

Autolayout:

Making sure you go to space today¹

¹ Image credit: **NASA**

<https://xkcd.com/1133/>

The Saturn V rocket

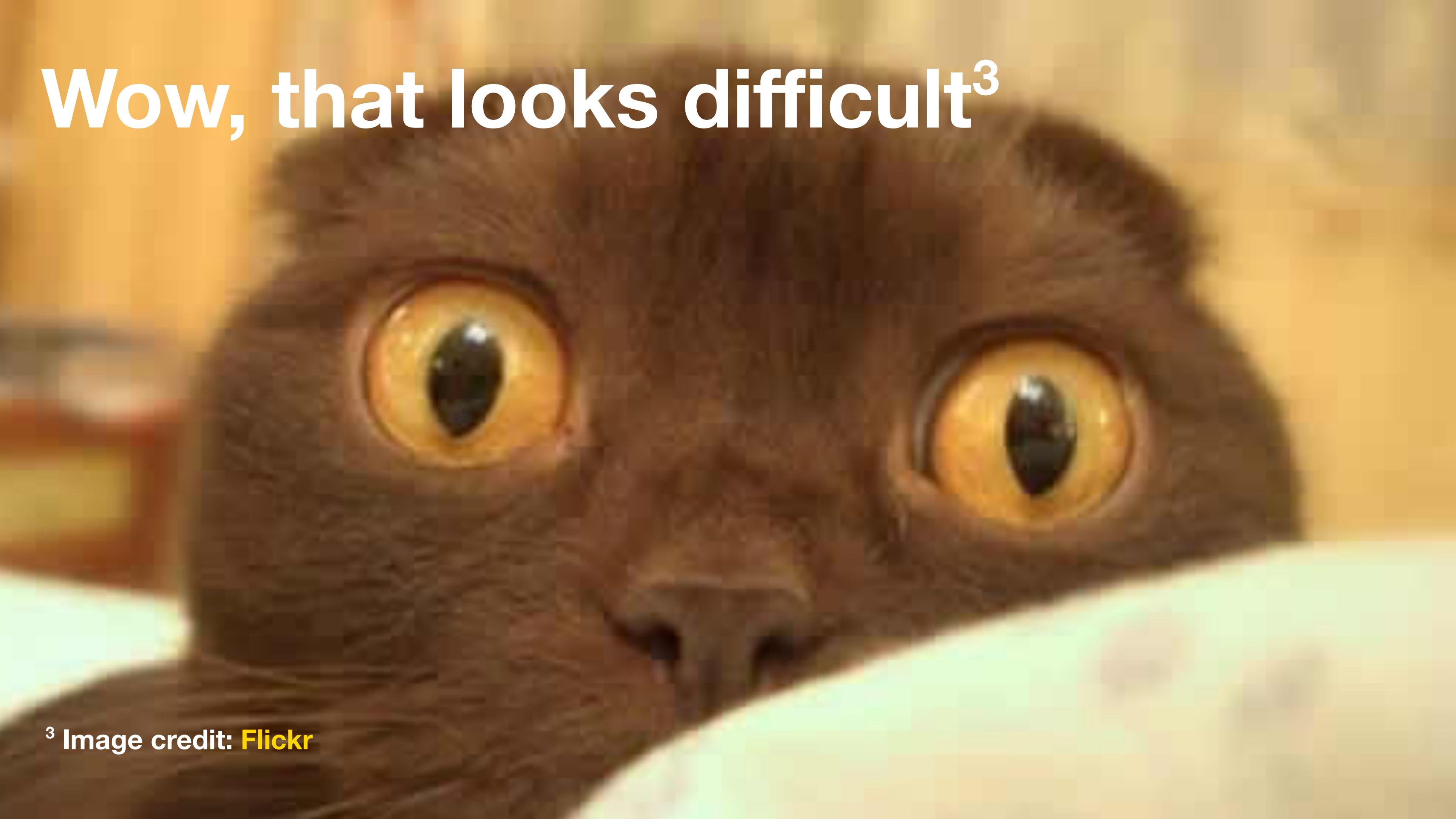
*"explained using only the ten
hundred words people use the
most often"²*

² Reference of 1,000 most commonly used word



THIS END SHOULD POINT TOWARD THE GROUND IF YOU WANT TO GO TO SPACE.

