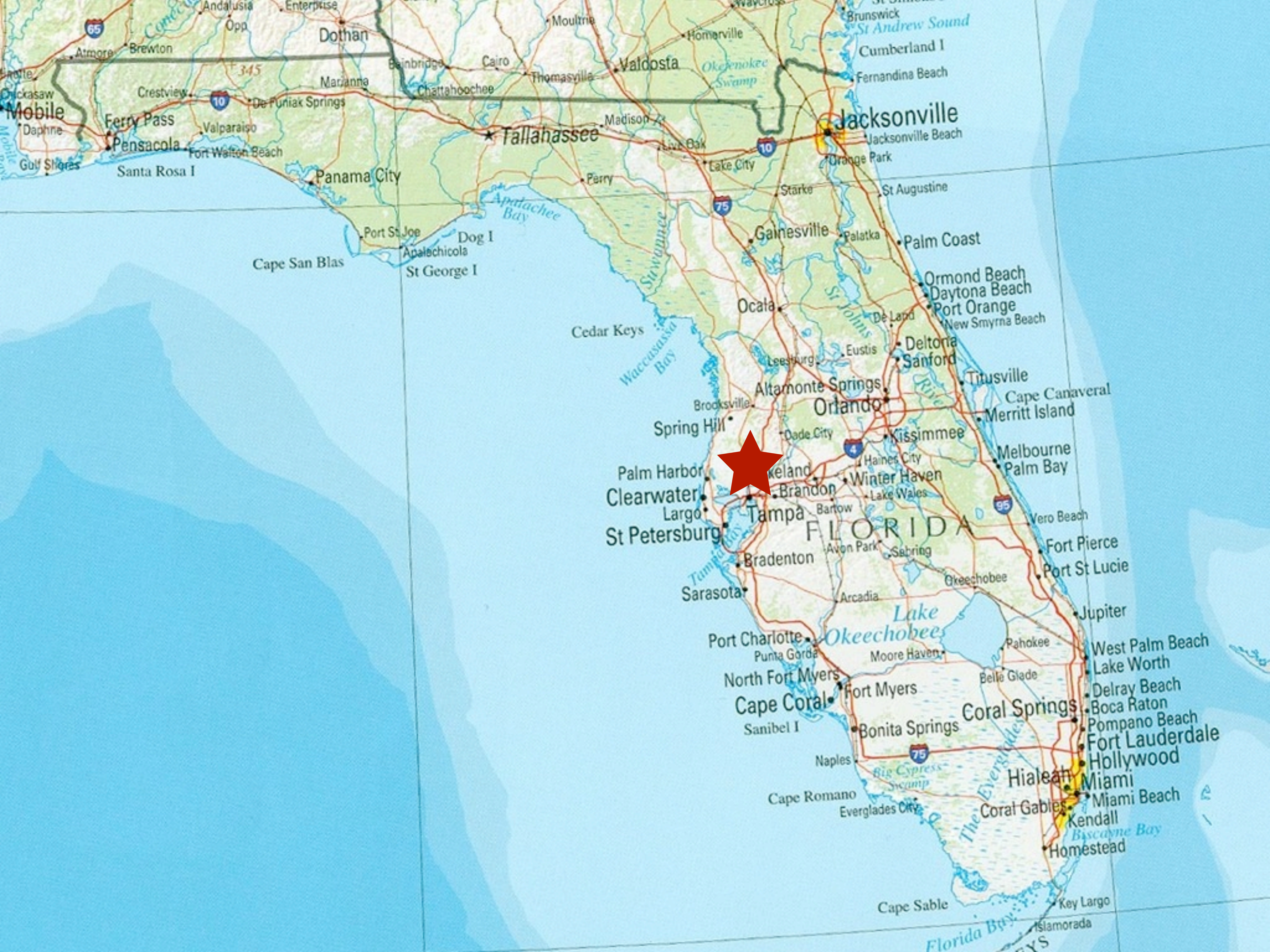
Javascript Underwater

Peter Christensen
http://pchristensen.com
@christensenp

This talk is not about *code*

This talk is about
code as a
means to an end

I grew up in
Florida


Andalusia
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Thomasville
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Jacksonville
Pensacola
Tallahassee
Live Oak
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Jacksonville Beach
Gulf Shores
Fort Walton Beach
Lake City
Orange Park
Santa Rosa I
Panama City
Perry
Starke
St Augustine
Apalachee Bay
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Port St Joe
Dog I
Gainesville
Palatka
Palm Coast
Apalachicola
Cape San Blas
St George I
Suwannee
Ormond Beach
Daytona Beach
Ocala
St Johns
Port Orange
De Land
New Smyrna Beach
Cedar Keys
Waccasassa Bay
Eustis
Deltona
Leesburg
Sanford
Titusville
Altamonte Springs
River
Cape Canaveral
Brooksville
Orlando
Merritt Island
Spring Hill
Dade City
Kissimmee
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Melbourne
Haines City
Palm Bay
Palm Harbor
Lakeland
Winter Haven
Clearwater
Brandon
Lake Wales
95
Largo
Tampa
Bartow
Vero Beach
St Petersburg
FLORIDA
Tampa Bay
Fort Pierce
Avon Park
Sebring
Bradenton
Port St Lucie
Okeechobee
Sarasota
Arcadia
Jupiter
Lake Okeechobee
Port Charlotte
Pahokee
West Palm Beach
Punta Gorda
Moore Haven
Lake Worth
North Fort Myers
Belle Glade
Fort Myers
Delray Beach
Cape Coral
Boca Raton
Coral Springs
Sanibel I
Bonita Springs
Pompano Beach
Fort Lauderdale
75
Hollywood
Naples
Big Cypress Swamp
Hialeah
Miami
The Everglades
Cape Romano
Miami Beach
Everglades City
Coral Gables
Kendall
Biscayne Bay
Homestead
Cape Sable
Key Largo
Florida Bay
Islamorada
KEYS

It has a lot of…

FACILITIES
EXPO
JUNE 7-8, 2006
SWIFT
Ralphs

(Pro tip: never search for the terms
“hot”, “sweaty”, etc
when you’re in public)

