TurfJS 🌎

ME

💥 **Write software** 💥

Trying to learn and improve 👍

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Not this
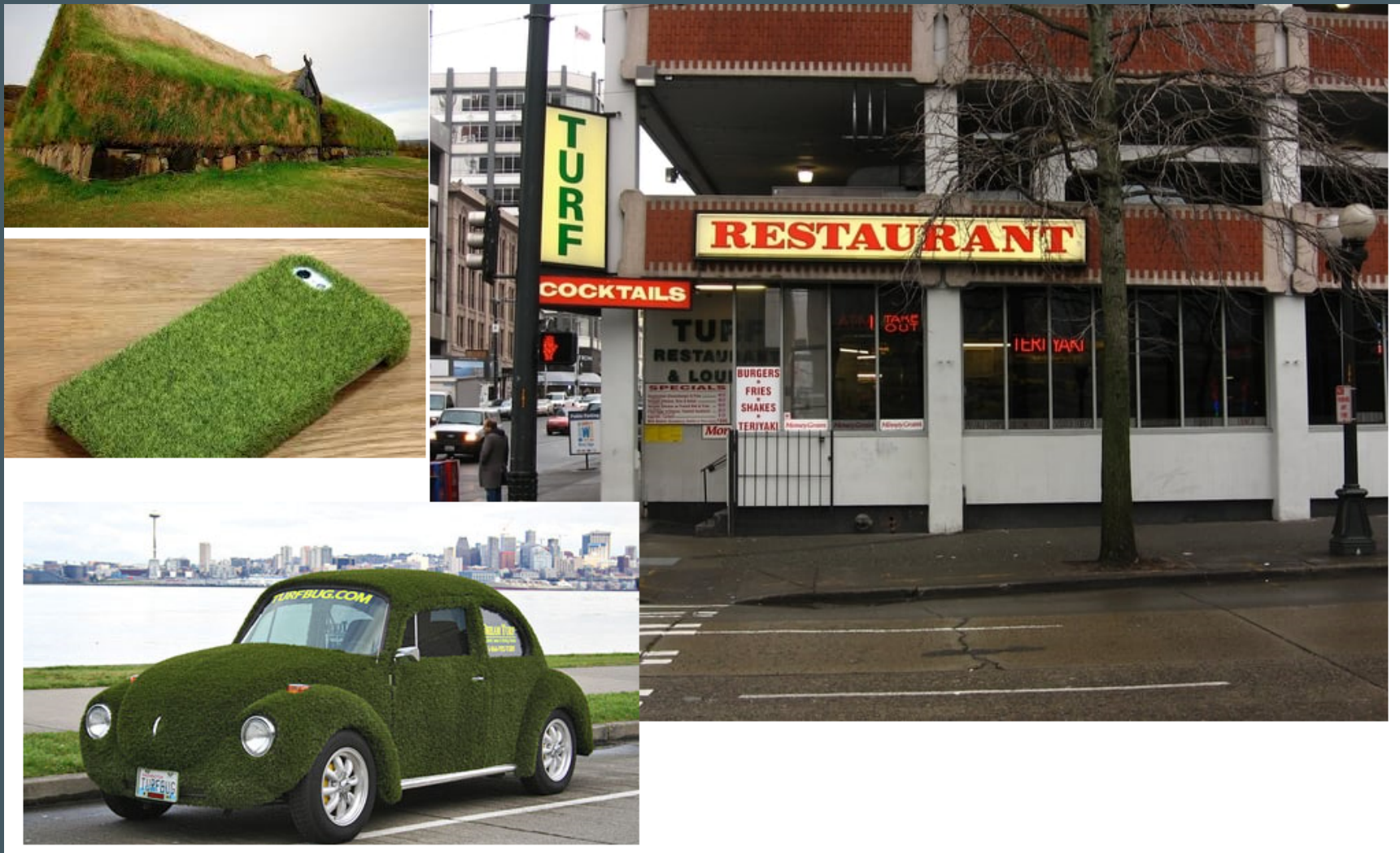
TurfJS - Modular GeoSpatial Engine

What is it?

