

Open Source GIS

Can you make a career out of "free"?

UCL, 2016

Jo Cook / @archaeogeek

Follow along at
archaeogeek.github.io/ucl_2016

The Questions

Who is this person standing up here?

Who does she work for?

What do they do?

What technologies do they use?

What do they look for in new
recruits?

Who is this person?

I've been using GIS in my work
since 2001...

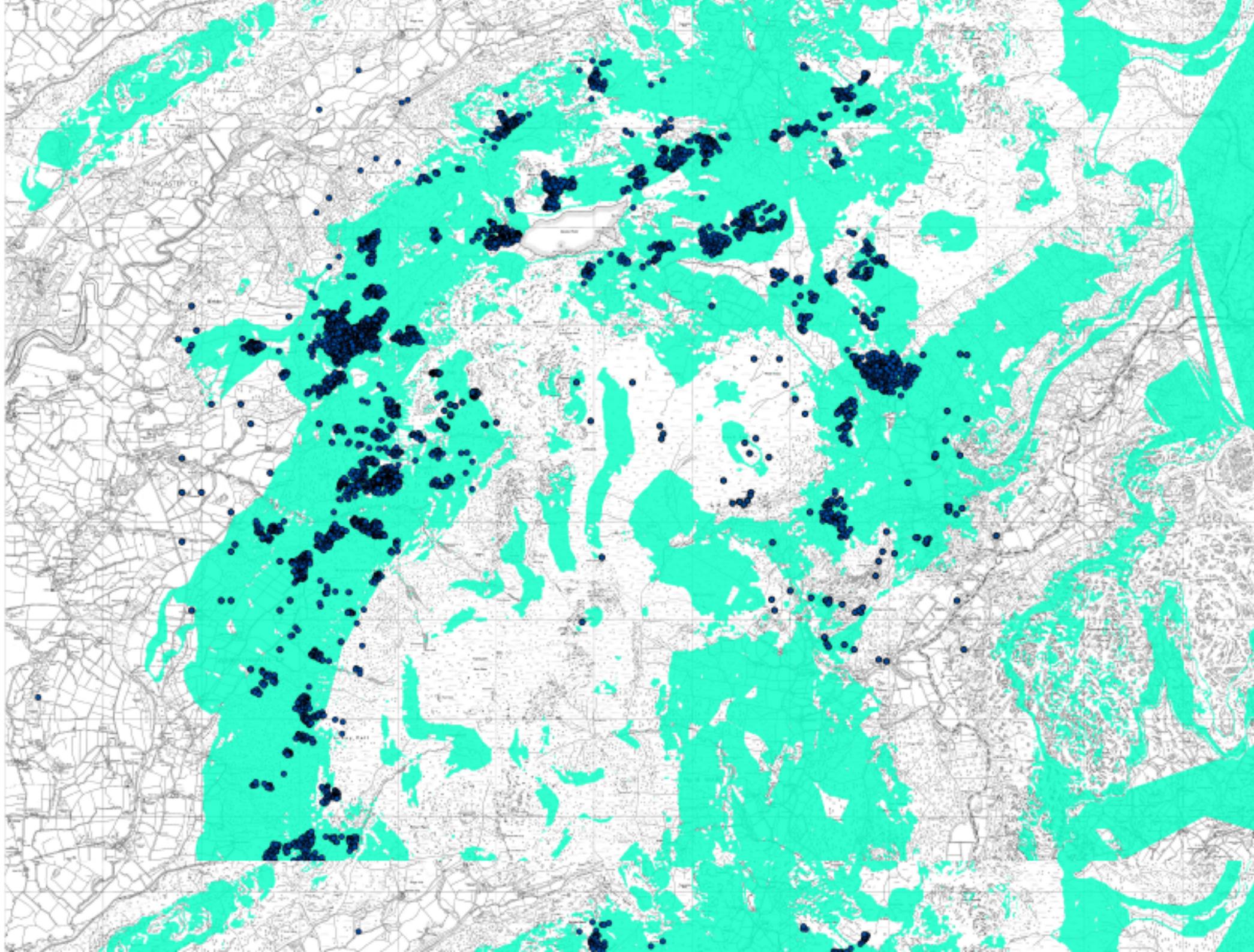
... with no relevant qualifications!