It also has a lot of…

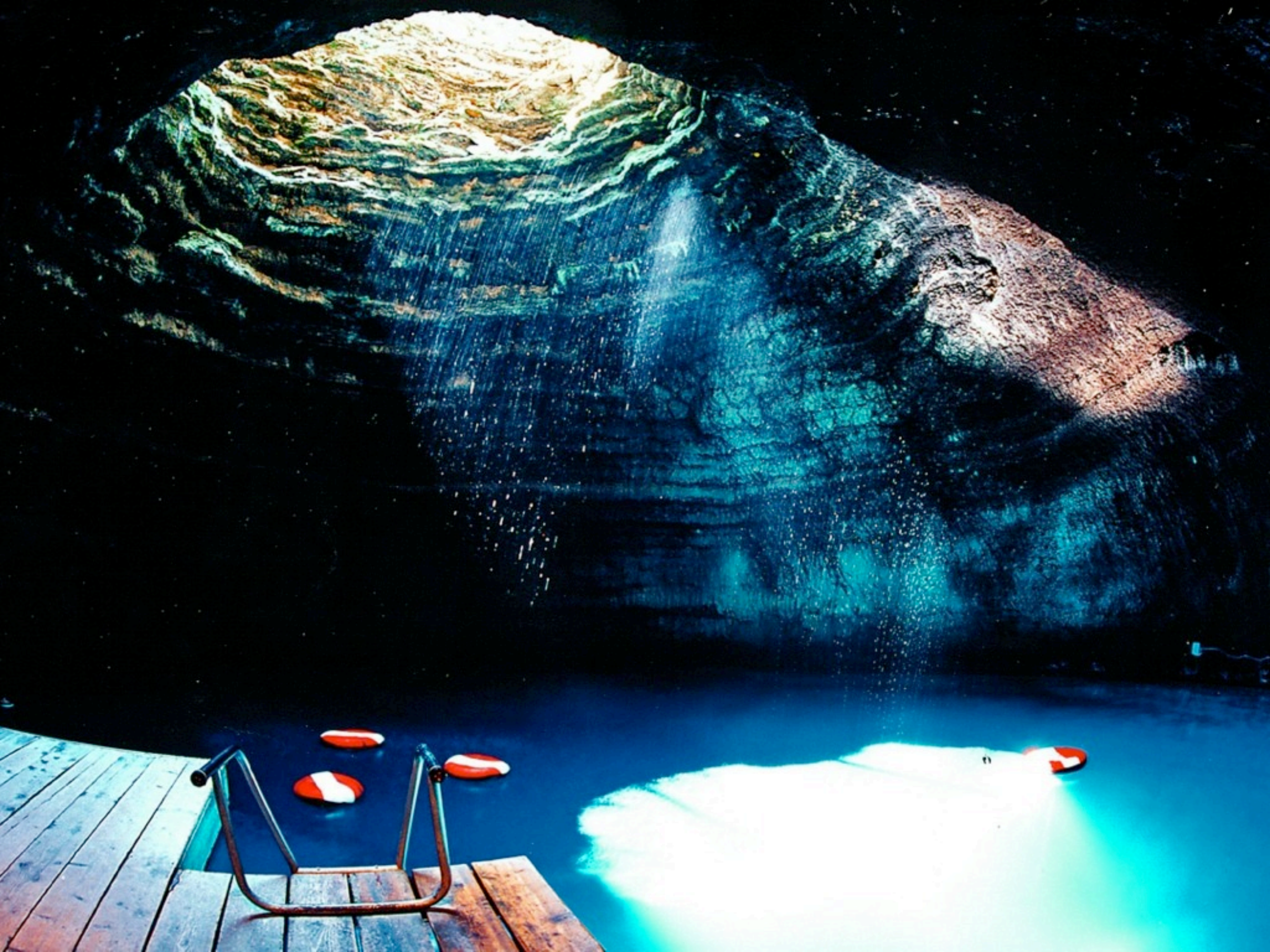
© Kennan Ward Photography

1
2

I grew up loving the water

zeewar

Scuba became my favorite activity evar (sorry, programming)

