



EAS
ENVI ANALYTICS SYMPOSIUM

Making Complicated Data Simple, Making Sizeable Data Practical

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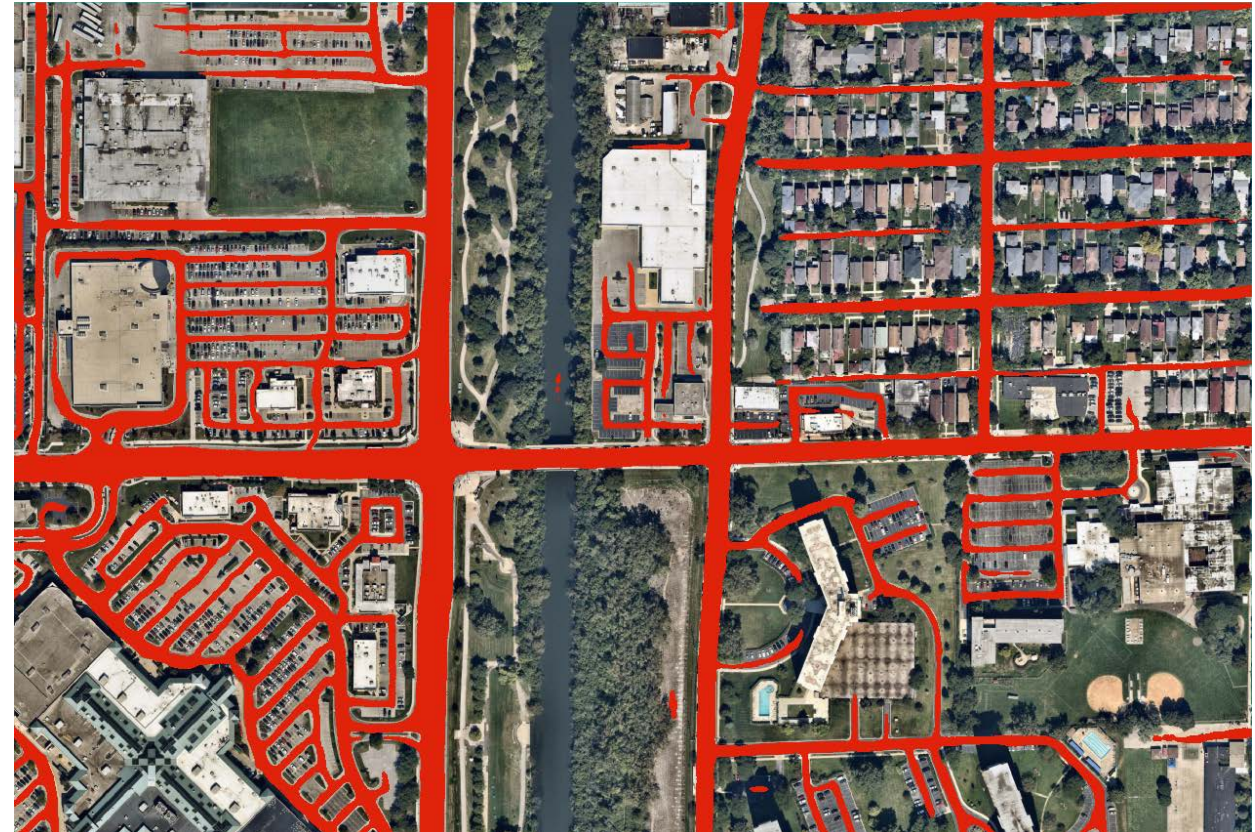
Don't Panic



Questions?

