UPSTREAM TECH

Quantified decision-making

Empowering efficient, scalable and verifiable conservation

We are apublic benefit corporation .

Our mission
Create economic forces that drive environmental good.

Upstream Tech Satellite Ensemble

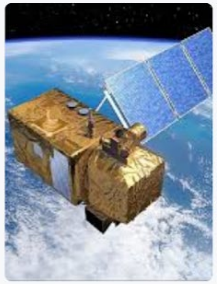
- NASA/USGS
- European Space Agency (ESA)
- Planet
- Airbus
- DigitalGlobe

When combined, these satellites increase revisit time, spatial resolution, spectral frequency

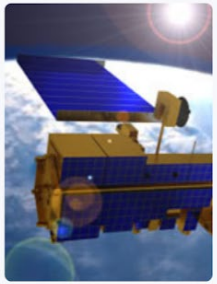
Landsat 7
USGS/NASA

Landsat 8
USGS/NASA

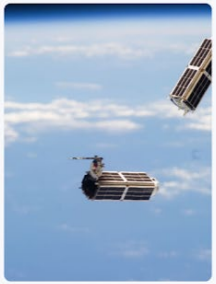
Sentinel-1A
ESA



Sentinel-2A/B
ESA



MODIS Terra/Aqua
USGS/NASA



Dove
Planet

What is machine learning?

And how does it help with conservation?