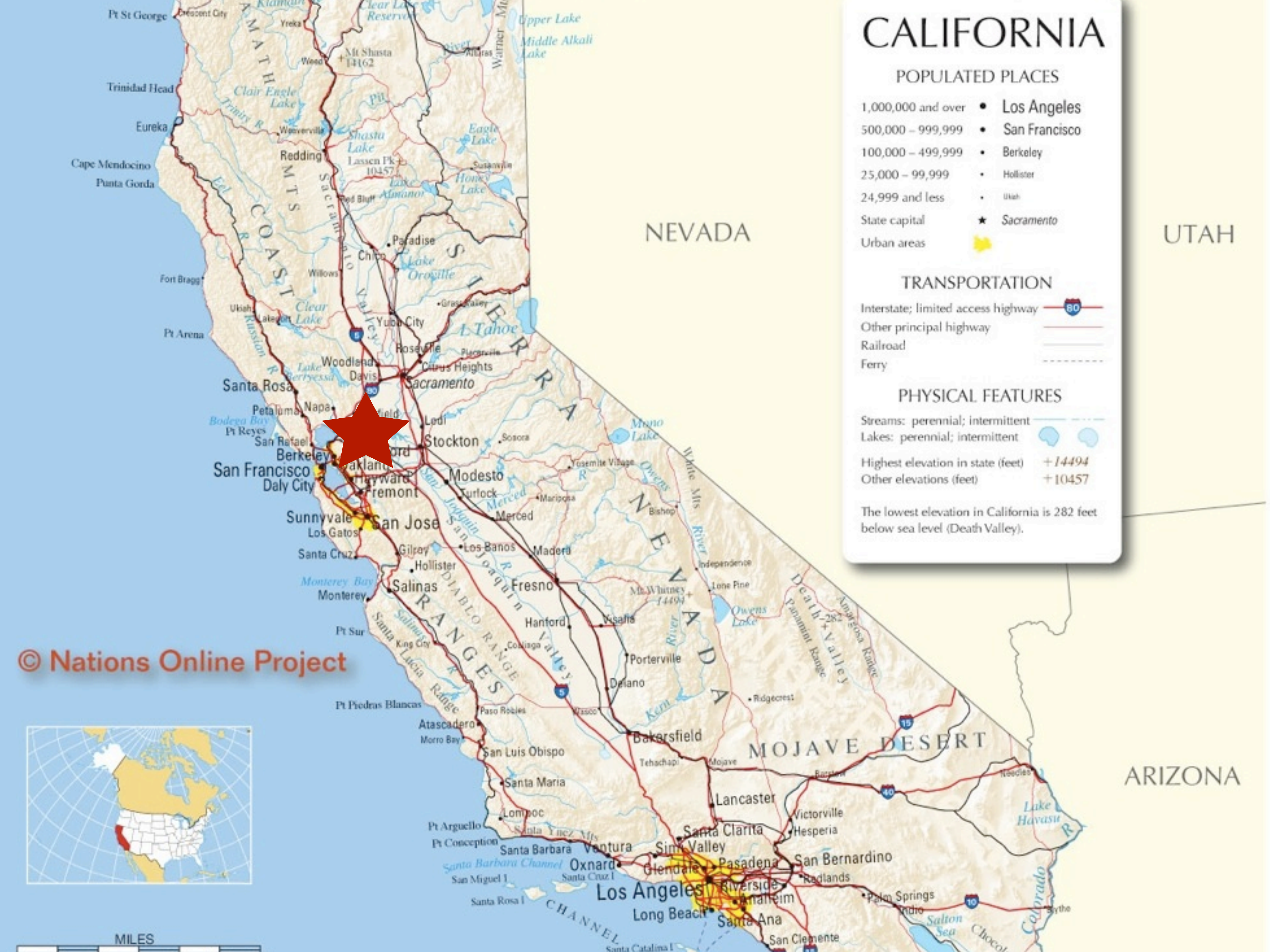


walldesk.net

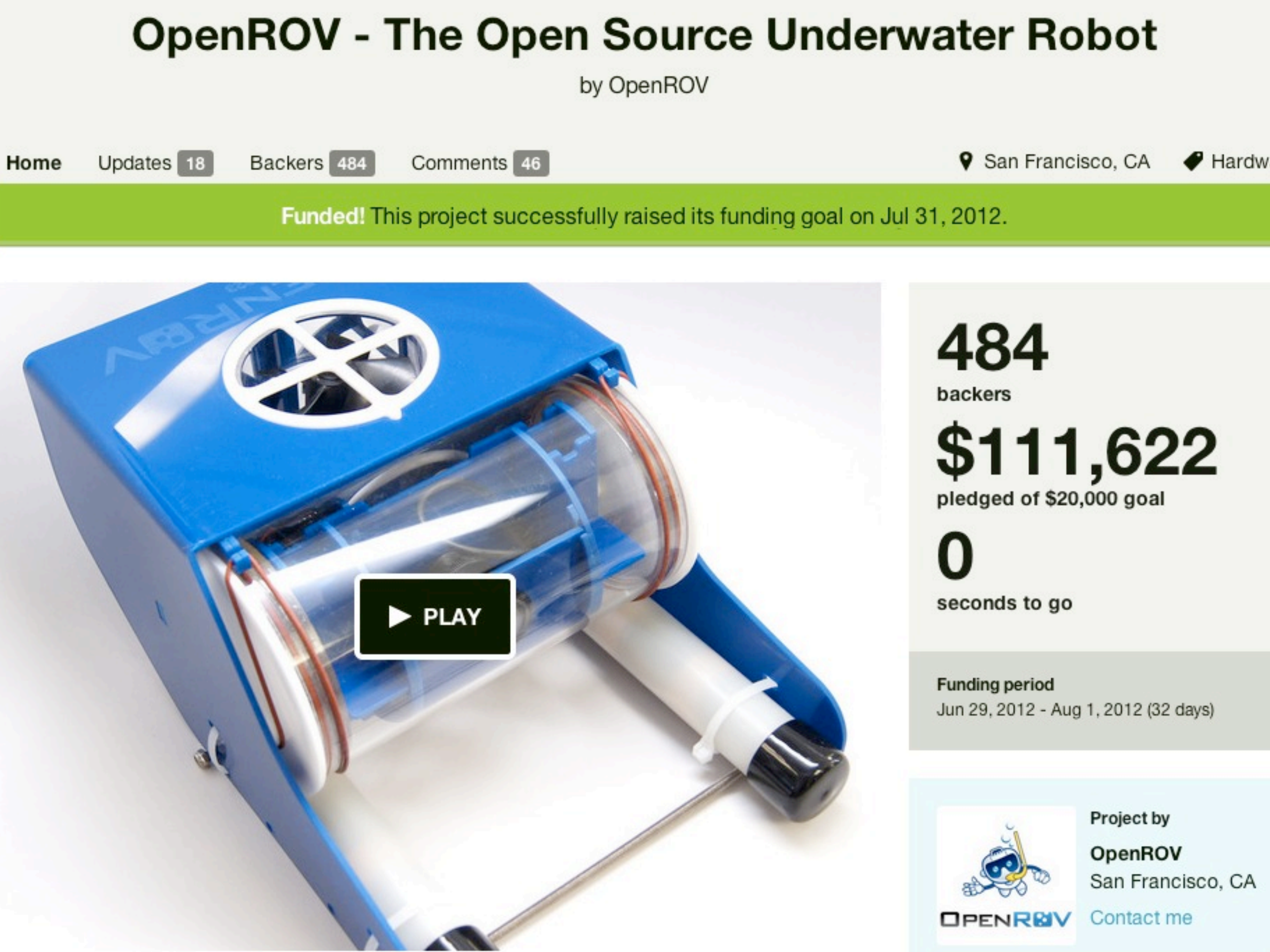
Grad school, family, Midwest caused me to drift away from diving

(lol drift)

Last year I moved to *California*


CALIFORNIA
POPULATED PLACES
1,000,000 and over • Los Angeles
500,000 – 999,999 • San Francisco
100,000 – 499,999 • Berkeley
25,000 – 99,999 • Hollister
24,999 and less • Ukiah
State capital ★ Sacramento
Urban areas
TRANSPORTATION
Interstate; limited access highway 80
Other principal highway
Railroad
Ferry
PHYSICAL FEATURES
Streams: perennial; intermittent
Lakes: perennial; intermittent
Highest elevation in state (feet) +14494
Other elevations (feet) +10457
The lowest elevation in California is 282 feet below sea level (Death Valley).
NEVADA
UTAH
ARIZONA
SIERRA NEVADA
COAST RANGES
DIABLO RANGE
MOJAVE DESERT
Sacramento
San Francisco
Oakland
Berkeley
San Jose
Stockton
Modesto
Fresno
Bakersfield
Los Angeles
Long Beach
Santa Ana
San Bernardino
Santa Rosa
Redding
Eureka
Salinas
Monterey
Santa Barbara
MILES
© Nations Online Project

Looking for cool people and projects...