My education is in Maths and
Underwater Archaeology



Archaeologists
have a lot of
uses for GIS

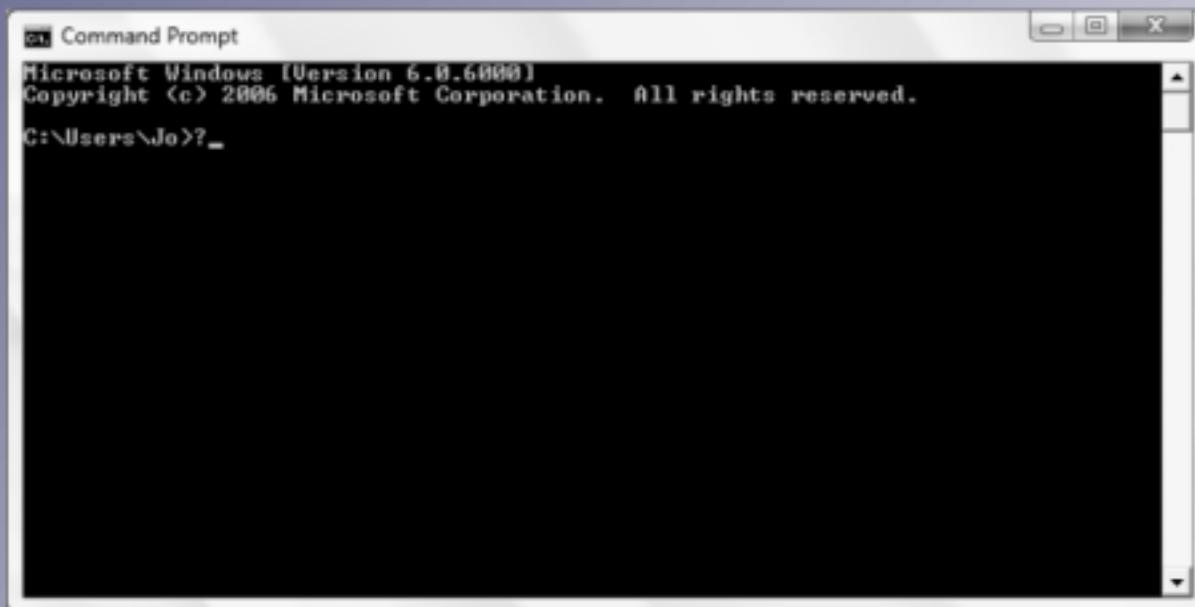




A lack of money for specialist software meant that I had to go to open source software to do my job but at the time, this was hard work!

Introduction

- Beginners need help,
BUT:
- Not everyone has the facility/time to learn programming
or I33t ninja command-line skillz,
- The learning curve is steep,
- Mailing lists are occasionally intimidating...



...but...

ALL PROBLEMS
ARE OPPORTUNITIES
IN DISGUISE

This lead to an involvement with the Open Source Geospatial Foundation (OSGeo)

Portable GIS: GIS on a USB Stick

FOSS4G 2007 Victoria



oxford archaeology: exploring the human journey

Jo Cook
Oxford Archaeology



and I set up a local
branch (OSGeo:UK)
to promote the use of
open source GIS in the
UK