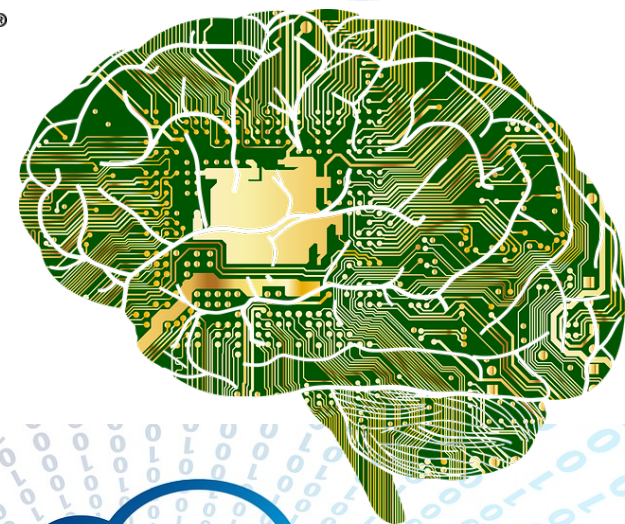


1. How do I harness all this geospatial data?
2. How can I get the answers that I need?



Innovation is Almost the Perfect Answer

Hardware
Software
Cloud Computing
Cloud Storage
Data Resources Available



Example: Deep Learning



1943- First Model of a Neural Network Created, Walter Pitts and Warren McCulloch

1952- First Machine Learning Program Created, Arthur Samuel

1965 – First Working Deep Learning Network, Alexey Ivakhnenko and V.G. Lapa

54 years pass...



deep learning



Q All

News

Videos

Books

Images

More

Settings

Tools

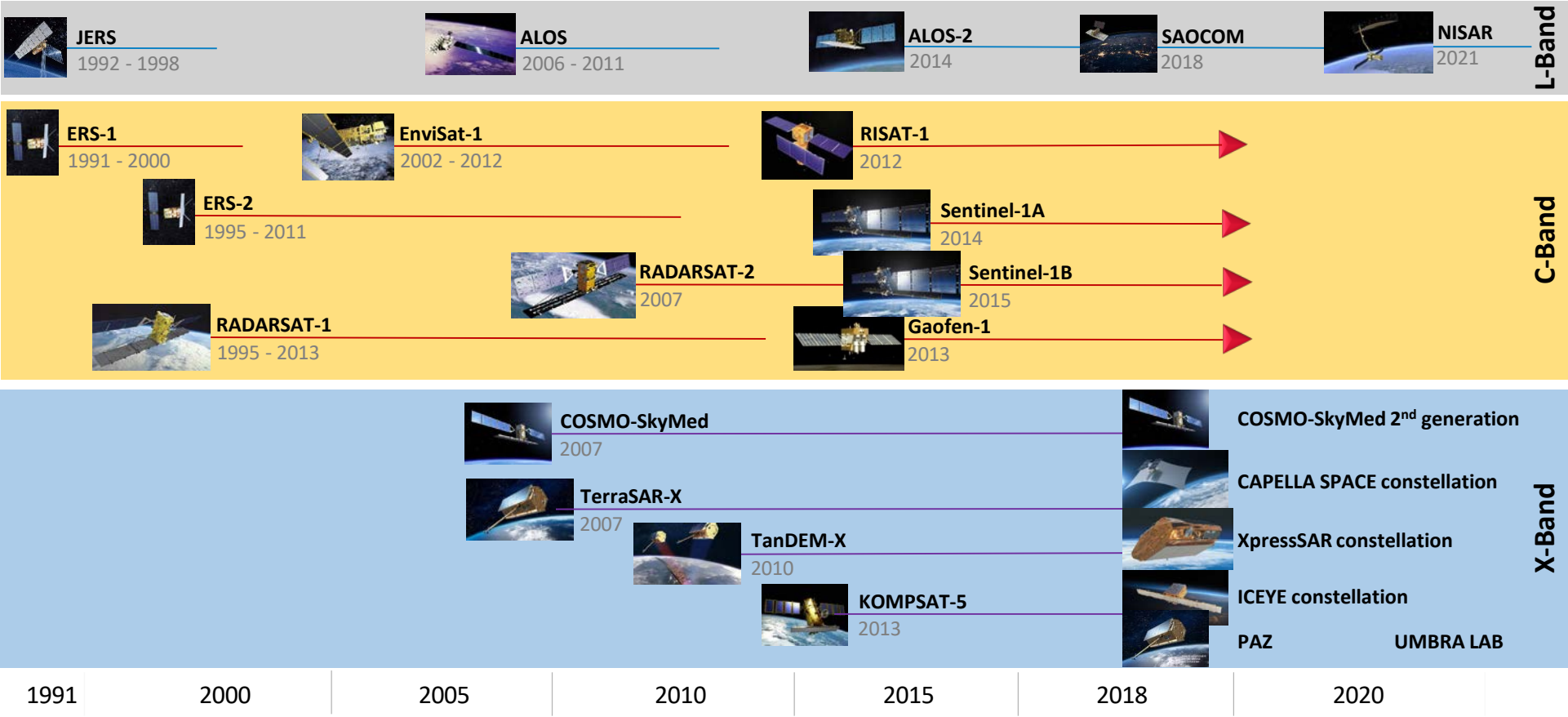
About 8,050,000 results (0.28 seconds)

