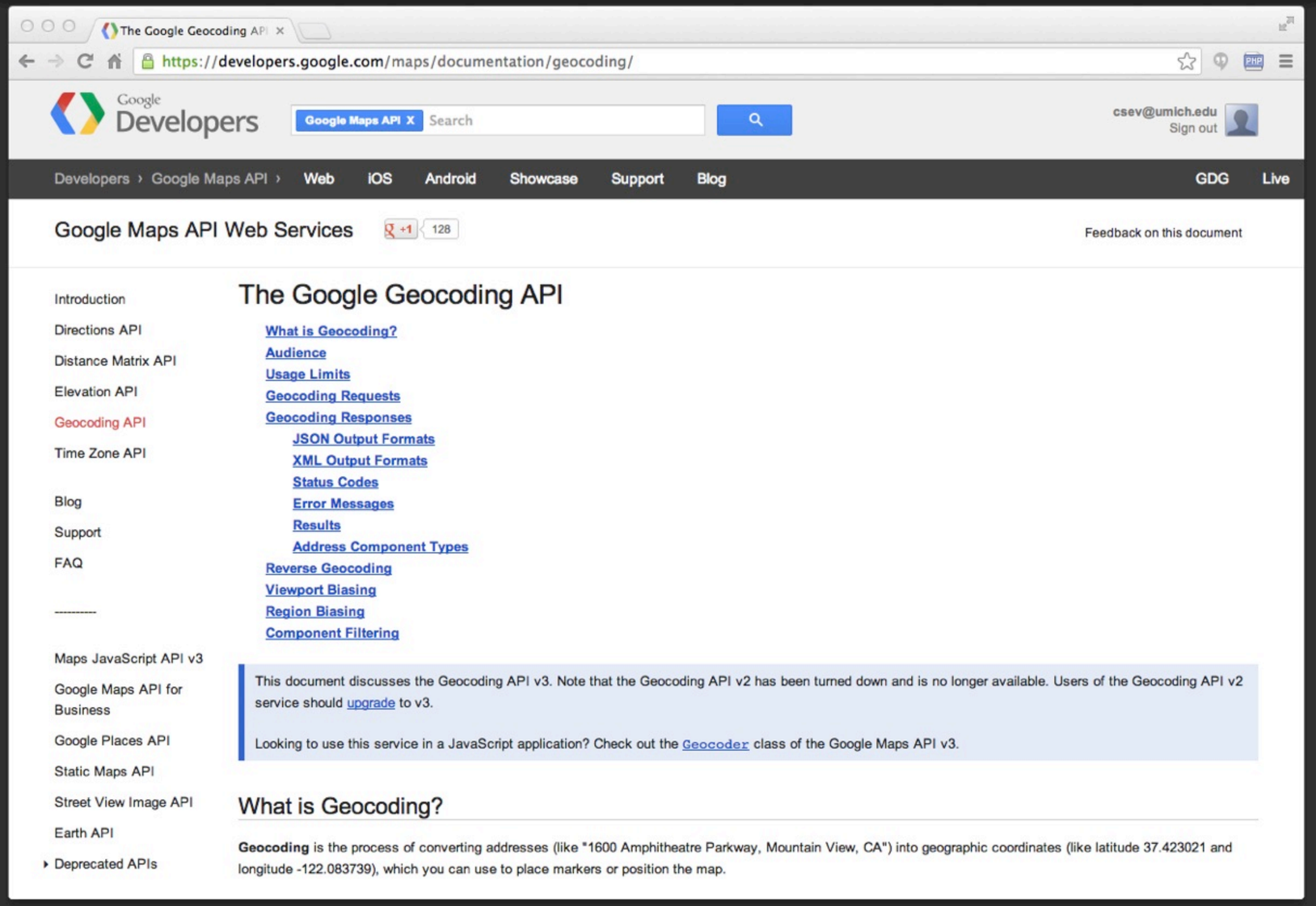
Application Program Interface

The API itself is largely abstract in that it specifies an interface and controls the behavior of the objects specified in that interface. The software that provides the functionality described by an API is said to be an "implementation" of the API. An API is typically defined in terms of the programming language used to build an application.

http://en.wikipedia.org/wiki/API



https://developers.google.com/maps/documentation/geocoding/

```
{
    "status": "OK",
     "results": [
        {
            "geometry": {
                "location_type": "APPROXIMATE",
                 "location": {
                    "lat": 42.2808256,
                     "lng": -83.7430378
                }
            },
            "address_components": [
                {
                    "long_name": "Ann Arbor",
                     "types": [
                        "locality",
                         "political"
                    ],
                    "short_name": "Ann Arbor"
                }
             ],
             "formatted_address": "Ann Arbor, MI, USA",
             "types": [
                "locality",
                "political"
            ]
        }
    ]
}
```


http://maps.googleapis.com/maps/api/geocode/json?address=Ann+Arbor%2C+MI

geojson.py

```
import urllib.request, urllib.parse, urllib.error
import json

serviceurl = 'http://maps.googleapis.com/maps/api/geocode/json?'

while True:
    address = input('Enter location: ')
    if len(address) < 1: break

    url = serviceurl + urllib.parse.urlencode({'address': address})

    print('Retrieving', url)
    uh = urllib.request.urlopen(url)
    data = uh.read().decode()
    print('Retrieved', len(data), 'characters')

    try:
        js = json.loads(data)
    except:
        js = None

    if not js or 'status' not in js or js['status'] != 'OK':
        print('==== Failure To Retrieve ====')
        print(data)
        continue

    lat = js["results"][0]["geometry"]["location"]["lat"]
    lng = js["results"][0]["geometry"]["location"]["lng"]
    print('lat', lat, 'lng', lng)
    location = js['results'][0]['formatted_address']
    print(location)
```

```
Enter location: Ann Arbor, MI
Retrieving http://maps.googleapis.com/...
Retrieved 1669 characters
lat 42.2808256 lng -83.7430378
Ann Arbor, MI, USA
Enter location:
```

geojson.py

API Security and Rate Limiting

Acknowledgements / Contributions

Initial Development: Charles Severance, University of Michigan School of Information

… Insert new Contributors here

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