Version 4.4 Released 2017-06-05, 77+ modules

- Lightweight JavaScript geospatial library

- Created by Morgan Herlocker
  - Denis Carriere - Active lead contributor
  - Actively maintained - 56+ contributors
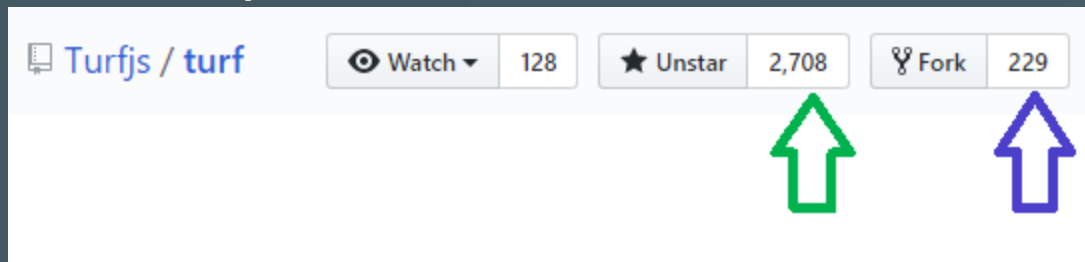
- Open Source - ❤ MIT License ❤

What is it?

- **Complete** engine available as

  - NPM module - `npm install @turf/turf`

  - Live link -
    `https://npmcdn.com/@turf/turf/turf.min.js`

- **Customizable** build options available

- **Majority** of operations work with <u>GeoJSON</u>

TurfJS Goals

- Simple - Operations as independent functions
  - 🌍 -> TurfJS Function -> 🌎
  - Majority of functions work with GeoJSON
- Fast
  - Benchmark code available in each function folder - Example turf-centroid
- Modular
 - Functions are organized as complete units - examples, types, tests, etc

Implementation Notes

- JavaScript - Language of the modern web

  - Isomorphic - Code is the same server/client pick best location based on data

- Respect your data

  - GeoJSON datasets are often large if you need speed use the Node library on the server

- Understand your client and environments

  - Browsers, Web Servers, Connectivity

GeoJSON

Geographic JavaScript Object Notation

- Superset of JSON
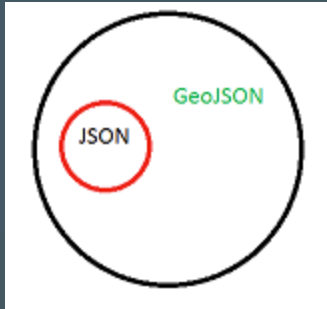
Details, details, details and RFC 7946

Example

[Seattle City Center](#) - Renders from GitHub

```
{
  "type": "Feature",
  "geometry": {
    "type": "Point",
    "coordinates": [-122.3321, 47.6062]
  },
  "properties": {
    "name": "Seattle"
  }
}
```

Build your own tool [geojson.io](#)

GeoJSON

Common types from turf-helpers

```
Point, Polygon, LineString, FeatureCollection,
Feature, MultiLineString, MultiPoint,
MultiPolygon, GeometryCollection
```

Format

```
const result = turf.[theType](
[coordinates],
[properties]);
```

GeoJSON

Point Example

```javascript
const point = turf.point(
[-122.3321, 47.6062],
{ name: 'Seattle' });
```

Creates a point at coordinates [latitude, longitude] with a name attribute of 'Seattle'

Example

GeoJSON - Common types

LineString

```
const line = turf.lineString([
  [-122.3321, 47.6062], [-122.3321, 47.8062]
], { name: 'Seattle Line' });
```

Creates a point at coordinates [latitude, longitude] with a name attribute of 'Seattle Line'

Example

GeoJSON - Common types

Polygon

```javascript
const poly = turf.polygon([
  [
    [-122.38,47.57], [-122.28,47.57],
    [-122.28,47.62], [-122.38,47.62],
    [-122.38,47.57]
  ]
], { name: 'Seattle Box' });
```

Example

GeoJSON - Common types

FeatureCollection

```
const fc = turf.featureCollection([
  turf.point([-122.33136, 47.59909], {name: 'Seattle'}),
  turf.polygon(
  [
   [
    [-122.38,47.57], [-122.28,47.57],
    [-122.28,47.62], [-122.38,47.62],
    [-122.38,47.57]
   ]
  ], { name: 'Seattle Box' })
]);
```

[Example](#)

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GeoJSON

Less common types you might use that are available

- MultiPoint

- MultiLineString

- MultiPolygon

- GeometryCollection

- Feature

Common Functions

- Aggregation

- Measurement

- Transformation

- Data methods

- Interpolation

- Join

- Classification

- Helpers

The List

[Current Packages](#)