Stanstead

2006



Nottingham
2013



Today

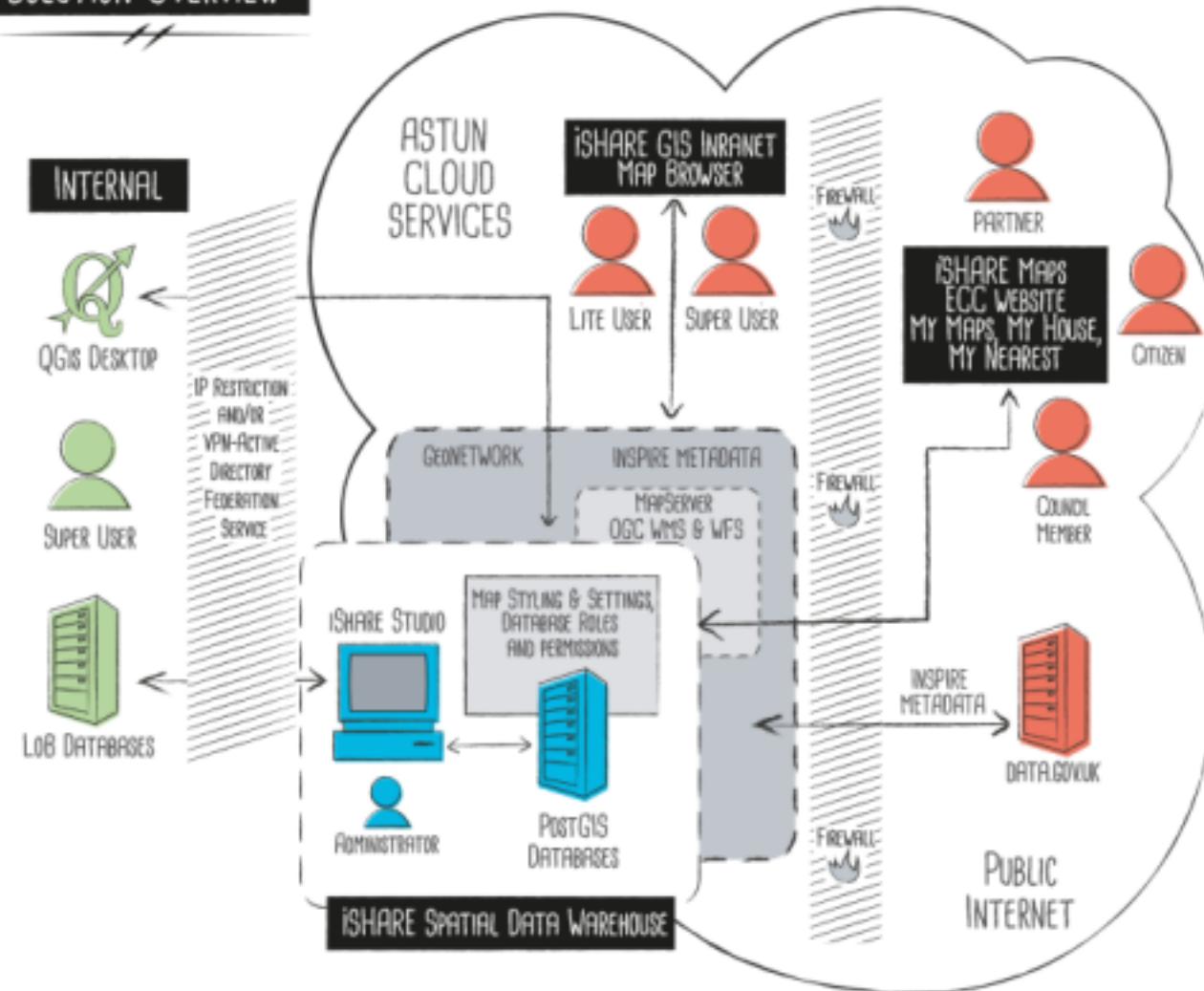
I've been at **Astun Technology**
since March 2011



We have a software suite called iShare that allows people to easily create maps and spatial content on their website



SOLUTION OVERVIEW



Who are our customers?

Councils, Local Authorities, Police
Forces, Government
Organisations, Mapping
Companies...

Example
Site: My
Chichester



Enter a keyword

Search

Council Services Do it online

A to Z Contact us

Home > My Chichester District

My Chichester District

My House

My Ward

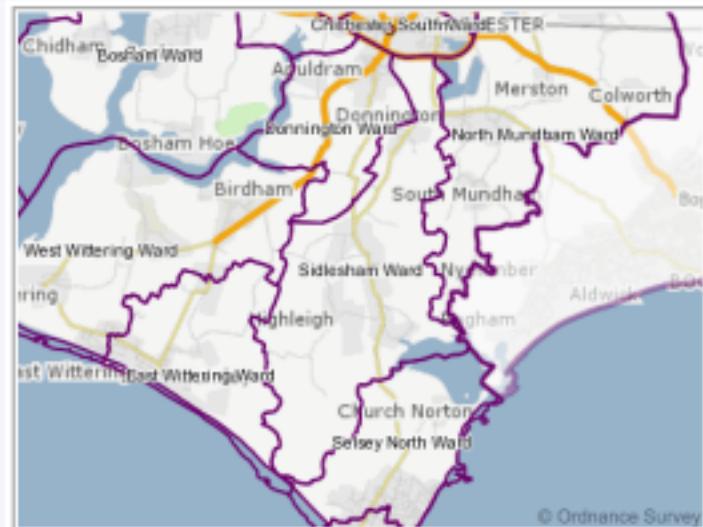
My Maps

My Alerts

Current address 65, Brampton Court, Stockbridge Road, Chichester, West Sussex, PO19 8PD

