allows every element to have an associated "before" and "after" element to be created for HTML elements. This step defines the default size and positioning images associated with the links to be out of view. Transition is set to animate changes to bottom and opacity.

```
nav a::before{
position: absolute;
display: block;
content: "";
color: #000;
font-size: 1em;
bottom: -10em;
left: 0;
width: 100%;
height: 75%;
background: no-repeat center center;
background-size: cover;
opacity: 0;
transition: bottom 1s, opacity .5s;
}
nav a:hover > span{
top: 10%;
}
```

## 7. Navigation link hover

Changes to hovered navigation links are defined using the 'hover' selector. Navigation containers have their colours changed, while the previously defined 'before' images have their opacity and vertical positioning set to become fully visible – animated due to the transition defined in Step 6.

```
nav a:hover{
background: #fff;
```

```
color: #000;
}
nav a:hover::before{
opacity: 1;
bottom: 0;
}
```

## 8. Navigation images

Each of the navigation images require an image to be associated with their 'before' element. The 'nth-child' selector is used to apply unique images to each of the navigation link elements to avoid the need for these to be defined in the HTML.

```
nav a:nth-child(1)::before{
background-image: url(image1.jpg);
}
nav a:nth-child(2)::before{
background-image: url(image2.jpg);
}
nav a:nth-child(3)::before{
background-image: url(image3.jpg);
}
```

## 9. Content positioning

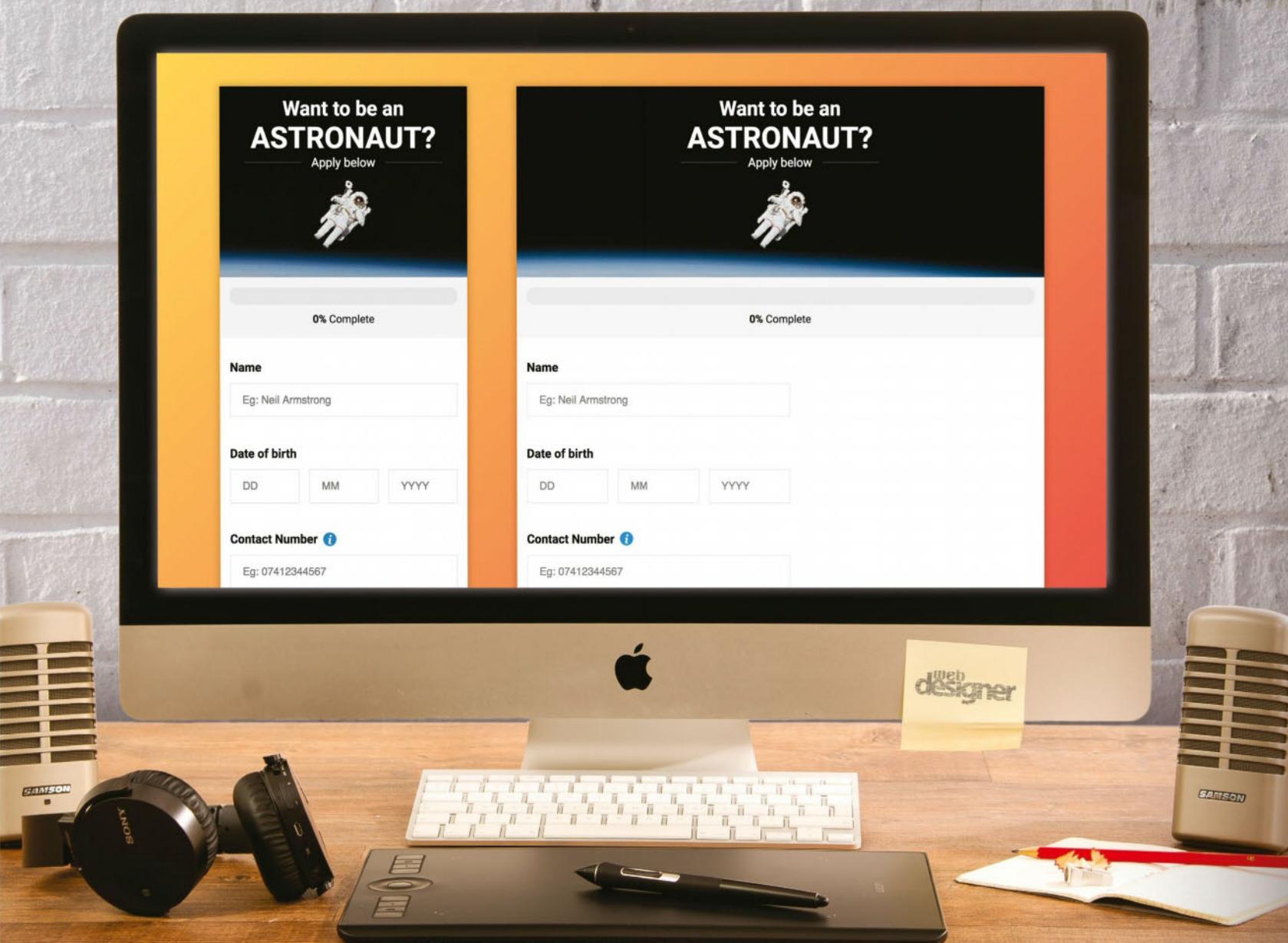
Span elements used to contain visible text are set with absolute positioning in relation to their parent container, which uses relative positioning. A transition is applied to animate positioning changes with a slight delay. The span's position changes when the parent container is hovered over by the user.

```
nav a > span{
position: absolute;
display: block;
top: 50%;
transition: top 1s;
transition-delay: .25s;
}
nav a:hover > span{
top: 10%;
```