← From the last year alone

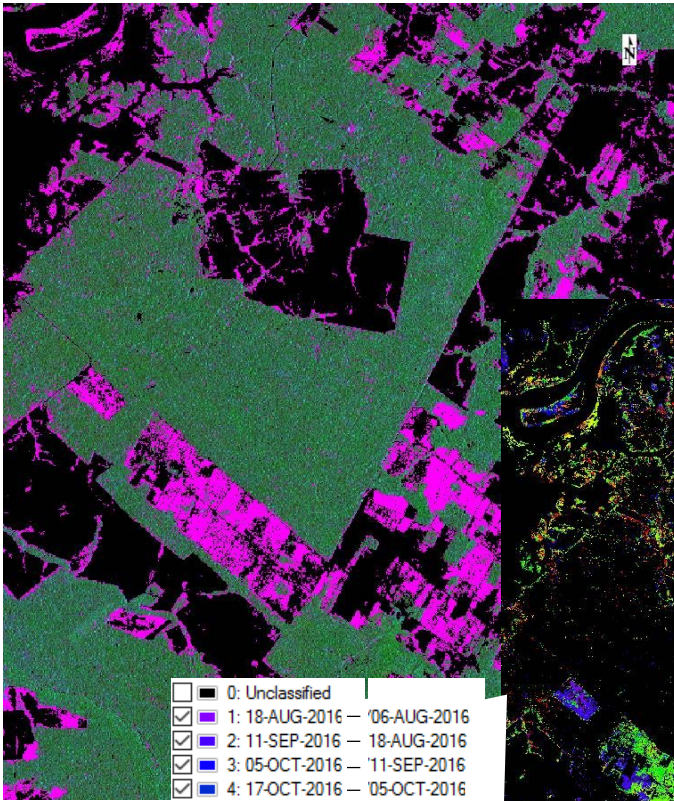
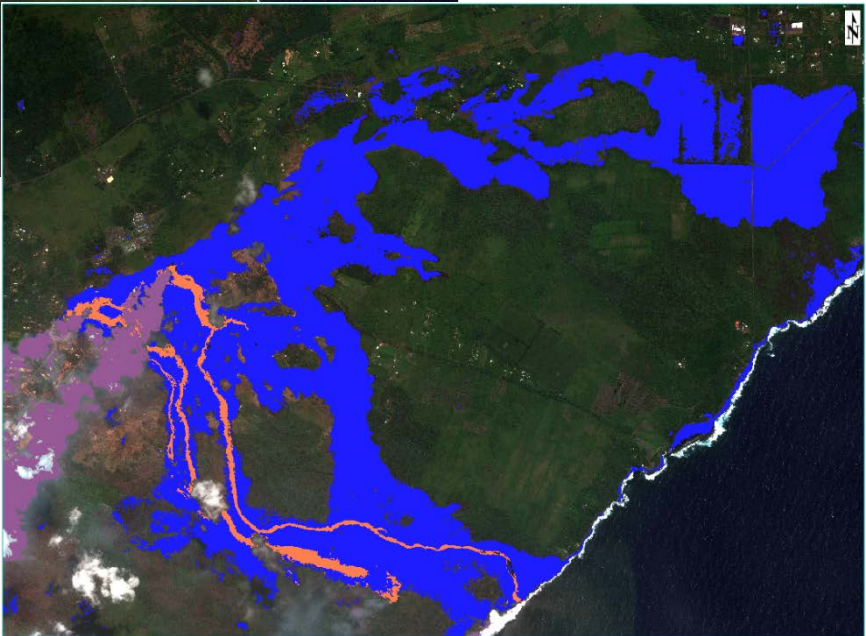
Example: SAR