TRAIN

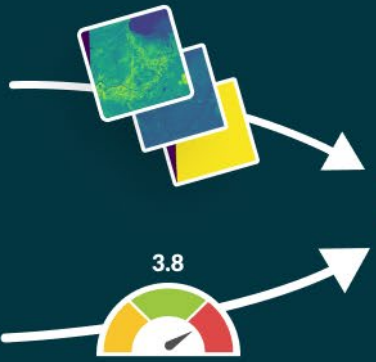
Remote Data

Upstream Tech's ensemble of satellites and meteorological data

+

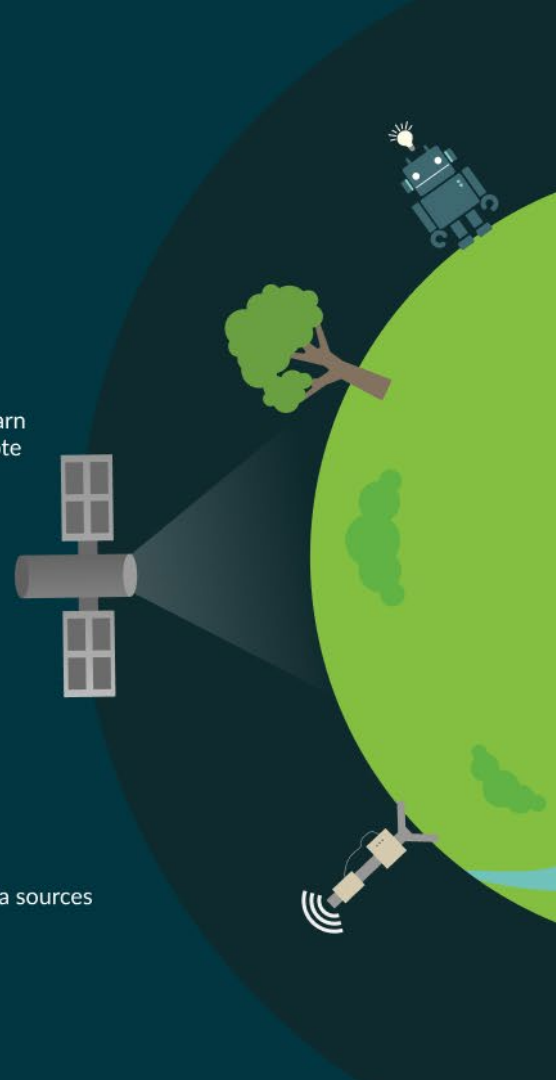
Ground Data

Gauges and measurements made at the subject's location



AI

Machine learning models learn from combined sets of remote and ground data



ESTIMATE

Remote Data + AI → 4.8

Estimated Quantity

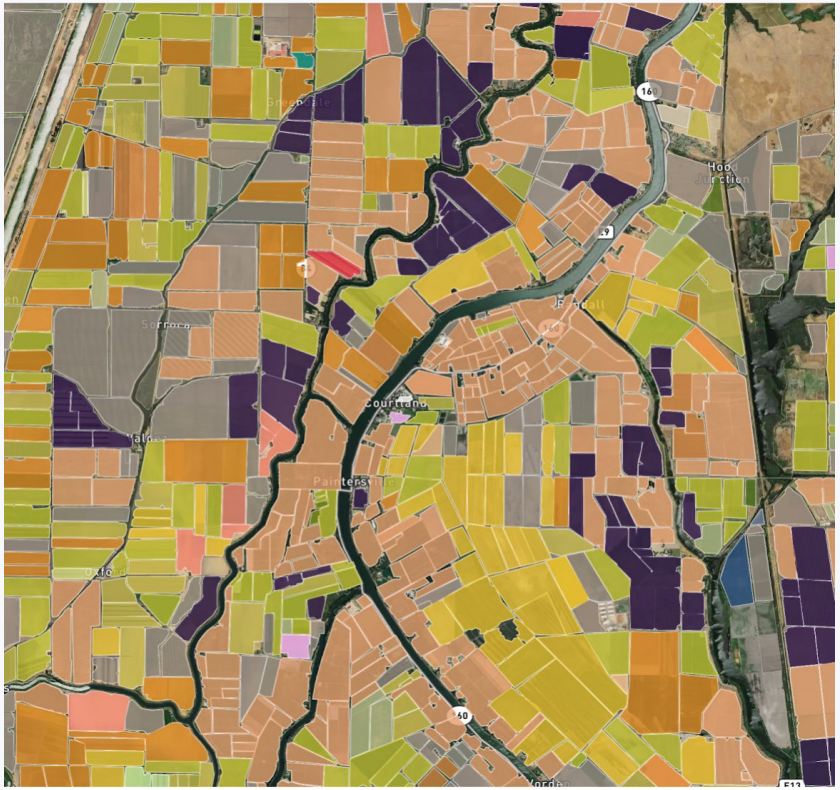
AI makes predictions from remote data sources and trained machine learning models

From historic observation → To real-time estimation

Location, Date & Time, Observation

(Lat/Lng, July 1st 2018 10am, "Dry Soil")

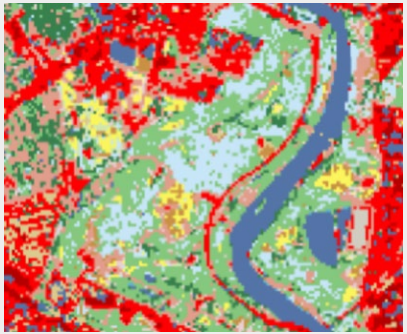
scvName	visitDate	stkUnique	stkNum	stkLat	stkLong	pComp_techEstm	pComp_stkDepths	stkDepthInches	techNotes4EntireBid
SCV-000858	8/21/2017	17-FR-077 - 4	4	39.20085	-121.95271	100	75	1	All of the bid is in compiqnce, looks great. Even so the bird response is not so great
SCV-000858	8/21/2017	17-FR-077 - 3	3	39.2019	-121.95914	100	75	5	All of the bid is in compiqnce, looks great. Even so the bird response is not so great
SCV-000858	8/21/2017	17-FR-077 - 2	2	39.20296	-121.96549	100	75	4	All of the bid is in compiqnce, looks great. Even so the bird response is not so great
SCV-000858	8/21/2017	17-FR-077 - 1	1	39.20629	-121.9669	100	75	2	All of the bid is in compiqnce, looks great. Even so the bird response is not so great
SCV-000860	8/24/2017	17-FR-077 - 4	4	39.20085	-121.95271	90	75	3	Couple of checks where water comes in are deep but over all looks GREAT. Couple glocks of WFIB and
SCV-000860	8/24/2017	17-FR-077 - 3	3	39.2019	-121.95914	90	75	7	Couple of checks where water comes in are deep but over all looks GREAT. Couple glocks of WFIB and
SCV-000860	8/24/2017	17-FR-077 - 2	2	39.20296	-121.96549	90	75	3	Couple of checks where water comes in are deep but over all looks GREAT. Couple glocks of WFIB and
SCV-000860	8/24/2017	17-FR-077 - 1	1	39.20629	-121.9669	90	75	2	Couple of checks where water comes in are deep but over all looks GREAT. Couple glocks of WFIB and
SCV-000868	9/5/2017	17-FR-077 - 4	4	39.20085	-121.95271	95	100	lt1	Looks really good, everything from puddledd mud flats to 4" standing water.... Still nit a ton of burds
SCV-000868	9/5/2017	17-FR-077 - 3	3	39.2019	-121.95914	95	100	4	Looks really good, everything from puddledd mud flats to 4" standing water.... Still nit a ton of burds