Walkthrough

random(type, count, options)

```
const points = turf.random('points', 2,
{ bbox: [-122.3401, 47.5993, -122.3089, 47.6163] });
```

Results

```
{"type":"FeatureCollection",
"features":[{"type":"Feature","geometry":{"type":"Point","
```
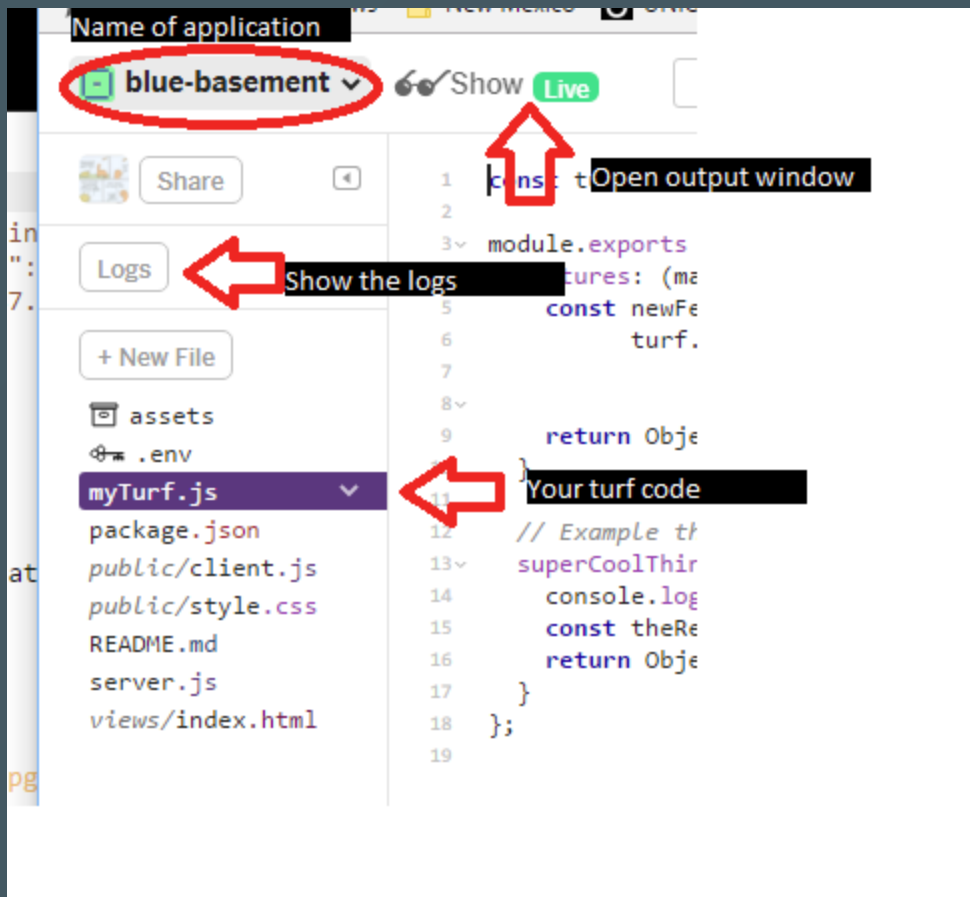
How

Glitch API example with a map and TurfJS

🐥 https://turfjs-random.glitch.me/ 🐥

Remix Time

To make your own copy use the `Remix this in Glitch`
option at the bottom of the page

Or collaborate with me on mine
https://glitch.com/edit/#!/join/fad52299-6d48-
47de-837b-3454041d3824

How

Writing the turfjs code in the file `myTurf.js`

How

Writing the turfjs code in the file `myTurf.js`

What do you want to do?

- Explode 💥 - https://turfjs-explode.glitch.me/

- Buffers 🔳 - https://turfjs-buffer.glitch.me/

- Simplify 🔧 - https://turfjs-simplify.glitch.me/

- Union/Intersect 📐 - https://turfjs-kinks.glitch.me/

- Grids - square, triangle, hex 🤡 - https://turfjs-grids.glitch.me/

- 😼 https://www.mapbox.com/blog/60-years-of-tornadoes-with-turf/

Thanks to [MaptimeSEA](#)

Presentation
[https://github.com/Siliconrob/presentations/tree/master/turfjs](#)

Recommended local data source
[https://data.seattle.gov/](#)