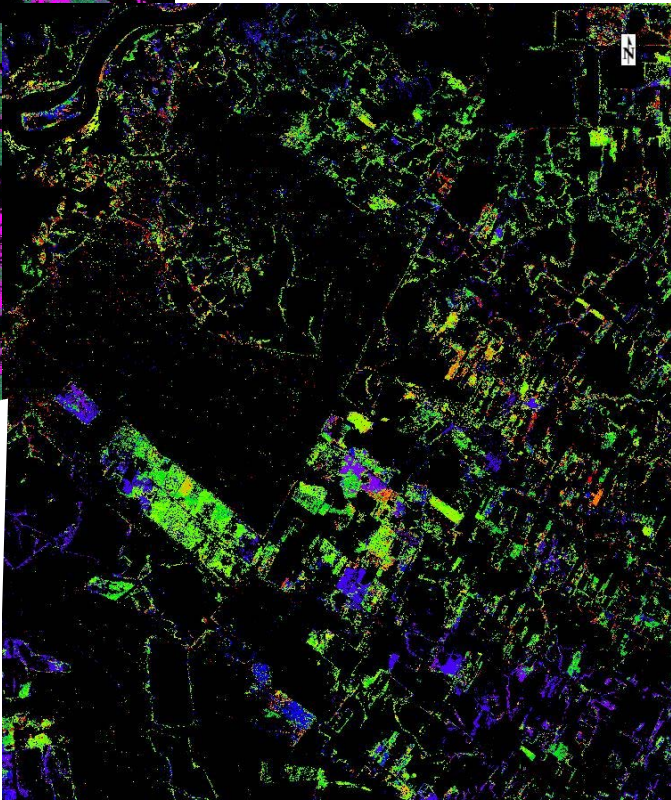
In a similar story, SAR was first created in 1951 by Carl Wiley



Education: the True Answer



<input type="checkbox"/>	0: Unclassified
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<input checked="" type="checkbox"/>	2: 11-SEP-2016 — 18-AUG-2016
<input checked="" type="checkbox"/>	3: 05-OCT-2016 — 11-SEP-2016
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<input checked="" type="checkbox"/>	6: 10-NOV-2016 — 29-OCT-2016
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<input checked="" type="checkbox"/>	16: 03-APR-2017 — 22-MAR-2017