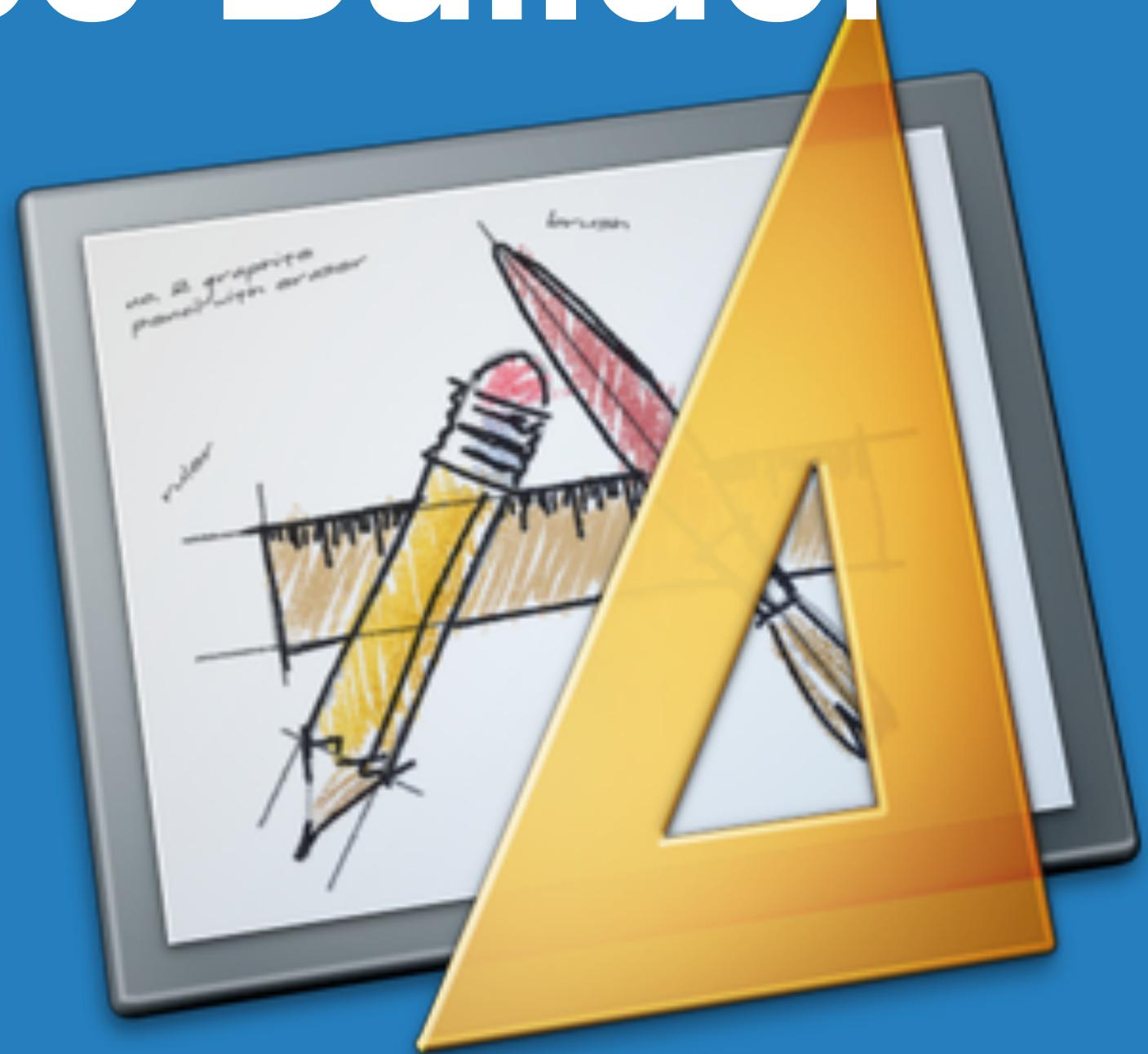
IF IT STARTS POINTING TOWARD SPACE YOU ARE HAVING A BAD PROBLEM AND YOU WILL NOT GO TO SPACE TODAY.