OpenROV - The Open Source Underwater Robot

by OpenROV

Home
Updates 18
Backers 484
Comments 46
San Francisco, CA
Hardw
▶ PLAY

Funded! This project successfully raised its funding goal on Jul 31, 2012.

484
backers

$111,622
pledged of $20,000 goal

0
seconds to go

Funding period
Jun 29, 2012 - Aug 1, 2012 (32 days)

Project by
OpenROV
San Francisco, CA
Contact me

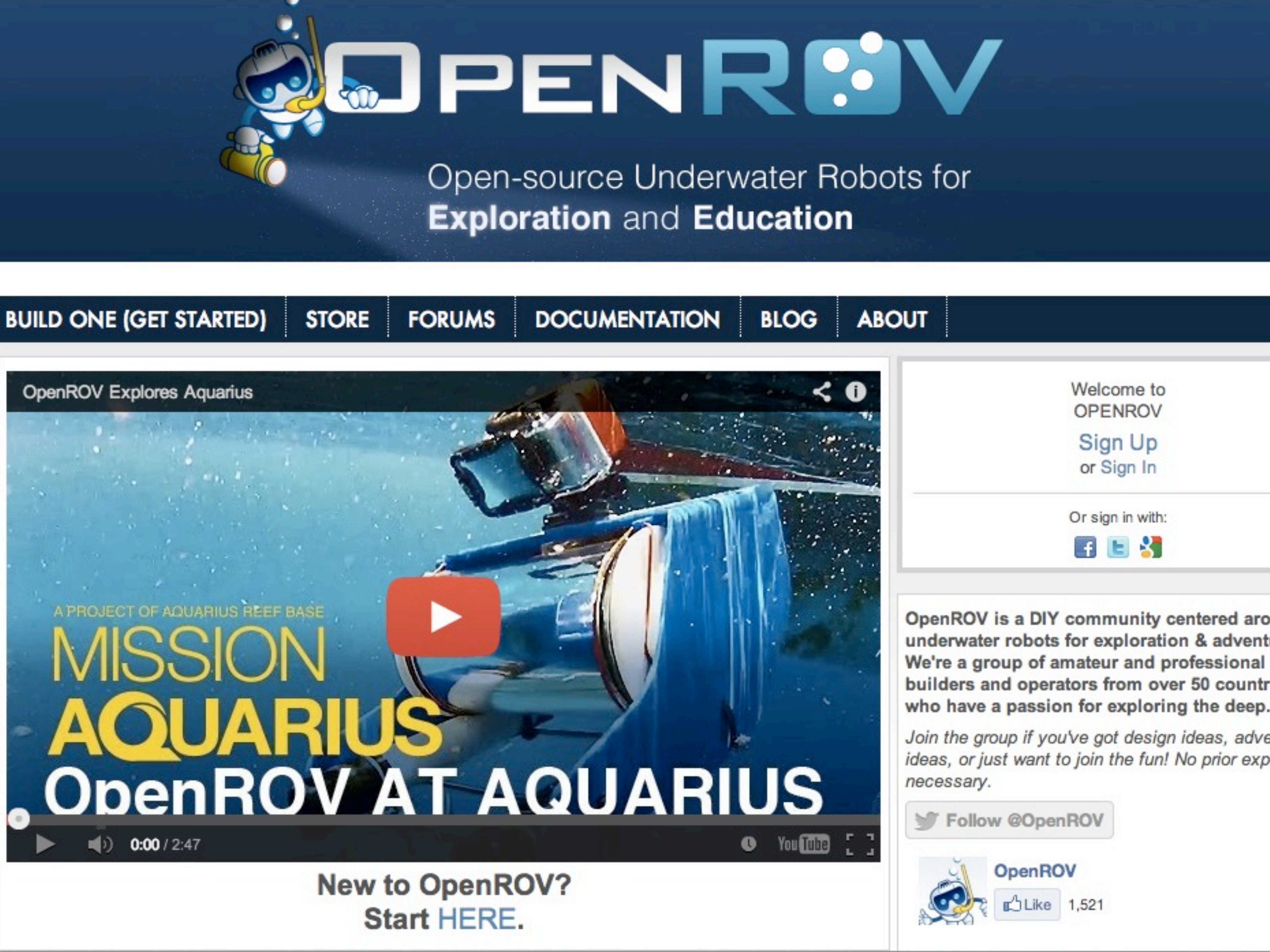
OPENROV

OPENROV
OPENROV
MINNESOTA

David & Eric got the crazy idea: build a robot submersible to find lost treasure

http://openrov.com/group/hallcitycave

Didn’t find treasure - Found adventure, worldwide community of contributors


OPENROV
BUILD ONE (GET STARTED)
STORE
FORUMS
DOCUMENTATION
BLOG
ABOUT
OpenROV Explores Aquarius
A PROJECT OF AQUARIUS REEF BASE
MISSION
AQUARIUS
OpenROV AT AQUARIUS
0:00 / 2:47
YouTube
Sign Up
or Sign In
Or sign in with:
Follow @OpenROV
OpenROV
Like
1,521