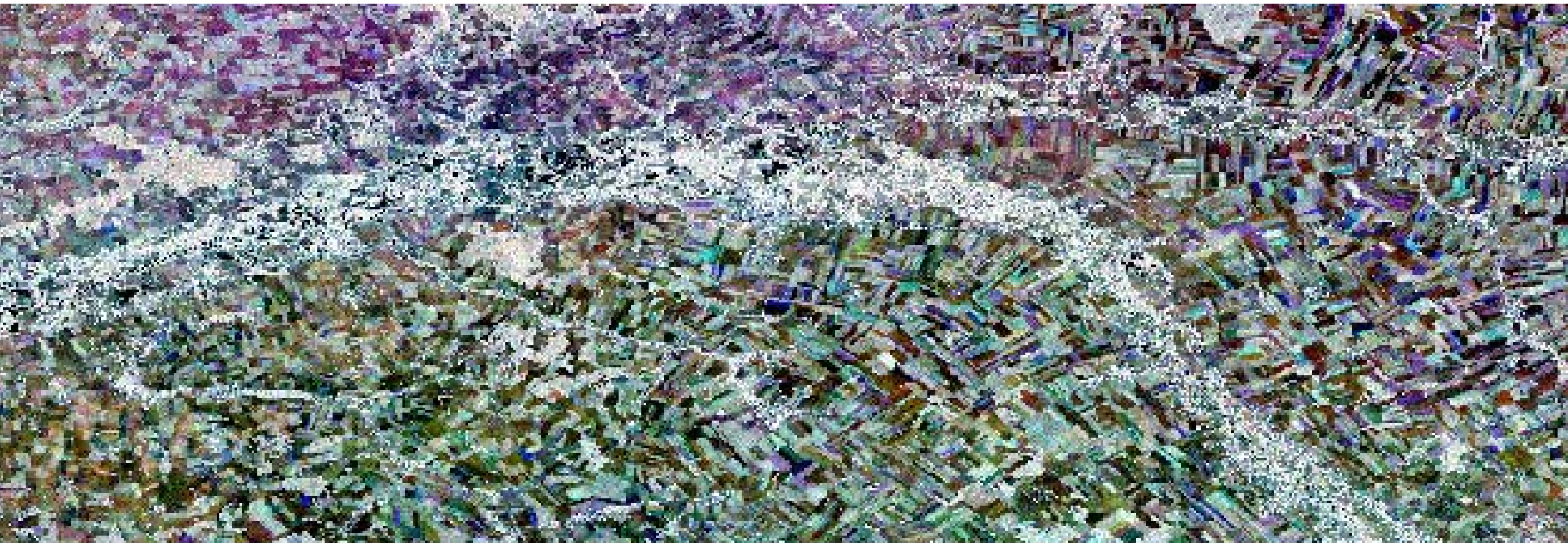
Classification:

- Plume (volcanic gasses)
- Molten lava
- Previous lava flows

Ease of Access, Ease of Use



The best way to harness what you want, and get the answers that you want, is to know what you want...but how do you?



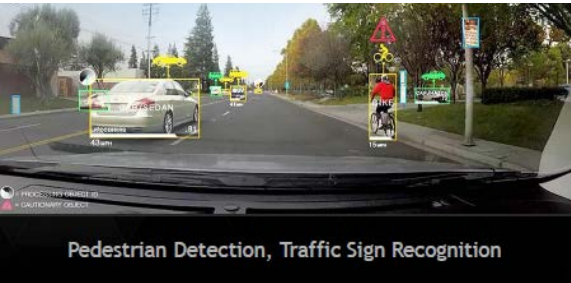
Deep Learning, What Can I Do?