A close-up photograph of a lizard's head, focusing on its large, yellowish-brown eyes. The lizard has a textured, brownish skin. The background is blurred, showing hints of green and yellow.

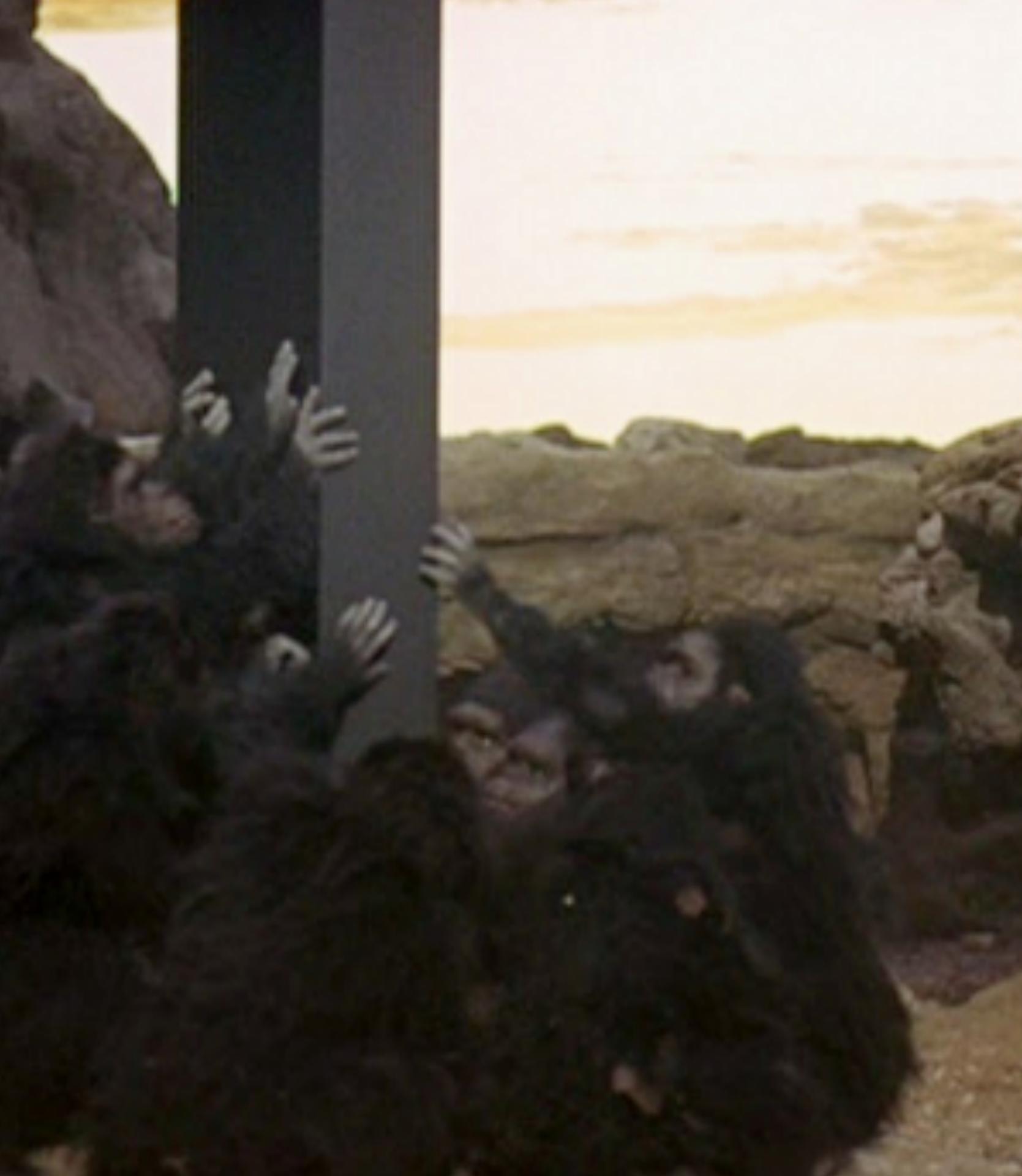
Wow, that looks difficult³

³ Image credit: [Flickr](#)