Upstream
Use Case Examples

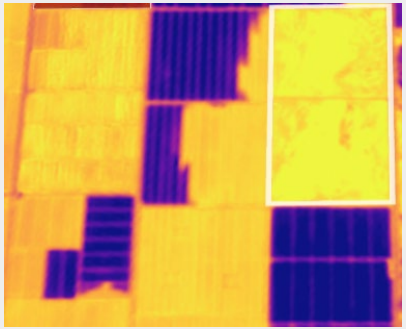
Agricultural assessments

Large-scale automated geospatial tasks such as field delineation, irrigation estimates, and detection of **field-level management practices**.



Basin optimizations

Accurately forecast water quantity and quality so that stakeholders across a basin (hydropower, agriculture, nature) can be managed proactively and as an interconnected system.



Environmental monitoring

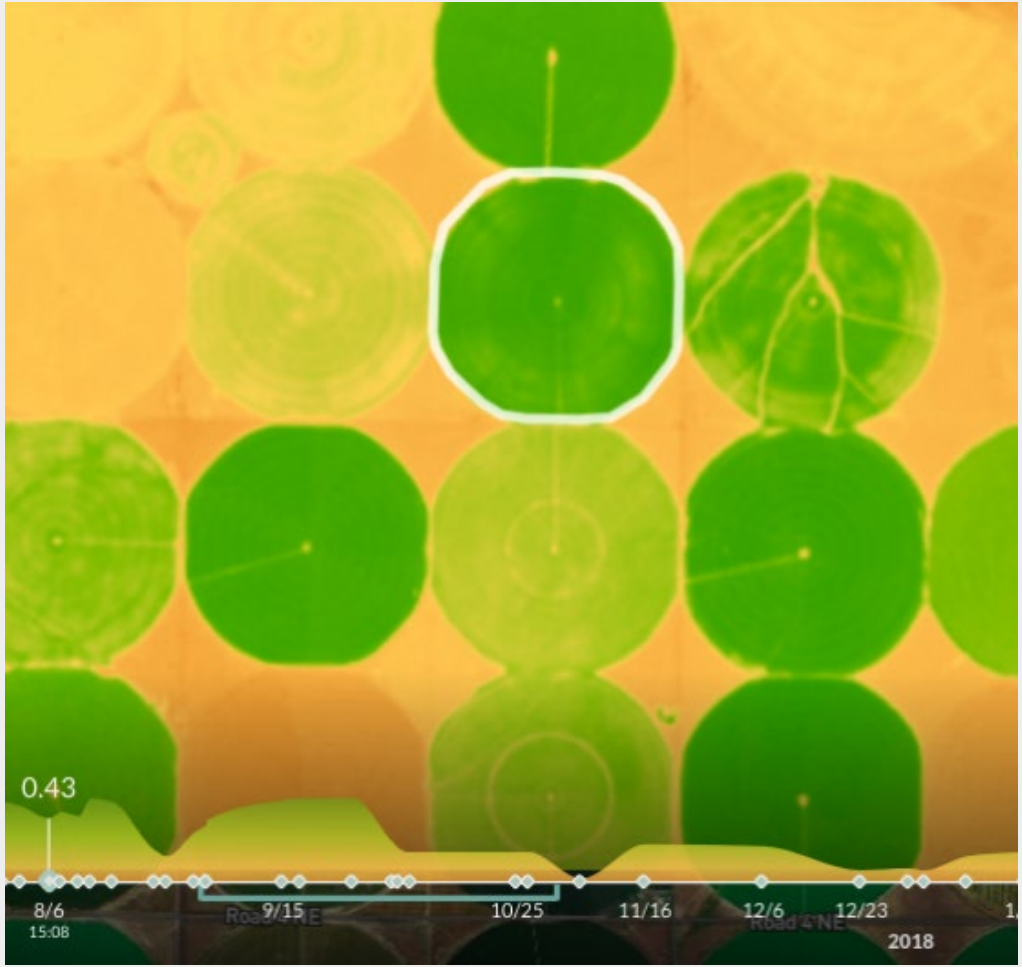
Assess baseline conditions and to monitor project locations for expected outcomes such as forest density or native species recruitment.