# Build a web form with great UX

Discover the techniques and best practices to create a highly-optimised UX which works effectively across device types



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ny kind of web form has an objective in mind for its users, from something as simple as sending a contact email, to completing a complex financial

**application.** When the user achieves this objective, it's typically referred to as a 'conversion' in the analytics world, with the total number of conversions showing stakeholders how well the web form is performing.

As designers and developers, it's our responsibility to help the web form get as many conversions as possible. One way to do this is to make its user experience (UX) effective enough that the user can get from start to finish frustration-free, no matter what device they're using.

In this tutorial, we'll be building a simple web form with a great UX in mind. We'll be optimising the form for multiple screens and input types, refining the inputs on show, as well as presenting the user with helpful information to streamline their data entry.

To get started, download the files from FileSilo and open 'website-template' in your text editor. Then in terminal, CD into 'website-template' and run 'npm install'. Next, run 'npm run watch' to build the project and watch for any changes so that it can be rebuilt. Finally, open a new terminal window and then run 'npm run serve' to start up a dev server at 'localhost:8080', which you should open in a browser.

## 1. Add a basic text input

From the FileSilo package, open 'support-files/step-01.txt' and then copy and paste its content into your website template file 'dev/index.html', replacing the 'Form goes here' text. This enables the web form user to enter their name using a simple text input.

## 2. Input validation overview

Let's add real-time validation to any inputs with invalid values so they are flagged straight away. Replace the HTML added in the previous step with the HTML from 'support-files/step-02.txt'. This adds the 'required' keyword, which triggers native DOM validation, and also

two new data attributes. The first one is called 'data-required-text', and stores the error message to be displayed for a missing value. The second is called 'data-linked-input', which contains the name of the input the error message container should link to.

## 3. Building validation function - part 1

Add the snippet below to 'dev/js/main.js'. This builds the foundations of the validation function. Specifically, we're grabbing all the inputs on the page and then, once the submit button is clicked, looping through and passing each one to the (currently) empty 'validate' function.

```
(function() {
  let inputs = document
    .querySelectorAll("input"), i,
    validate = function(input) {
  }
  document.querySelector("button[type='submit']")
    .addEventListener("click", function() {
      for(i = 0; i < inputs.length; i++) {
        validate(inputs[i]);
      }
      document.querySelector
        ("[aria-invalid='true']").focus();
    });
})();
```

## 4. Building validation function - part 2

Next, add the code (see FileSilo) below underneath the submit button event listener. We're looping through all inputs again and doing two things. First, adding an event listener for the 'invalid' event, which cancels its default behaviour. This stops the browser's default error message boxes from appearing. Second, we're adding an event listener for the 'change' event and then, when detected, passing the input to the validation function. This is how the real-time validation is triggered, as the change event fires when the input receives a value.