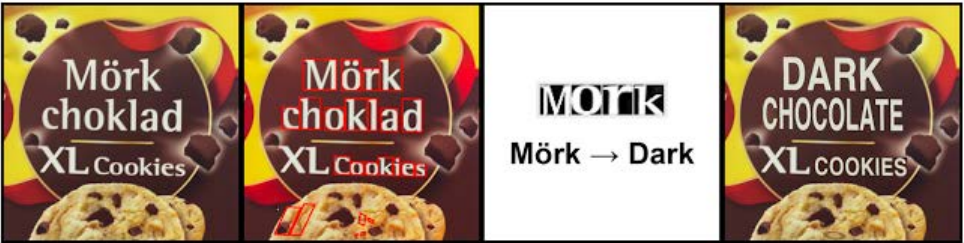
Object Detection



Driverless Cars



Automatic Language Translation



INPUT

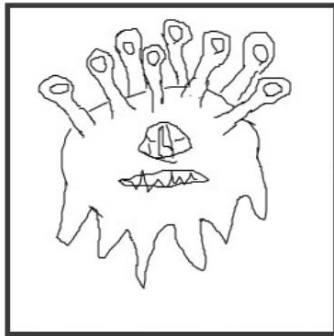


OUTPUT



pix2pix
process

INPUT



OUTPUT



pix2pix
process



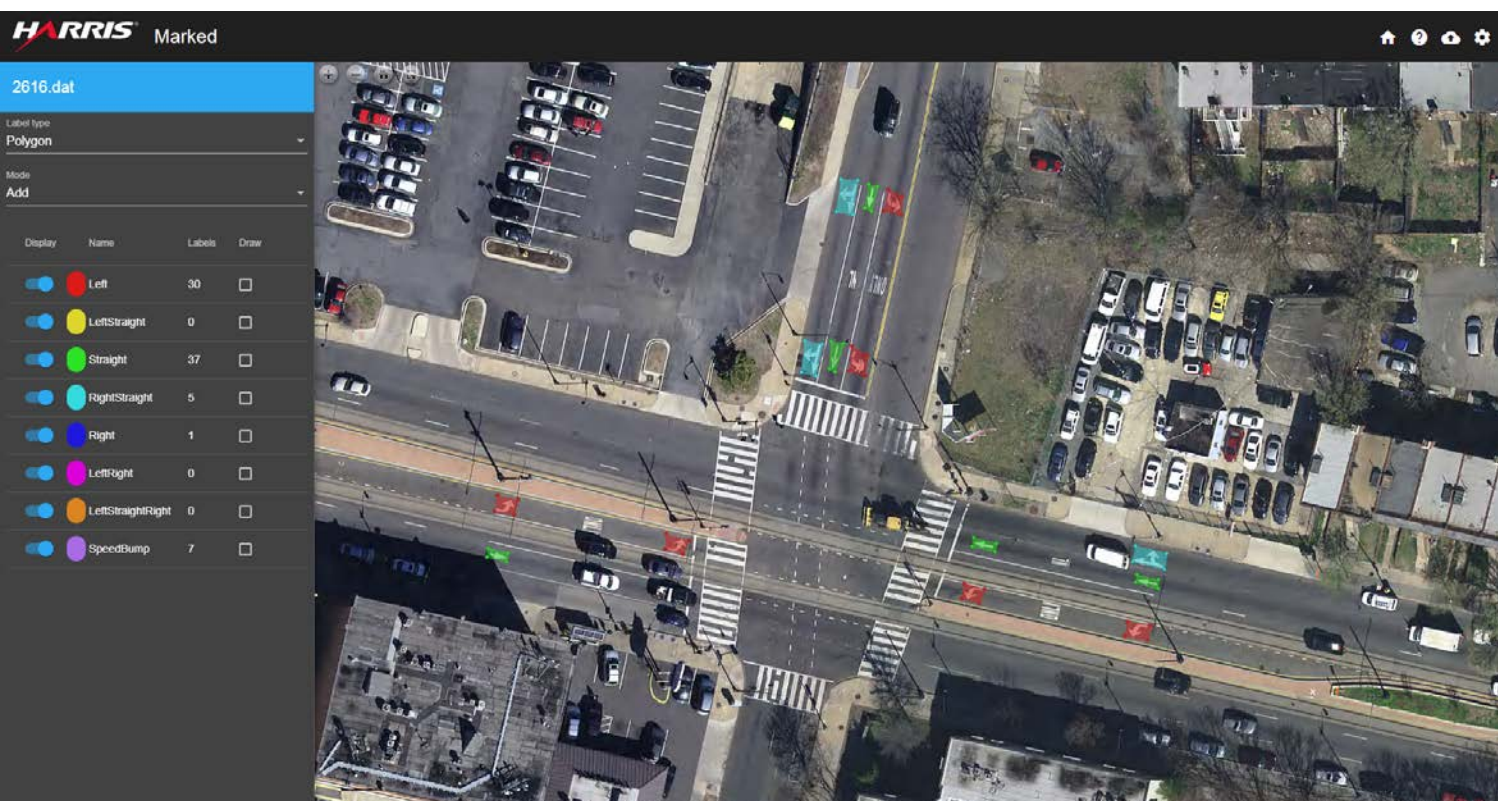
Deep Learning, What Should I Do?