Interface Builder⁶



⁶ Interface Builder © Apple Inc., Image credit: Wikipedia



"It's how we started when we were all chimps-around-the-monolith of Project Builder for Mac or Xcode for iOS."⁴

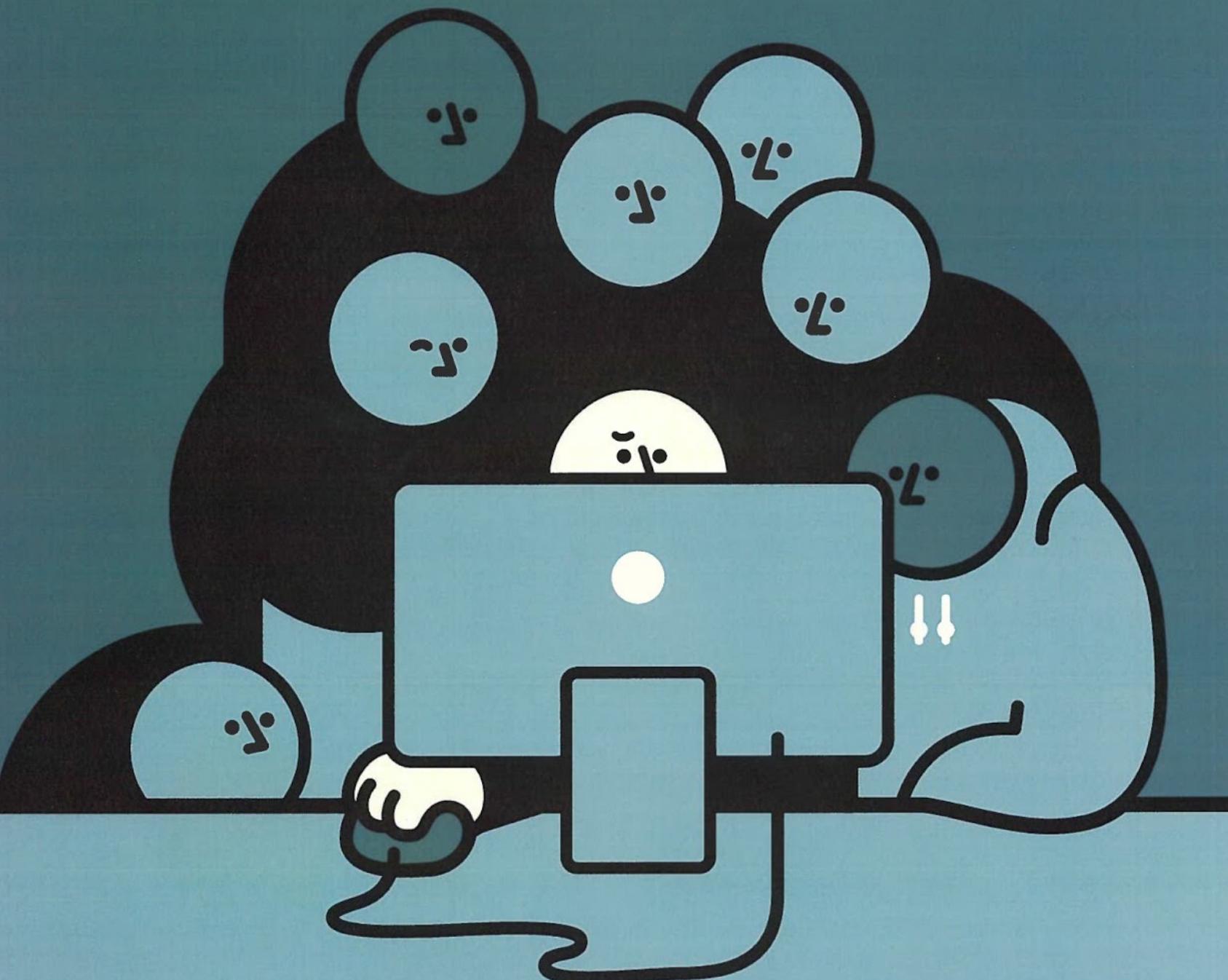
⁴ Image credit: [Blogspot](#)