## 5. Building validation function - part 3

In the empty validation function, we'll get the error container belonging to the input we've passed to the function using its 'data-linked-input' attribute. If this container element exists, and the native 'checkValidity' function returns false, trigger the appropriate error state on the input using the 'aria-invalid' attribute. Finally, we'll then determine which message to show in the error container element, based on the type of validation error recorded in the input's 'validity' object. If the error were simply a missing value, the last 'else' statement would trigger and use the 'data-required-text' error message.

```
let message = document.querySelector
  ('[data-linked-input='${input.name}']");
if(!input.checkValidity() && message) {
  input.setAttribute("aria-invalid", "true");
  message.classList.add("is-active");
  message.setAttribute("aria-hidden",
  "false");
  if(input.validity.patternMismatch) {
    message.innerText =
    input.dataset.patternMismatchText;
  }
  else if(input.validity.typeMismatch) {
    message.innerText =
    input.dataset.typeMismatchText;
  }
  else {
    message.innerText =
    input.dataset.requiredText; } }
```

## Simplify and merge inputs

Where possible, try to merge related inputs so users have less to complete. An example would be 'Title', 'First Name', and 'Surname'. This can be merged into one field called 'Name' and then programmatically separated after submission.



### Left

Most modern browsers with a web inspector have a device mode where you can easily simulate how your web form appears on mobile and tablet devices. In Google Chrome, this can be activated by clicking the mobile/tablet icon. It's then just a matter of selecting your desired device.

### Top

It's important that a web form is usable on the smallest 320px device (For example: iPhone 5) to the largest desktop environment (Think iMacs, large monitors etc.).

## Tutorials

### Build a web form with great UX

#### 6. Building validation function - part 4

Add the below snippet after the previous step's 'checkValidity()' 'if' statement. This adds logic so when an input passes validation, the input's error state is removed, alongside any error messages.

```
else if(message) {
  input.setAttribute("aria-invalid", "false");
  message.classList.remove("is-active");
  message.innerText = "";
  message.setAttribute("aria-hidden", "true");
}
```

#### 7. Add date of birth inputs

Copy the HTML from 'support-files/step-07.txt' and add it just after the name input. You may notice a 'pattern' attribute in use here. This accepts a regex pattern, which the DOM validation uses to check if our input's value is in the desired format. In this case, checking if only two numbers are entered for 'day' and 'month', and four numbers for 'year'. If a match isn't found, the text within the input's 'data-pattern-mismatch-text' attribute is used as the error message, as per Step 5.

#### 8. Improve date of birth inputs

Let's add some functionality specifically for date-of-birth inputs to 'dev/js/main.js', so when you enter a value in either day or month which matches its expected length, the focus automatically transitions to the next input.

```
(function() {
  var inputs = document.querySelectorAll("#bdy-day, #bdy-month");
  for(var i = 0; i < inputs.length; i++) {
    inputs[i].addEventListener
```

## Using whitespace

Be sure to add some whitespace around inputs to help users distinguish one input from the next. If inputs are too close together, it can be visually overwhelming - similar to reading a big block of text without paragraphs.

```
("input", function(){
  if(this.value.length === 2) {
    this.nextElementSibling.focus();
  }
});
```

#### 9. Add contact number input

Below the date-of-birth inputs, add the HTML from 'support-files/step-09.txt'. This adds a contact number field and an accompanying tooltip, which contains a statement clarifying how this data will be used.

#### 10. Add tooltip functionality

At the moment, clicking the tooltip makes the message show, but as soon as the focus changes to the next element it vanishes. Let's add some JavaScript so when the info icon is clicked, the tooltip shows until the user clicks it again. Add the snippet below to 'dev/js/main.js'.

```
(function() {
  let tooltips = document.querySelectorAll(".c-tooltip"), i;
  for(i = 0; i < tooltips.length; i++) {
    tooltips[i].addEventListener("click", function() {
      this.classList.toggle("is-active");
    });
    tooltips[i].addEventListener("keypress", function(e){
      if(e.which === 13) {
        this.classList.toggle("is-active");
      }
    });
  }
});
```

#### 11. Add a secondary contact number input

Just below the contact number input's error container, add the HTML from 'support-files/step-11.txt'. This adds an optional additional contact number input to the web form, which is only displayed if the user clicks the 'Add a backup number' link.