Agricultural Assessments

Conduct rapid, accurate, and cost-effective assessments of agricultural landscapes to understand field-level management practices and optimize environmental outcomes.

Use case
Water Trading

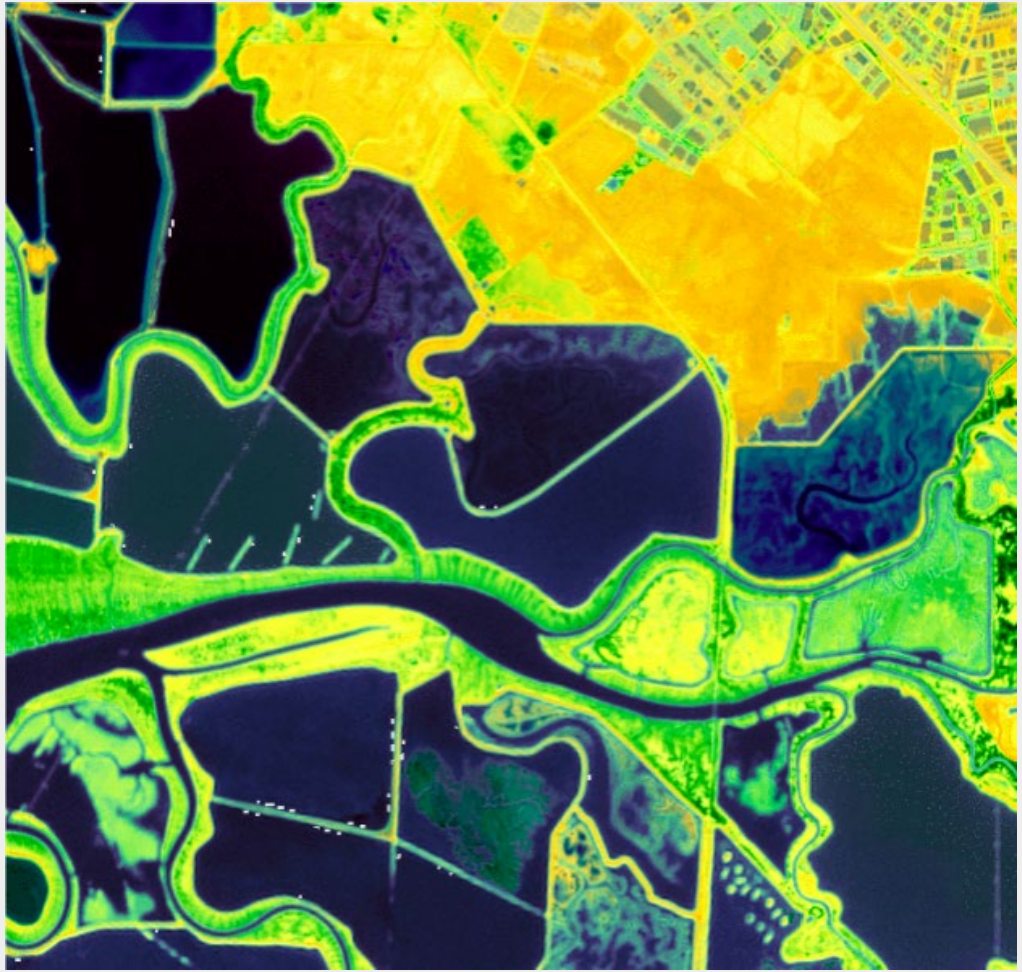
Providing ongoing irrigation monitoring, 15 year irrigation intensity history and digitized water rights database to inform the Columbia Basin Water Transactions Program.



Use case
Holistic Watershed Management

IOWA SOYBEAN Association

Connecting the dots between agricultural management practices and the surrounding watershed, including wetlands and water bodies.