Find

Email alerts



Sidlesham Ward

Bosham Ward ▾ Go

The population of Sidlesham Ward is 2428
► Show more on ward profiles

10 incidents of crime where reported in March 2015
► Show more crime statistics

There are 14 current planning applications
► View planning applications

There are 6 community halls
► Show community halls

There are 1 schools
► Show schools

There are 3 pubs
► Show pubs

We also
make
bespoke
sites



Y Gronfa Pygofollegd Ewropaid:
Buddsoddi mewn Pygofollegd Cymreig
European Fisheries Fund:
Investing in Sustainable Fisheries



Llywodraeth Cymru
Welsh Government

- Habitats

- Seabed Habitats
- Seabed Habitat Confidence

+ Protected Sites

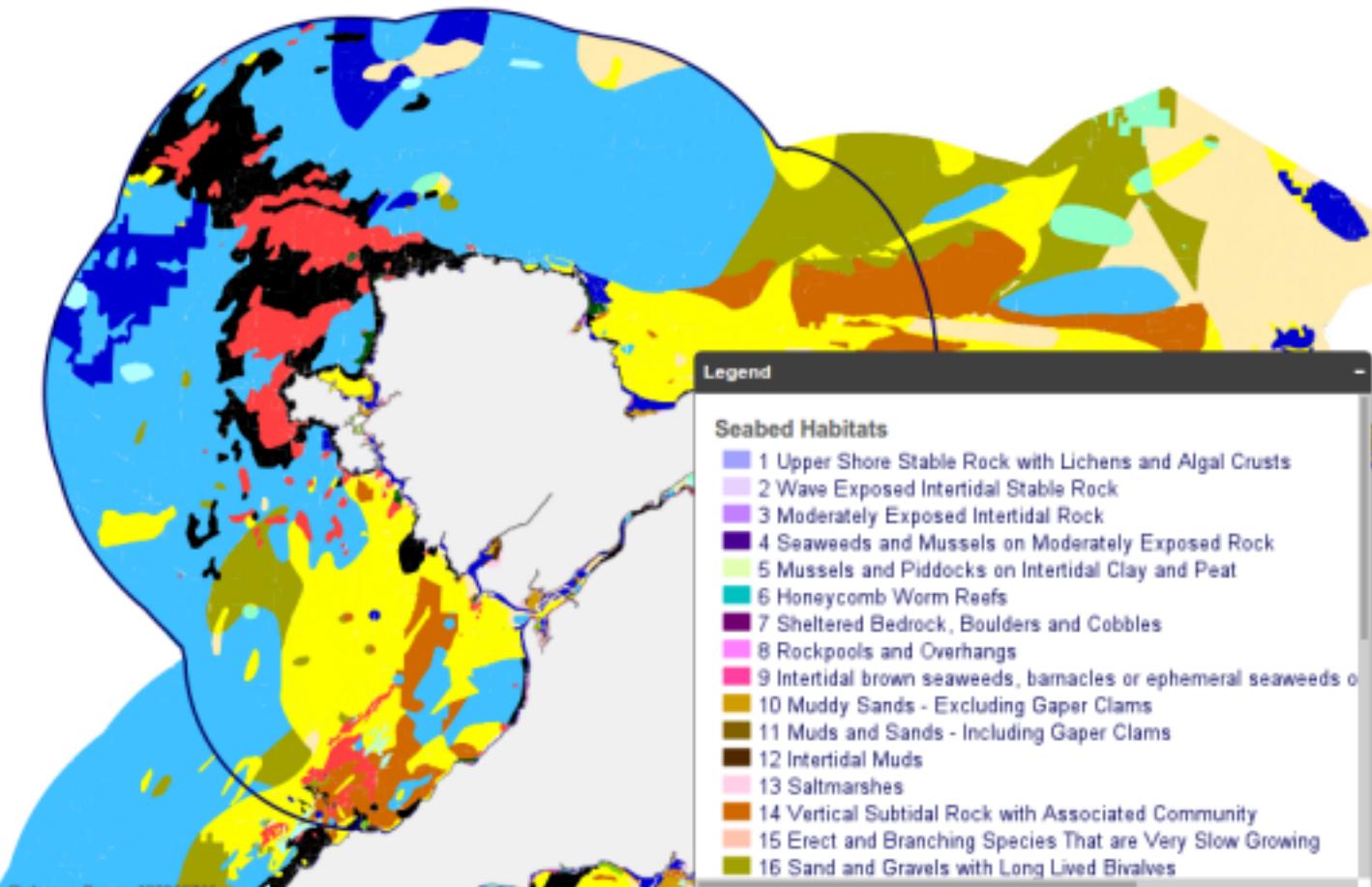
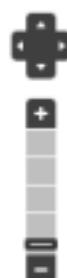
+ Restricted Zones