Open-source Underwater Robots for
Exploration and **Education**

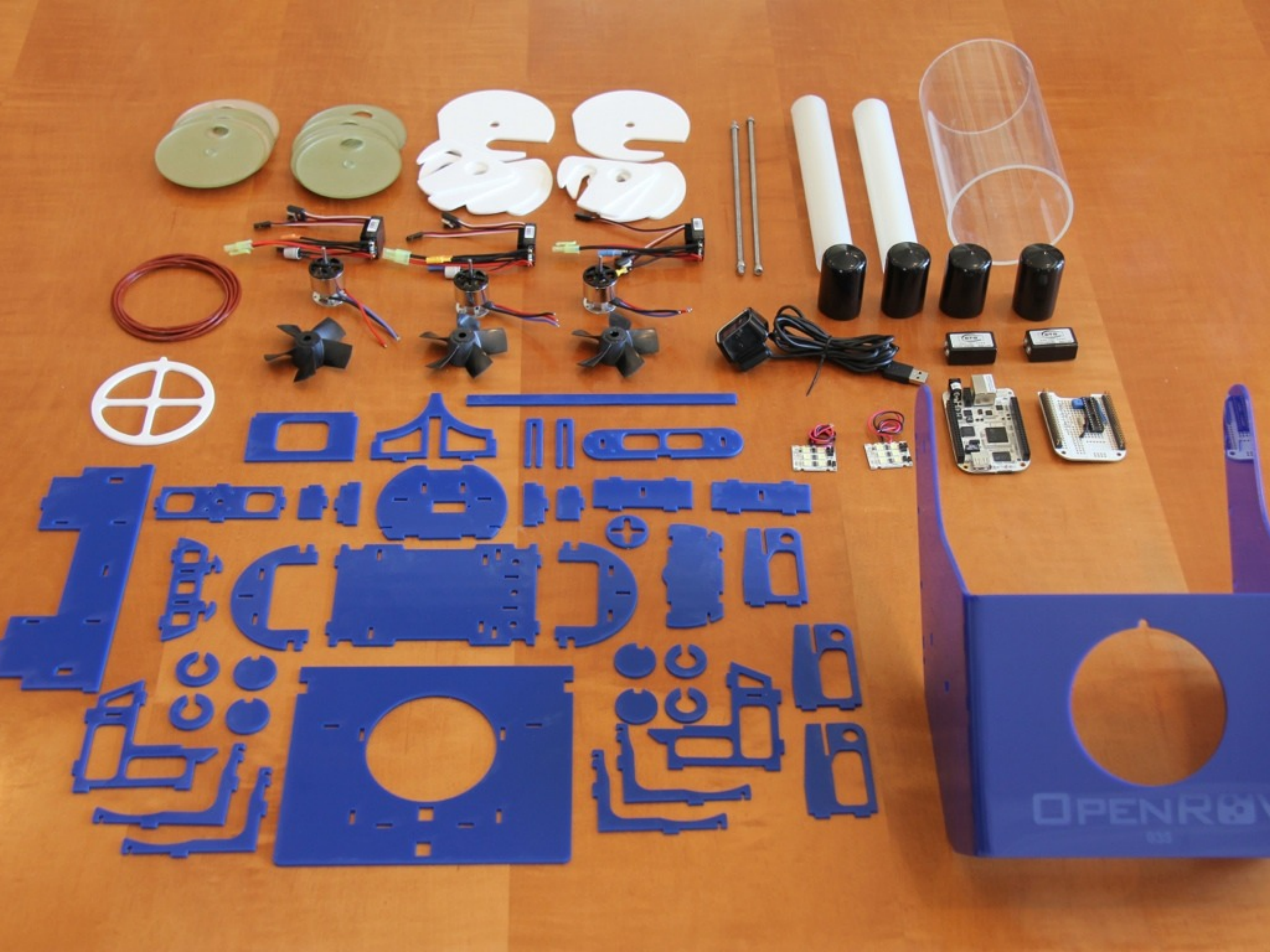
Welcome to
OPENROV

OpenROV is a DIY community centered aro
underwater robots for exploration & advent
We're a group of amateur and professional
builders and operators from over 50 countr
who have a passion for exploring the deep.

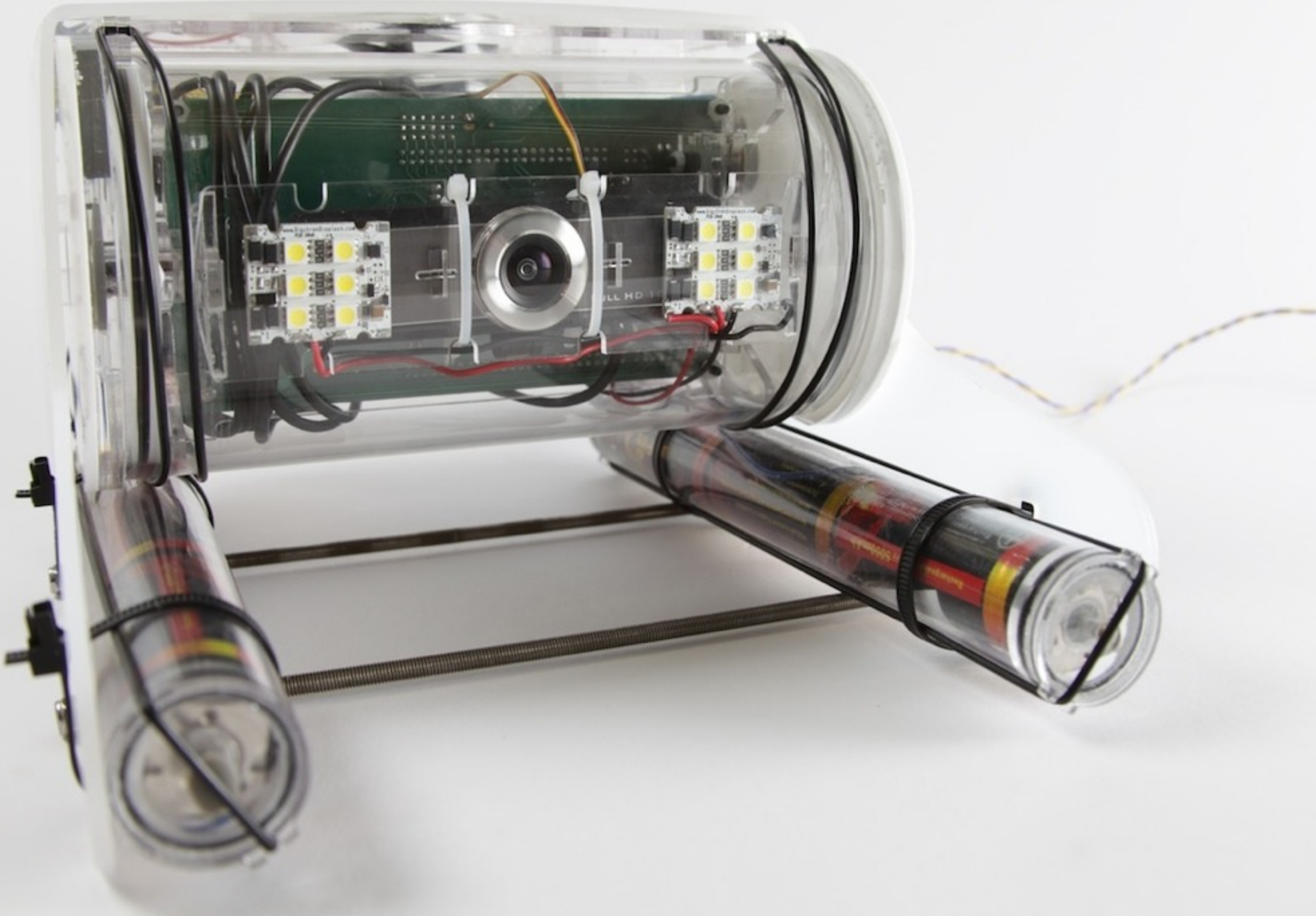
Join the group if you've got design ideas, adve
ideas, or just want to join the fun! No prior exp
necessary.