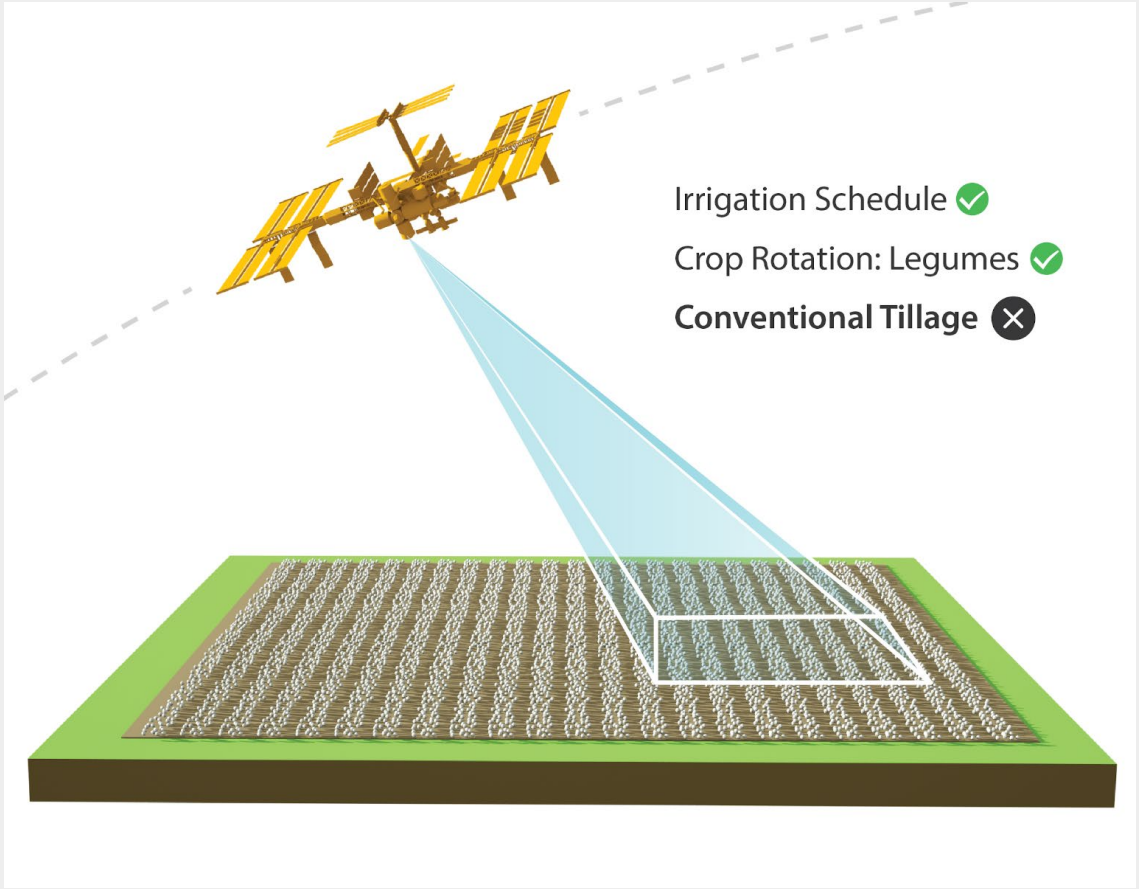


Use case
BMPs for Cotton

TARGET

CASIS™

Setting informed baselines, monitoring field -level management practices, and tracking adoption and progress over time.