+ Reference Data

FishMap Môn Results

Select a fishing activity type

+ Fishing Activity Extents



Scale = 1:425K
OSGB: 244475.00, 371575.00
WGS84: -4.33079, 53.21840

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What
software
do we use?

python database wfs cartodb health server
science wcs visualization postgresql
foss4g OGC imagery mapserver
lidar analysis spatial indoor vector java
tiling api csw geoserver osgeo
catalog openlayers csw big
routing maps open data wmts
metoc WMS maps open etl flood
cesium map sdi osm gis source
tools webgl land postgis qgis web
oskari system geotools 3d wps mapping leaflet tiles
satellite mobile application json gdal javascript
model geopaparazzi field areas standards

python database wfs cartodb health server
science wcs visualization postgresql





INSPIRED

Discover - View - Download





Day to day
questions we
get asked

(live list on google docs)

What's
important

... and what's
not

General IT Skills are very useful

Networking and scripting (python, bash etc)

Docker/Vagrant/AWS

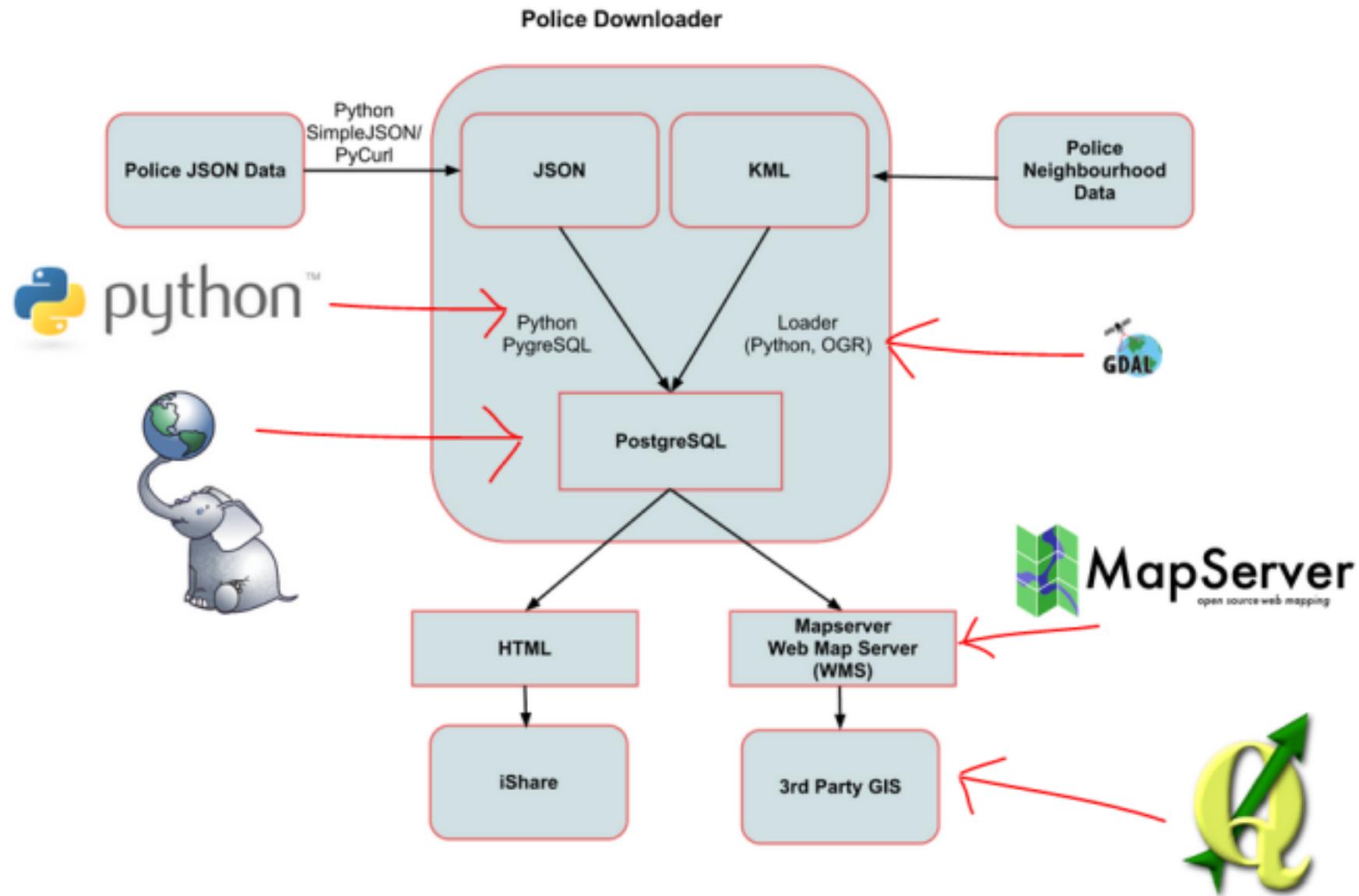
Command-line, trouble-shooting,
Version Control (Git, Mercurial)