Space?



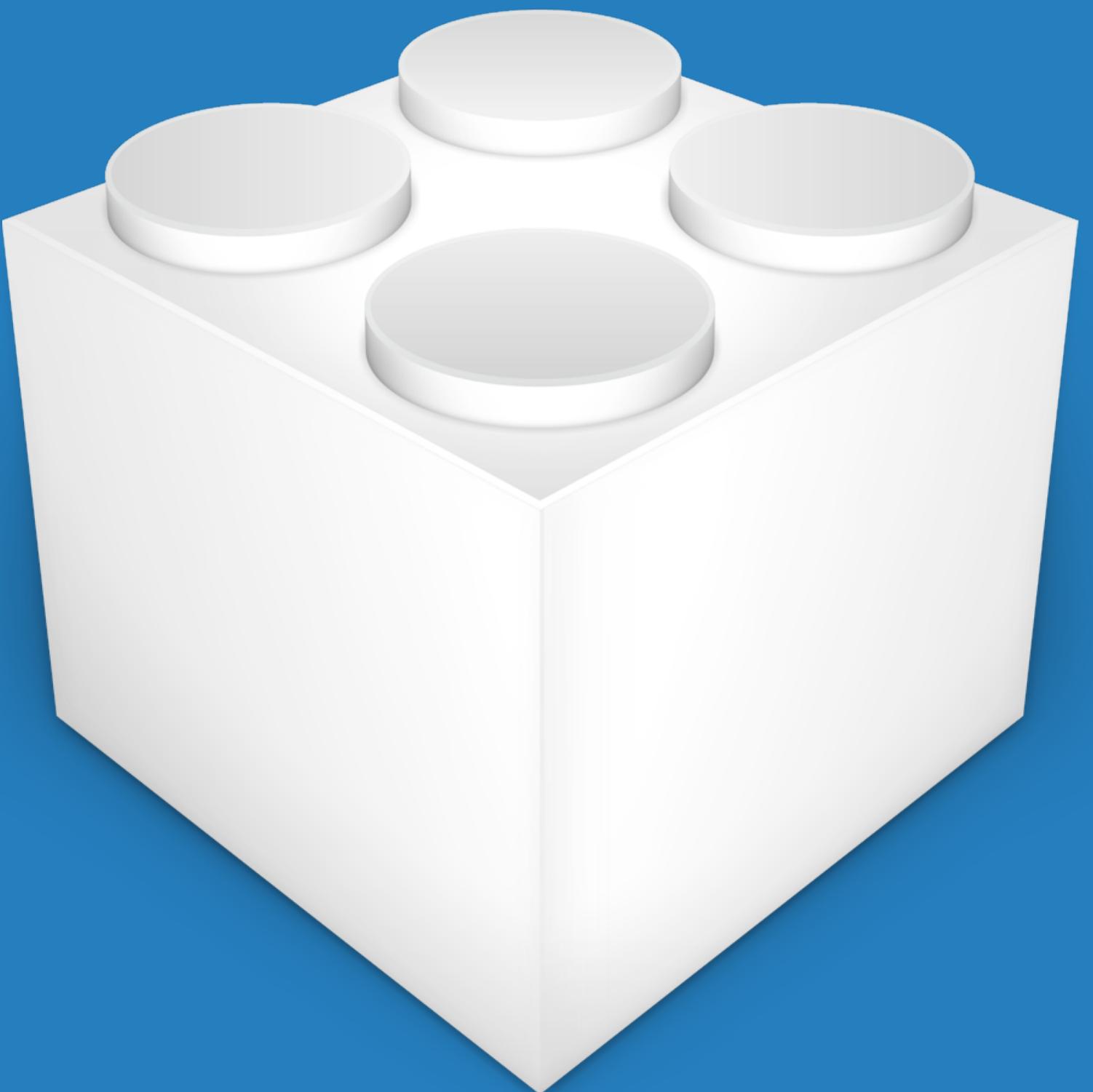
1. The designs change...⁵

Make it blue. Make it red.
Make it a pony.