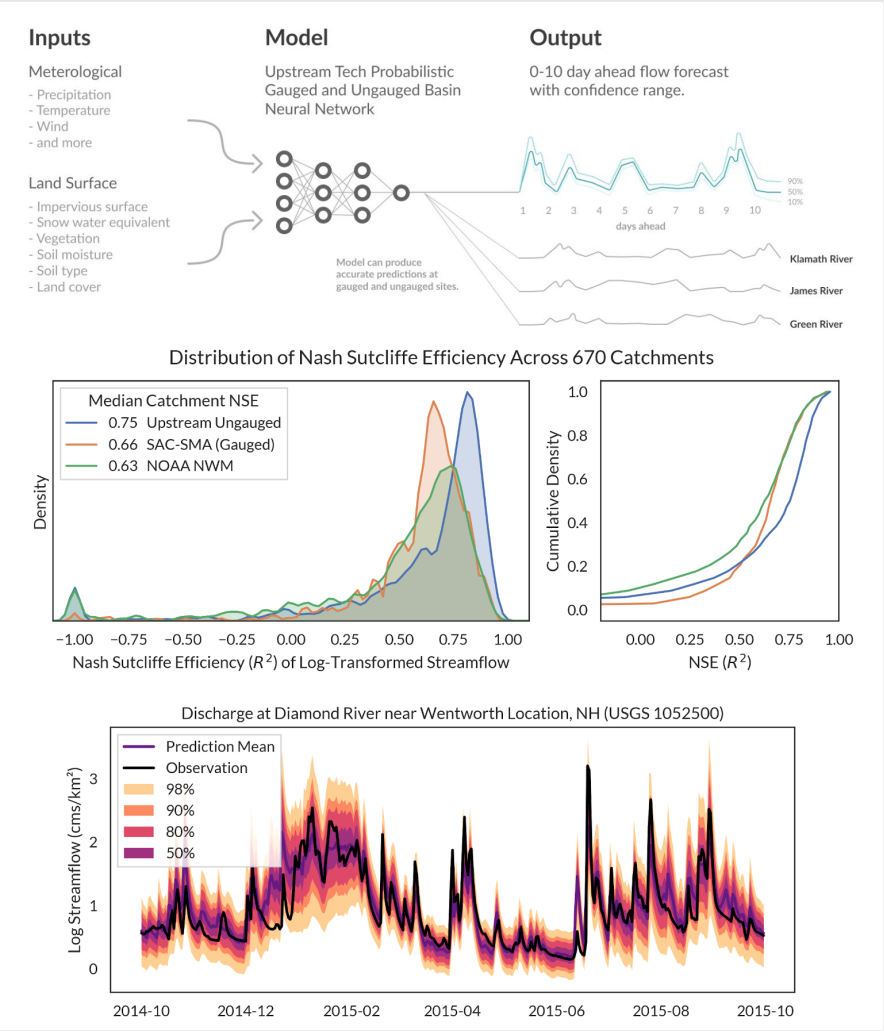


Use case
Flow Forecast

Predicts with high accuracy in ungauged basins. In fact, its predictions are more accurate in out-of-sample basins than a well calibrated traditional hydrology model is on gauged, in-sample basins!

Informs:

- Agricultural planning
- Hydropower optimization
- Proactive management of environmental flows and riparian habitats



The Upstream Tech Dashboard

A web-based, up-to-date, collaborative platform

LAYERS

Add new Layer

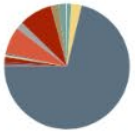
Farm Fields

SUMMARY

COUNT

3688

CROP TYPE ACRES



IRRIGATION INTENSITY, 2012-2017 AVERAGE

Filter items (3688 items)

	Crop Type	Irrigation Type	Area	Irr Avg 2012 - 2017	Irr 2017	Irr 2016	Irr 2015	Irr 2014	Irr 2013	Irr 2012	Irr 2011	Irr 2010	Irr 2009	Irr 2008
1	Grassland/Pasture	Pressurized	16.33 acres	High	High	High	High	High	High	Medium	Medium	Low	Medium	Low
2	Grassland/Pasture	Not irrigated	6.85 acres	Low	Low	None	Medium	None	Medium	Low	Low	Medium	Low	Low
3	Grassland/Pasture	Not irrigated	4.24 acres	Low	Low	Low	Medium	Low	Medium	Low	Low	Medium	Low	Low
4	Grassland/Pasture	Not irrigated	7.61 acres	Low	Low	Low	Medium	Low	High	Low	Low	Low	Low	None
5	Grassland/Pasture	Pressurized	2.31 acres	Medium	Medium	Medium	Medium	Medium	High	Medium	Medium	Low	Medium	Medium
6	Grassland/Pasture	Pressurized	3.91 acres	Medium	Medium	Low	Medium	Medium	High	Medium	Medium	Low	Low	Low
7	Grassland/Pasture	Pressurized	2.26 acres	Medium	Medium	Low	Medium	High	Medium	None	Medium	None	Low	None
8	Grassland/Pasture	Pressurized	2.76 acres	Medium	Medium	Medium	High	Medium	High	Medium	Medium	Low	Low	Low
9	Grassland/Pasture	Pressurized	6.68 acres	Low	Medium	Low	Medium	Medium	Medium	None	Medium	Low	None	None

Let’s work together!

Contact me **jessie@upstream.tech**
Or visit our website at **upstream.tech**

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