GIS skills need to be broad-based

Server-based databases, a good overview of packages and formats

Standards and web-optimised formats like json

Multi-purpose libraries and languages (OGR, Python)



General people skills
are the most
important of all!

Self-learning

Self-motivation

Task/Time Management

What's not so important

In-depth knowledge of a
particular software package
Qualifications (sorry)

4 software
packages
to focus on

PostgreSQL

Increasingly used as a cost-effective replacement
for proprietary databases

The basics of server-based, spatially enabled
databases are roughly applicable to PostgreSQL,
SQL Server and Oracle



PostgreSQL

QGIS

A full replacement for proprietary desktop GIS

Fully cross-platform, with loads of support



Restoring loaded plugins

Python

Both open source and proprietary GIS use python

It has modules for working with rasters, vectors, databases and many more

You WILL be able to write working code within minutes of starting to use it!



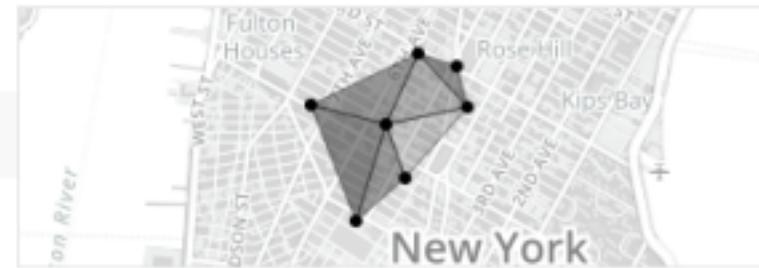
Scripting: JavaScript

It's now possible to do sophisticated visualisation of GIS data directly in the browser

Check out [three.js](#), [Turfjs](#), and [D3.js](#)



```
→ turf.tin(points);
```