#### 12. Add email address input

Next, we'll add a new input to capture the user's email address. Add its HTML from 'support-files/step-12.txt' below the two contact numbers. Some types of inputs already have validation rules associated with them by default, so they don't require a pattern attribute. For example, with an email input, the 'type-mismatch' error gets triggered when its value isn't formatted like an email address. Add the attribute below to the input and its value will be used as the error message whenever a type-mismatch error occurs.

```
data-type-mismatch-text="Your email address isn't valid"
```

#### 13. Add radio inputs

Let's introduce some radio inputs to the web form through a multiple choice question. Its HTML can be found in 'support-files/step-13.txt' and should be added below the email address input.

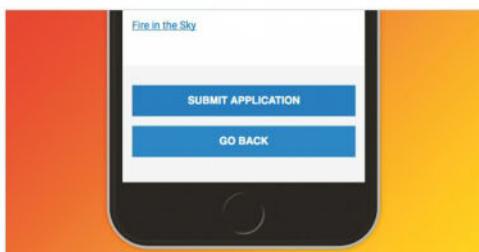
#### 14. Improve form accessibility

Can users who need to browse the Internet with a keyboard successfully use the form? Currently, the answer is no, since they can't select any of the radio buttons. To change this, let's add some JavaScript to 'dev/js/main.js' so when a user presses the Enter key on an in-focus radio button, it selects it.

#### 15. Add optional question field

Let's add another text input, which in the next step we'll use as a vehicle to demonstrate a UX improvement. For now, let's just add its HTML to 'index.html' after the previous radio button inputs. As with the secondary contact number, it's labelled as an optional field since most other inputs are required.

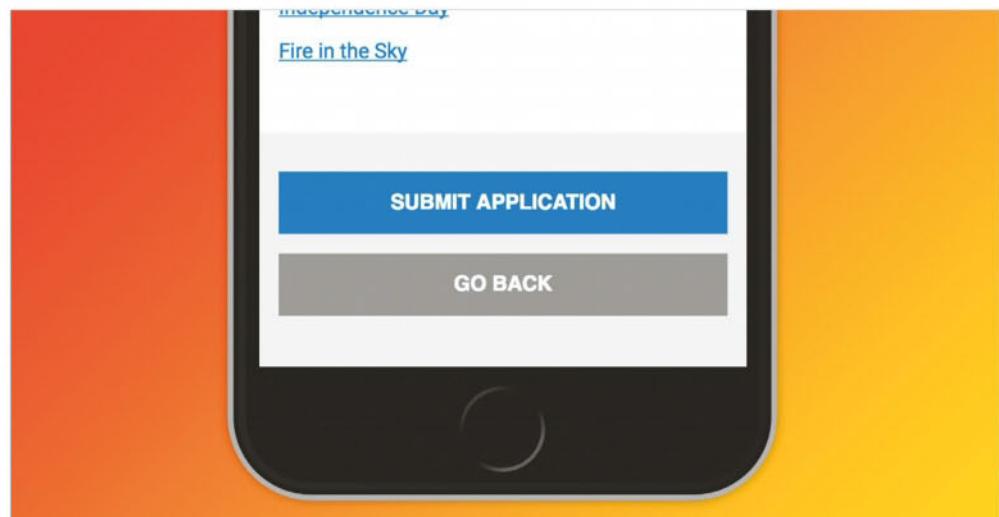
```
<div class="u-margin-bottom-reduced">
  <div class="u-margin-bottom-tiny">
    <label class="c-type-charlie u-bold" for="alien-movie">
      Your favourite alien movie?
    <em>(Optional)</em>
  </label>
```



Above and right

When multiple call-to-action buttons are present on a form, it's important to think about their colours. Here, both 'Submit' and 'Go Back' have the same blue background, and, therefore, the same level of prominence.

In this second screenshot, only the 'Submit' button has the blue background, whilst the 'Go Back' button has a less prominent grey background. This establishes a visual hierarchy in the user's mind, and conveys that 'Submit' is the more important action, which in this context is what we want them to think.



The screenshot shows a web form titled "ASTRONAUT?". At the top, it says "Apply below" and features an illustration of an astronaut in space. Below this is a progress bar labeled "0% Complete". The form contains three main input fields: "Name" (with placeholder "Example: Neil Armstrong" and error message "Please provide your name"), "Date of birth" (with three separate input boxes for DD, MM, and YYYY, and error message "Please provide a day of birth"), and "Contact Number" (with placeholder "Eg: Plan 9 from Outer Space"). A tooltip at the bottom left says "Please provide your name, You are currently on a text field. To enter text in this field, type." The entire form is set against a yellow background.