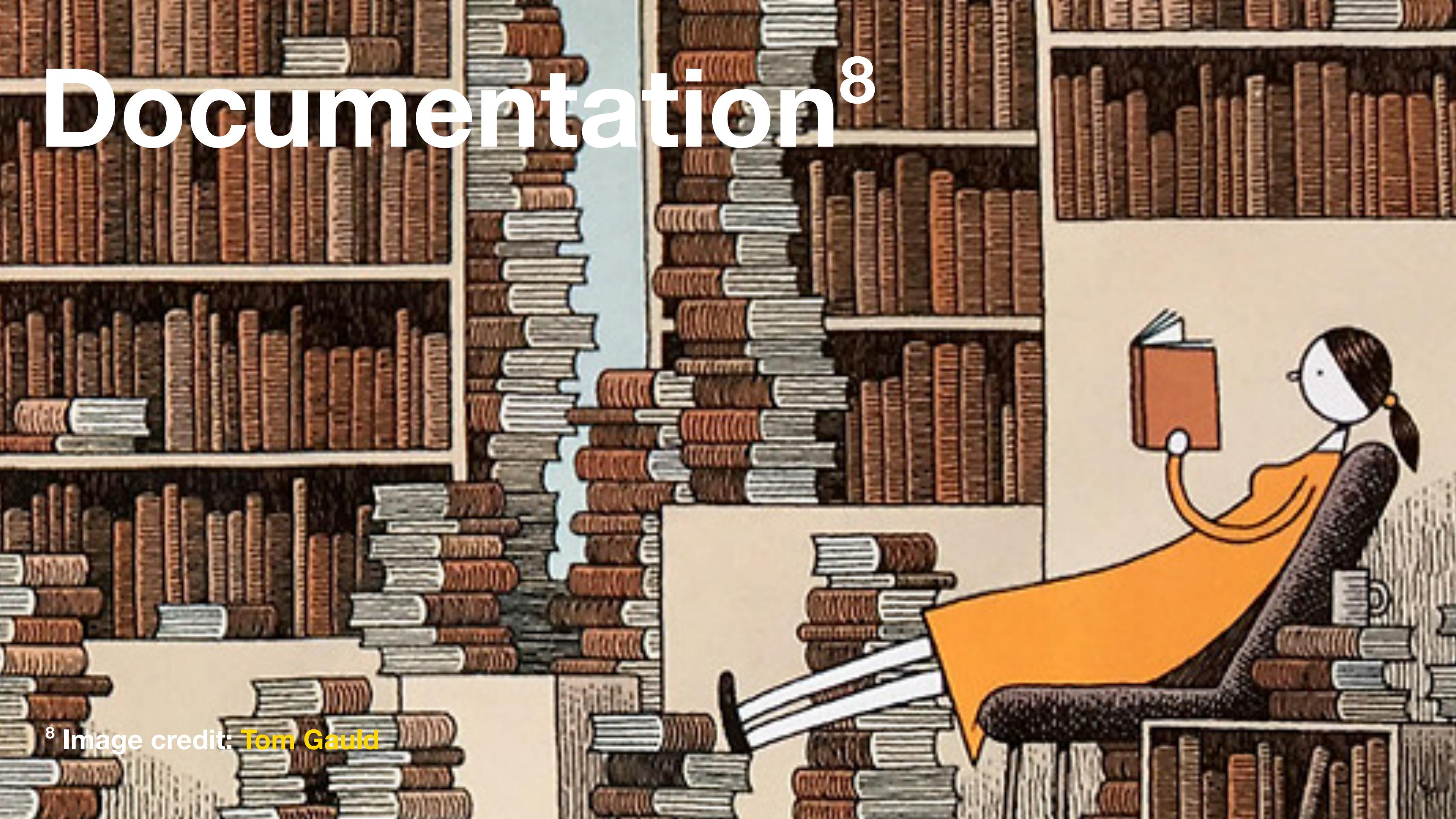
⁵ Image credit: Blogspot

2. It's a static framework⁹



⁹ Interface Builder © Apple Inc.

Documentation⁸



⁸ Image credit: Tom Gauld

Space!



Lessons

Order is important*

- 1. Initialise every view-based object with a frame of CGRectZero.**
- 2. Add every view to it's superview, all the way down the proposed hierarchy.**
- 3. use NSDictionaryOfVariableBindings()**

* (or you may not go to space today)

Out with the old**

```
UIView *myView = [UIView alloc] initWithFrame:CGRectMakeZero];  
[myView setTranslatesAutoresizingMaskIntoConstraints:NO];
```

** (or you will not go to space today)

It's a two-way street***

```
UIView *infoView = [[UIView alloc] initWithFrame:CGRectMakeZero];
[infoView setTranslatesAutoresizingMaskIntoConstraints:NO];
[self.view addSubview:infoView];
NSArray *someConstraints =
[NSLayoutConstraint constraintsWithVisualFormat:@"|-10-[_infoView]-10-|"
                                         options:0
                                         metrics:nil
                                         views:@{@“H:_infoView”:infoView}];

[self.view addConstraints:someConstraints];
```

*** (remember, space should be upwards-only)

It's a two-way street***

```
UIView *infoView = [[UIView alloc] initWithFrame:CGRectZero];
[infoView setTranslatesAutoresizingMaskIntoConstraints:NO];
[self.view addSubview:infoView];
NSMutableArray *someConstraints = [NSLayoutConstraint constraintsWithVisualFormat:@"|-10-[infoView]-10-|"
    metrics:nil
    views:@{@“H:_infoView”:infoView}];

[someconstraints addObjectFromArray:[NSLayoutConstraint constraintsWithVisualFormat:@“V:|-10-[infoView]” options:0
    metrics:nil
    views:@{@“H:_infoView”:infoView}]];