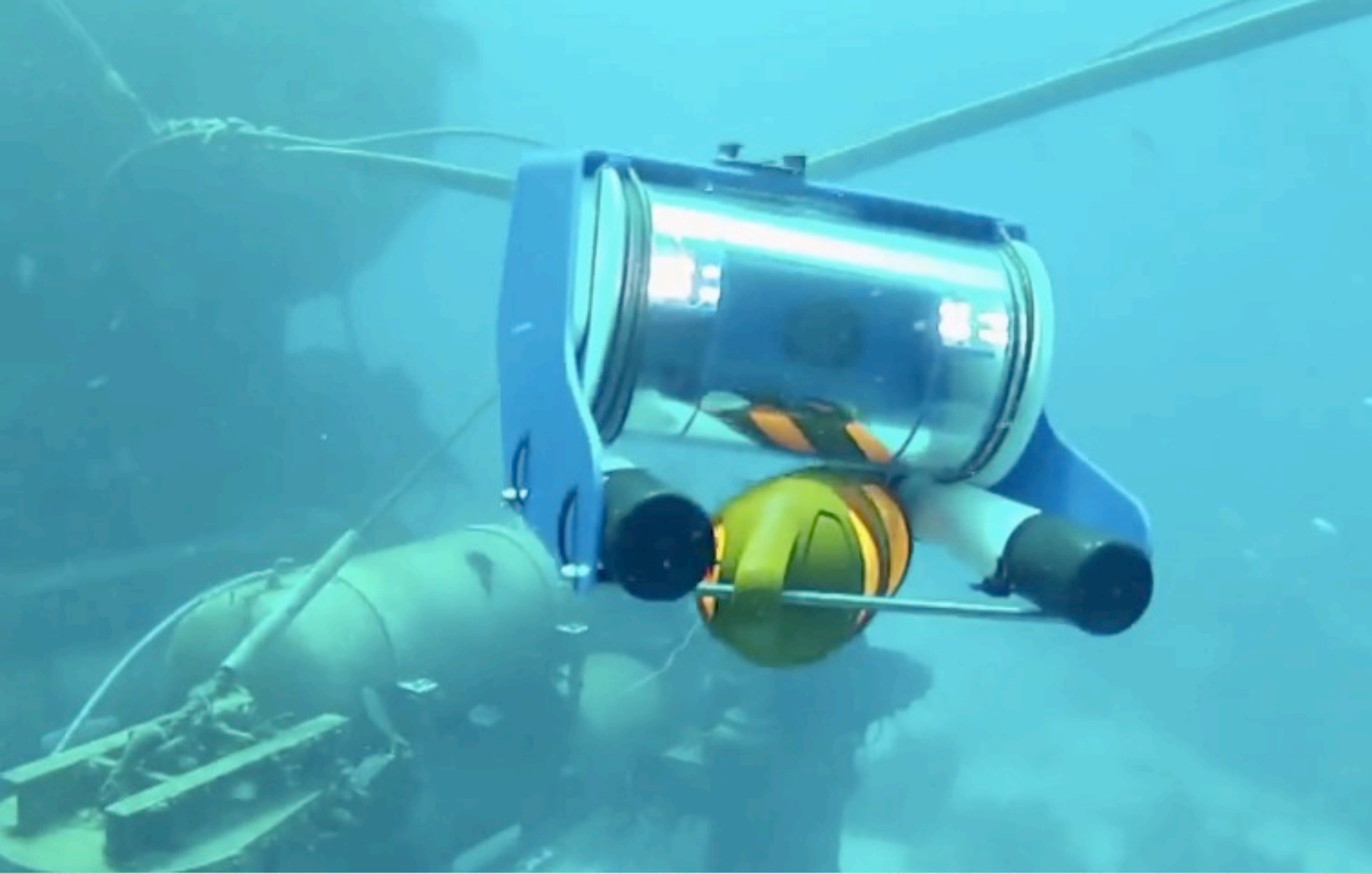
New to OpenROV?
Start HERE.