## Form accessibility

When designing a web form, remember to account for accessibility. For example:

The use of the 'tabindex' attribute to make elements focusable - and clear visual outlines when in focus - enables the web form to be navigated using only the keyboard.

Using 'example' instead of 'eg' in placeholders also makes sense when spoken by screen reader, since this makes it much clearer for non-native speakers.

For questions which involve multiple user inputs - such as date of birth - the 'aria-labelledby' attribute on these inputs enables screen readers to account for this nuance.

For validation errors, the use of the 'aria-describedby' attribute on the input enables screen readers to read out validation errors.

If errors are flagged on submit, the first invalid input is automatically focused. This is useful for users with screen readers to get them where they need to be.

Including visually hidden text in tooltips which adds context for users with screen readers - such as the tooltip's content - and the input it belongs to.

See these improvements for yourself by browsing the form with a screen reader. On macOS, press Cmd+F5. On Windows 10, press Windows+Ctrl+N.

```
</div>
<input type="text" id="alien-movie"
name="alien-movie" class=
"c-input-text u-margin-bottom-small"
placeholder="Eg: Plan 9 from Outer Space">
</div>
```

## 16. Add popular responses HTML

Adding the Step 16 (see FileSilo) snippet underneath Step 15's input element adds a new section called 'Popular Responses'. The thinking behind this functionality is that it provides a helpful list of common responses (In a live app, this would be data driven) to give the user possible answers they could use. Each <i> element represents a new option, so add as many as you want.

## 17. Add popular responses logic

Next, we need to add the logic for the popular responses functionality. This is done by adding a click event listener to all elements with the 'data-popular-response' attribute, and then using the attribute's value to find and then update the correct input element in the DOM. Add the snippet from FileSilo to 'dev/js/main.js'.

## 18. Supporting autocomplete

Many modern browsers are smart enough to analyse a web form's inputs and match any stored autocomplete data. It's not perfect, though, and occasionally makes mistakes. Let's make this process easier for browsers by including autocomplete for some attributes.

## 19. Adding a progress bar

Now we've added all the form's inputs, another way we can improve the general UX is by adding a progress bar, which displays a percentage complete value based on the amount of required inputs with valid values. Between the <header> and <main> elements.

## 20. Progress bar logic

To make the progress bar work, we need to calculate a

percentage complete value for its text content and bar width. This is done by comparing the current number of valid required inputs against the total number of required inputs. In 'dev/js/main.js', add the following snippet to grab references to elements we'll be using.

```
(function() {
  let progressBar = document.
    querySelector(".js-progress-bar"),
  progressBarPercentage = document.
    querySelector(".js-progress-bar-
percentage"),
  inputs = document.
    querySelectorAll("input[required]"),
  totalList = [],
  validList = [];
  for(i = 0; i < inputs.length; i++) {}
})();
```

## 21. Count total required inputs

Next, let's determine the total number of required inputs using the 'inputs' variable from the previous step. Rather than simply counting the length property of the 'inputs' variable, we're creating a new array containing the names of all these inputs. This is to account for groups of radio inputs, which are all part of the same question. Add the below snippet to the empty 'for' loop from the previous step.

```
if(totalList.indexOf(inputs[i].name) === -1){
  totalList.push(inputs[i].name); }
```

## 22. Update progress bar

Next, we'll add a change event listener to each required input, which will trigger a progress bar update once the user enters a new value. As mentioned in Step 20, this requires a percentage complete value, which we can now calculate by populating the 'validList' array with the names of any currently valid inputs, and then comparing its length against the length of the 'totalList' array. Below the 'if' statement from the previous step, add the snippet of code shown.

```
inputs[i].addEventListener
("change", function() {
  if(this.getAttribute
("aria-invalid") === "false" &&
  validList.indexOf(this.name) === -1) {
    validList.push(this.name);
  }
  else if(this.getAttribute
("aria-invalid") === "true" &&
  validList.indexOf(this.name) !== -1) {
    validList.splice
    (validList.indexOf(this.name), 1);
  }
  let percentage = Math.round(validList.
length
/ totalList.length * 100) + "%";
  progressBar.style.width = percentage;
  progressBarPercentage
  .innerText = percentage;
});
```