GitHub

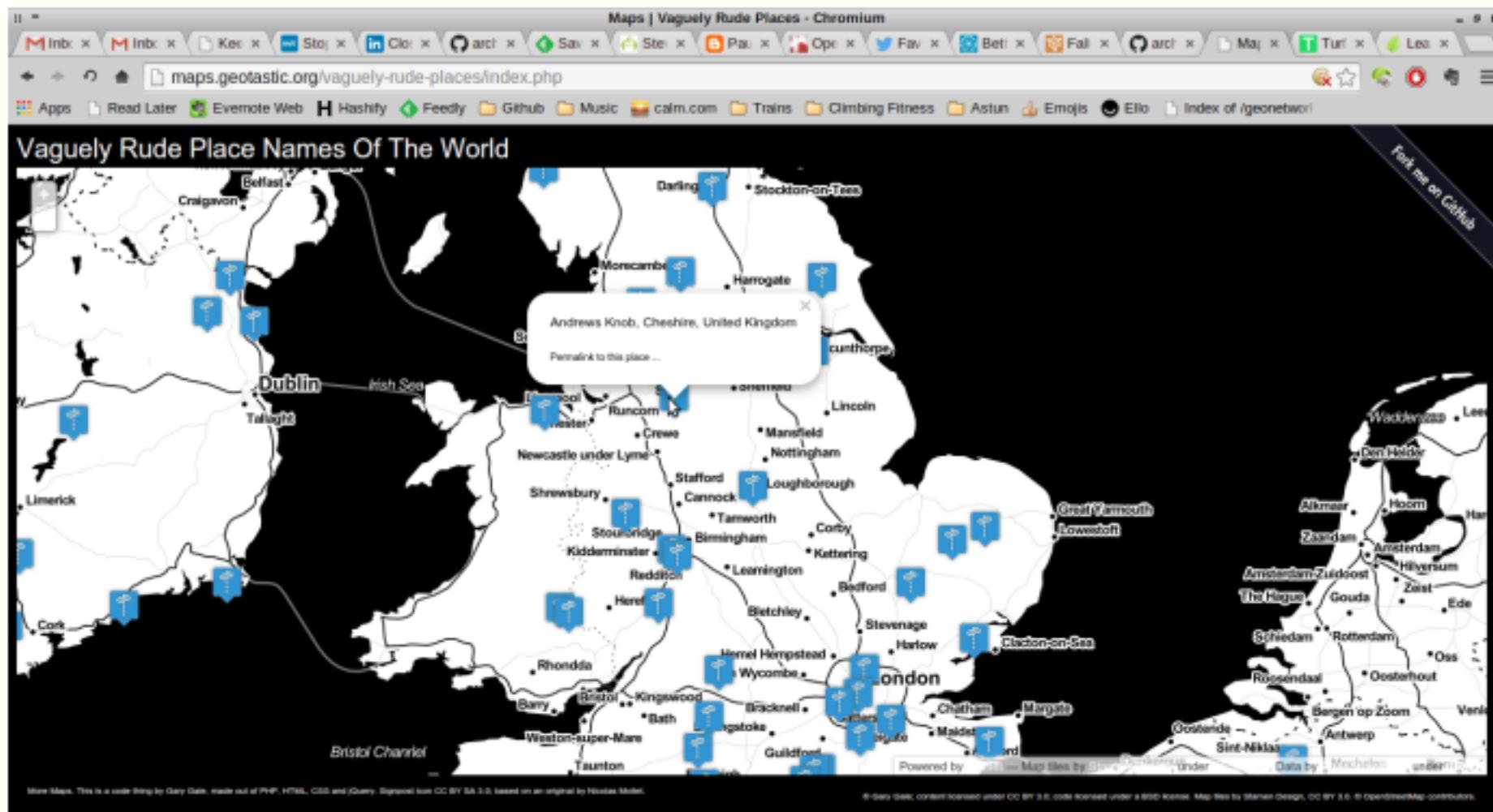
The easiest way to learn about repositories
and version control

It's not just for code— share
documentation/presentations/data/your
CV

Both **proprietary** and **open source** GIS
companies have an increasing presence

My first GitHub commit

This branch is 54 commits behind vicchi:master		Pull Request	Compare
Added the delightful hill of Andrews Knob in Cheshire			
 Jo	authored on Feb 6, 2013	latest commit	1eb8a98b51 
 images	First commit		2 years ago
 rude	Added the delightful hill of Andrews Knob in Cheshire		2 years ago
 .gitignore	First commit		2 years ago
 jquery	First commit		2 years ago
 jquery-backstretch	First commit		2 years ago



Things to take away

Learning cross-platform tools will get you a step up, whatever area you go into

Scripting and SQL will provide a flexible and powerful alternative to desktop-GIS workflows



**SUPERIOR
INDUSTRIES
EMPLOYMENT
OPPORTUNITIES**

Questions?

Thanks!

Find me at about.me/jocook

Find this talk at

archaeogeek.github.io/ucl_2016

Find Astun at

astuntechnology.com

PS: Astun are
recruiting SysOps
Roles

More info