[someConstraints addObject: [NSLayoutConstraint constraintWithItem:self.view attribute:NSLayoutAttributeBottom
    relatedBy:NSLayoutRelationEqual
    toItem:infoView
    attribute:NSLayoutAttributeBottom
    multiplier:1.0
    constant:0.0]];

[self.view addConstraints:someConstraints];
```

*** (remember, space should be upwards-only)

Choose your weapon[†]

A constraint references the relationship of one attribute of one view to one attribute of zero or one other views.

1. Visual Format Language
2. Single relation-based constraints

[†] This presentation does not endorse space-based weapons

Forests and Trees^{††}

1. Start at the top of the view hierarchy
2. Constrain each subview to the view.
3. Repeat for each subview.

^{††} Image credit: University of Chicago

Helter-Skelter

Handling rotation

```
- (void)viewWillTransitionToSize:(CGSize)size
    withTransitionCoordinator:(id<UIViewControllerTransitionCoordinator>)coordinator {
    if (size.width > size.height) {
        [self.view removeConstraints:self.portraitConstraints];
        [self.view addConstraints:self.landscapeConstraints];
    } else {
        [self.view removeConstraints:self.landscapeConstraints];
        [self.view addConstraints:self.portraitConstraints];
    }
}
```

Conclusion

**"What's the best launchpad for
Auto Layout? IB or Code?"**

Conclusion

Take the time to learn to how to do it entirely programmatically. Once you do you'll feel more confident with what's happening with what IB is doing in the background. **And you will go to space today.**



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¹¹ Image Credit: NASA

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