## 23. Make progress bar stick to viewport

Let's add some finishing touches to the now working progress bar. By adding a 'c-sticky-container' class to the <aside> element, this will add a 'position:sticky' CSS property, which means the element stays at the top of the viewport once the user scrolls past its initial placement. If you then open 'dev/sass/components/\_components.progress-bar.scss' and add the code snippet below to the bottom, the text portion of the progress bar will be hidden on smaller devices in landscape view, freeing up more screen real estate.

```
@include mq($until: md , $and:
'(orientation: landscape)') {
  .c-progress-bar__bar {
    margin-bottom:0;
  }
  .c-progress-bar__label {
    display:none; }}
```



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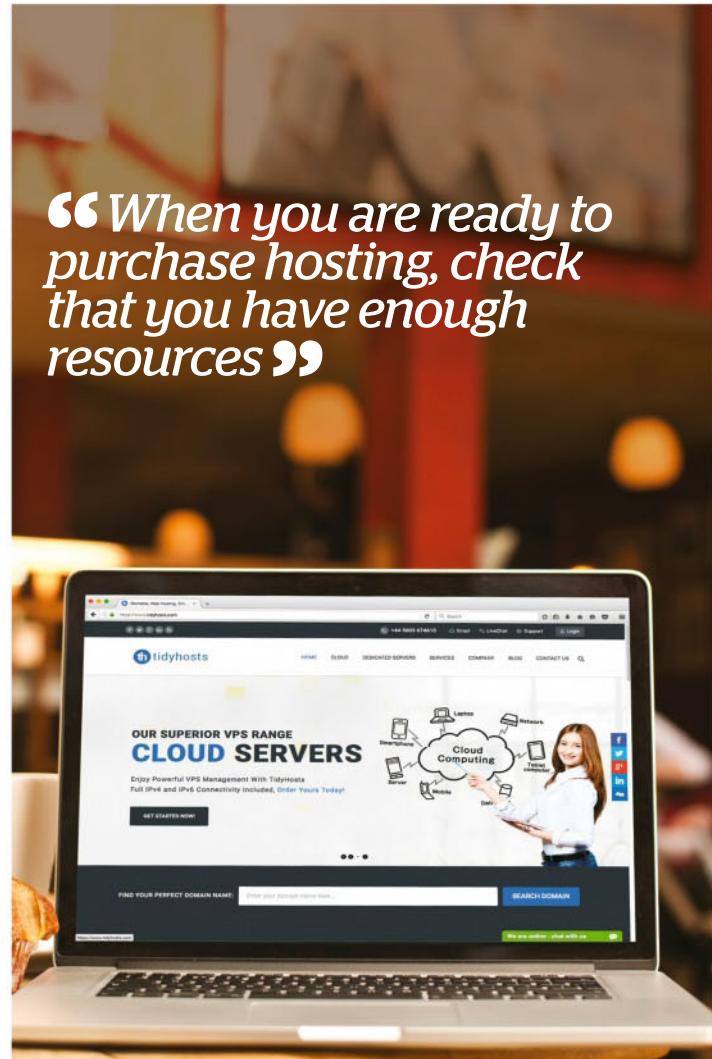
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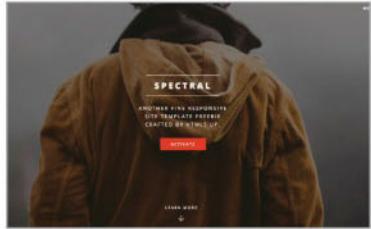
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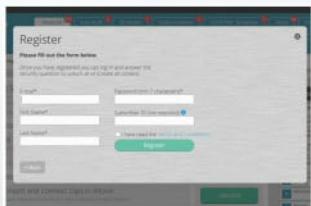


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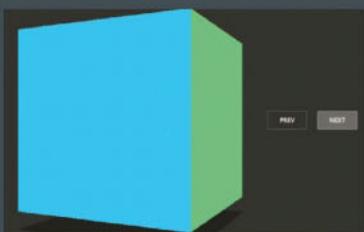
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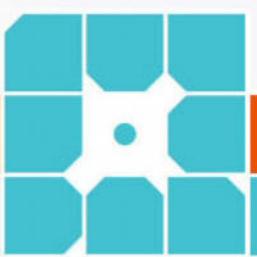
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