Now sell kits for DIY explorers to build their own submersibles


OPENR

Open hardware,
open software,
open community =
constant iteration,
improvement

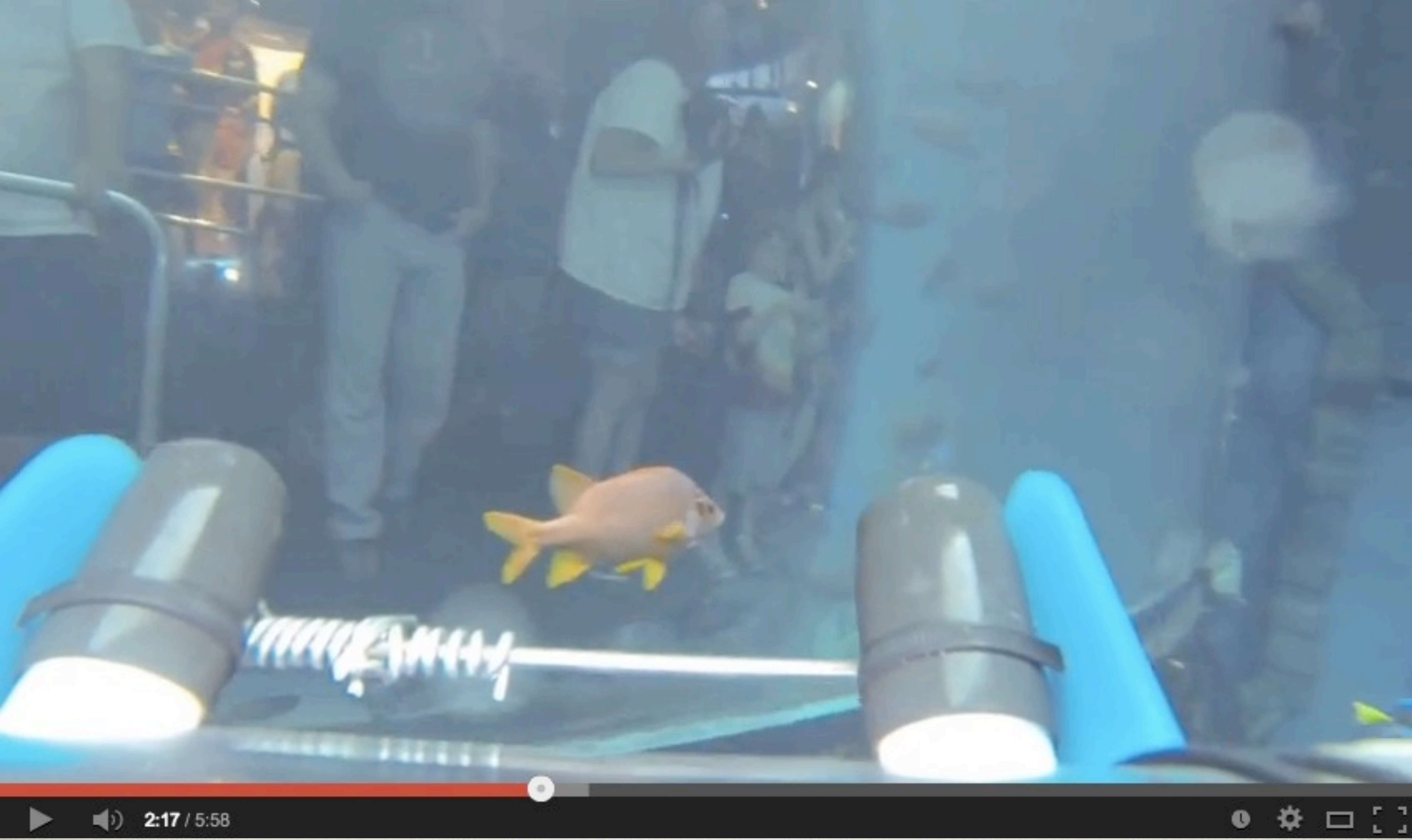




http://www.youtube.com/watch?v=MvzyWk4lMc8

Full screen
3:03 / 4:12

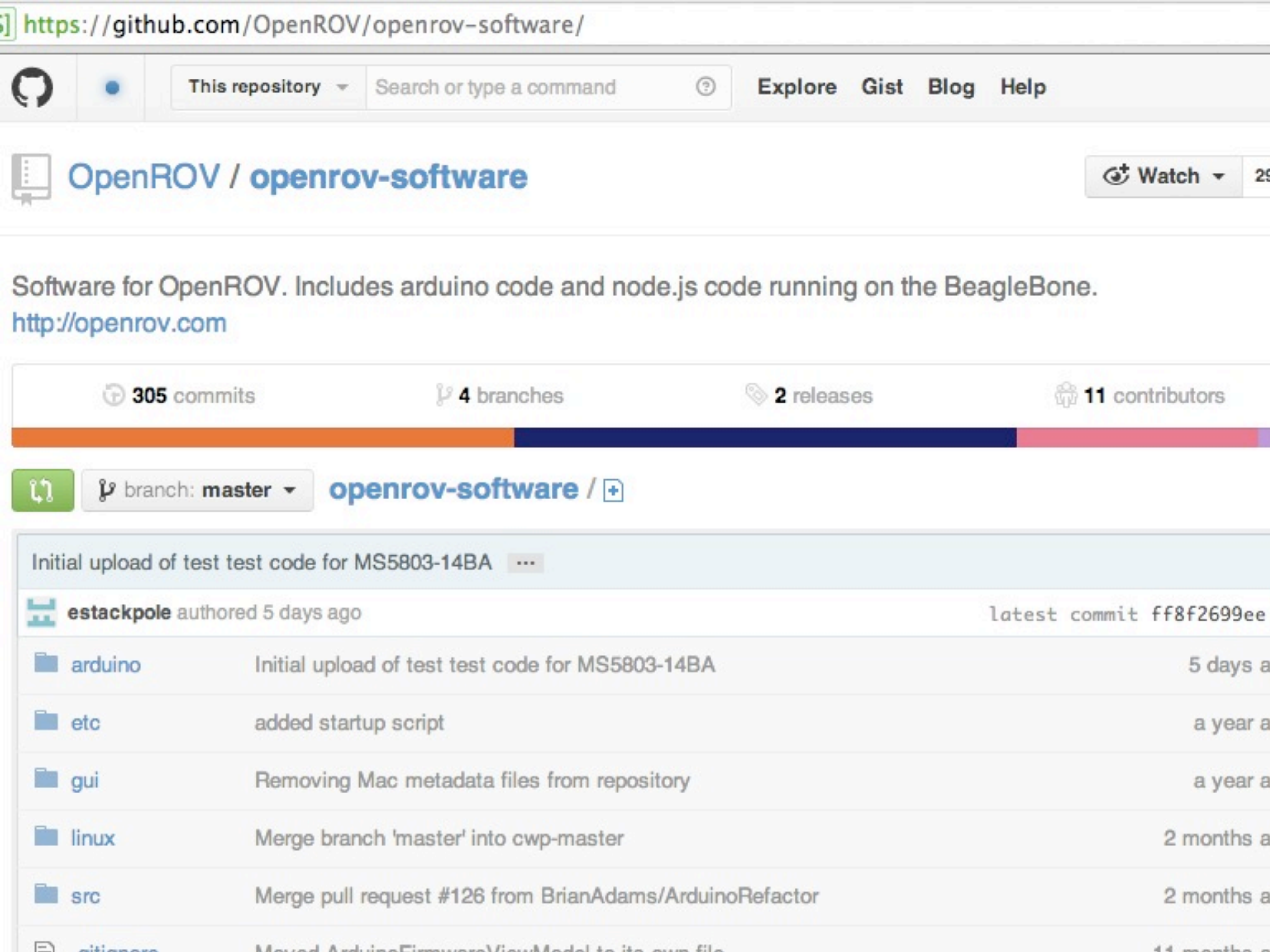
http://www.youtube.com/watch?v=noTsGnQD8Go



http://www.youtube.com/watch?v=HCDhJJC0-Vc

OpenROV Software

- Arduino to control hardware
- Configuration for each piece of hardware
- Streaming video from camera via OpenCV
- Node.js server


https://github.com/OpenROV/openrov-software/
This repository
Search or type a command
Explore
Gist
Blog
Help
Watch
2

OpenROV / openrov-software

Software for OpenROV. Includes arduino code and node.js code running on the BeagleBone.
http://openrov.com

305 commits | 4 branches | 2 releases | 11 contributors

branch: master | openrov-software /

Initial upload of test test code for MS5803-14BA ···

estackpole authored 5 days ago | latest commit ff8f2699ee

arduino	Initial upload of test test code for MS5803-14BA	5 days a
etc	added startup script	a year a
gui	Removing Mac metadata files from repository	a year a
linux	Merge branch 'master' into cwp-master	2 months a
src	Merge pull request #126 from BrianAdams/ArduinoRefactor	2 months a
.gitignore	Moved ArduinoFirmwareViewModel to its own file	11 months

Project Needs

- Hardware simulation for detached development, integrating new hardware
- Testability design, unit tests, integration tests with hardware
- User Interface improvements
- Documentation, tutorials, etc

My Contribution

- Software design and architecture feedback
- Planning for testability
- Meeting notes and organization
- Most code so far has been Arduino and electronics control (not my expertise)

Fun aside,
what good is a
democratized
submersible?

Divers are expensive, limited depth & time, put self at risk

OpenROV democratizes underwater the same way PCs democratized computing

1/1000th the cost

1000x access

Pier and dock maintenance

Ship hull inspection

Tourism - photographing divers and snorkelers

Marine life research and monitoring

Marine life research and monitoring

Improved coverage in search and rescue

STOP

PREVENT YOUR DEATH!
GO NO FARTHER.

FACT: More than 300 divers, including open water scuba instructors, have died in caves just like this one.

FACT: You needed training to dive. You need cave training and cave equipment to cave dive.

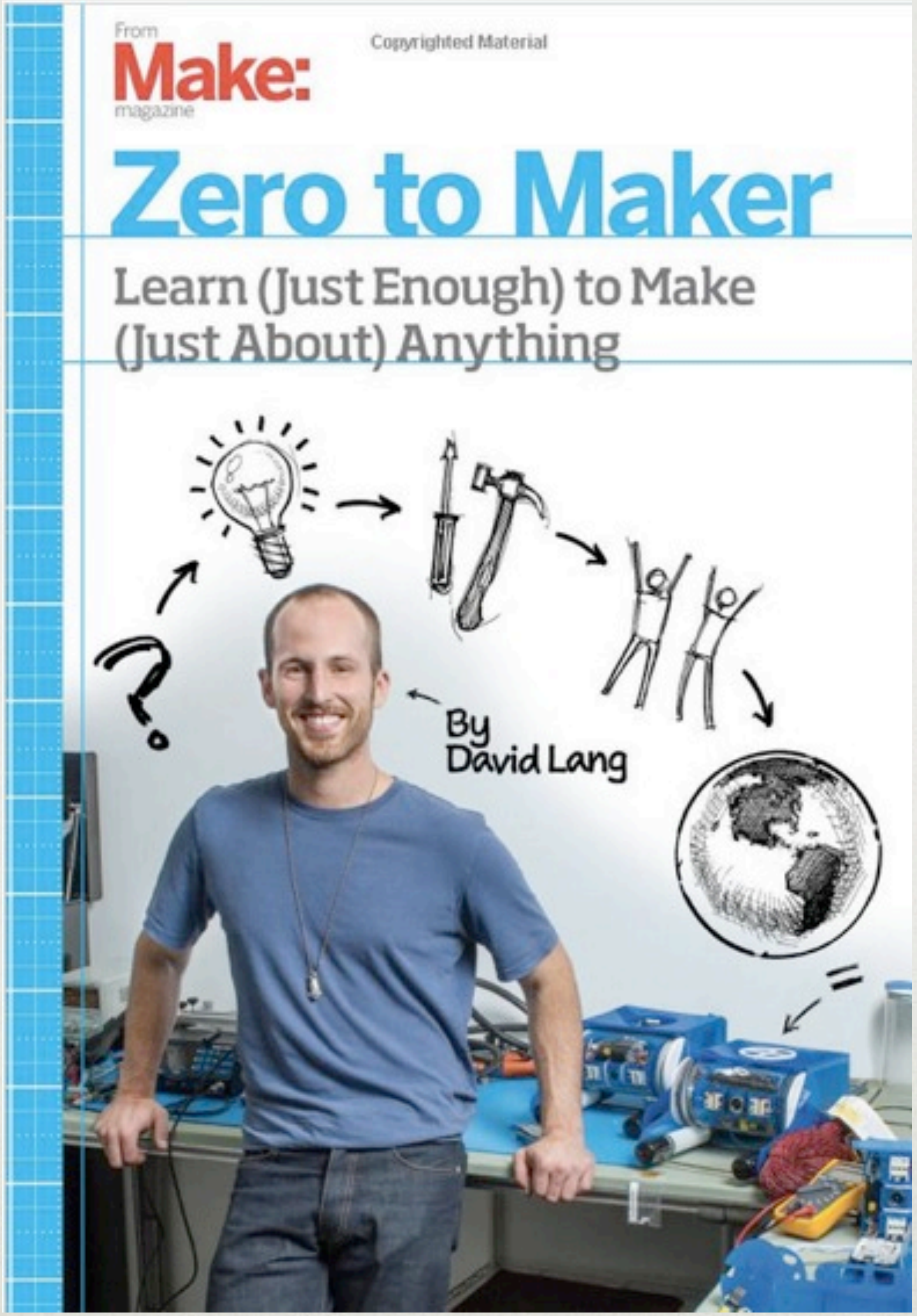
FACT: Without cave training and cave equipment, divers can die here.

FACT: It CAN happen to YOU!

THERE'S NOTHING IN THIS CAVE WORTH DYING FOR!
DO NOT GO BEYOND THIS POINT.

A Diver Safety Message From:
NACD • NSS-CDS • PADI

Safely explore dangerous areas - caves, shipwrecks



From Make: magazine

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Zero to Maker

Learn (Just Enough) to Make (Just About) Anything

By David Lang

To learn more (and to learn everything):

http://www.amazon.com/dp/1449356435

Find something you’re

passionate

about

You are only limited by *your imagination.*

Peter Christensen

http://pchristensen.com

@christensenp