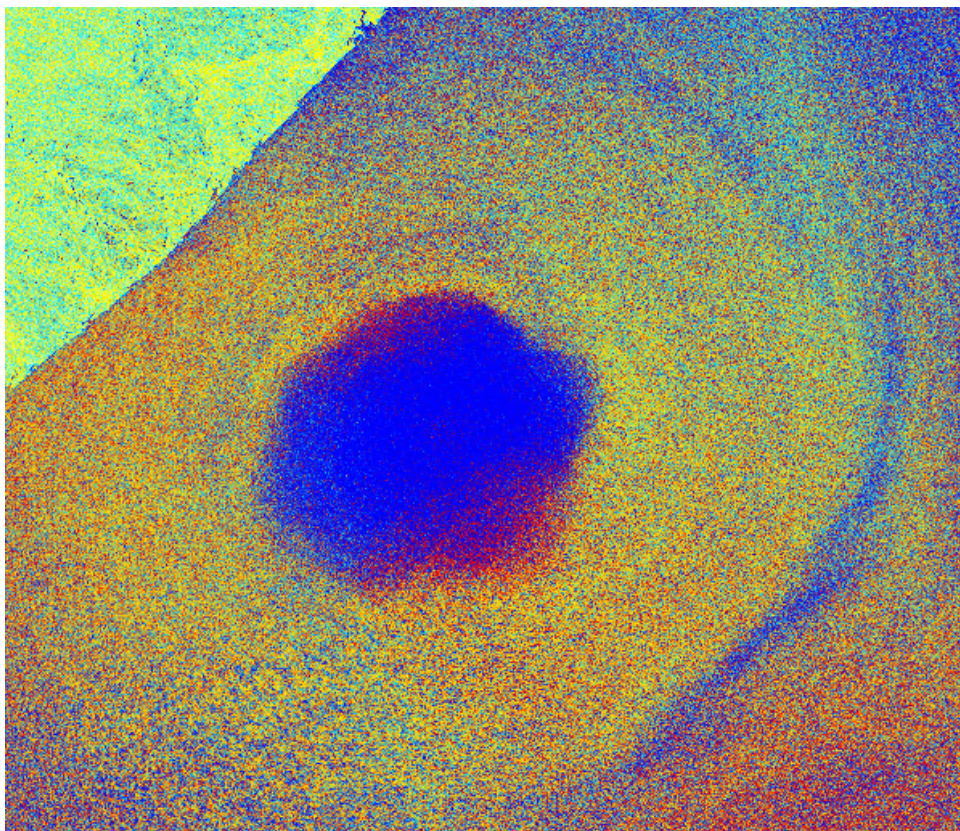
Height, intensity, and shaded relief



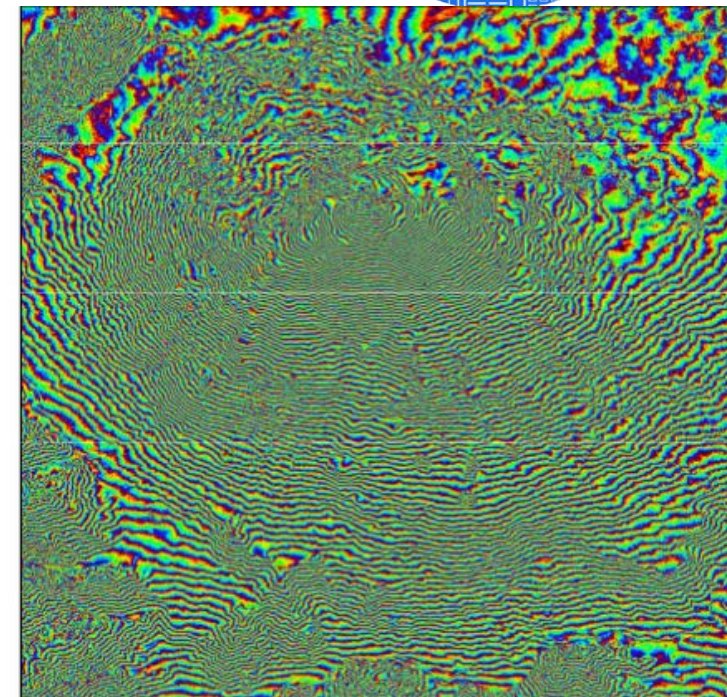
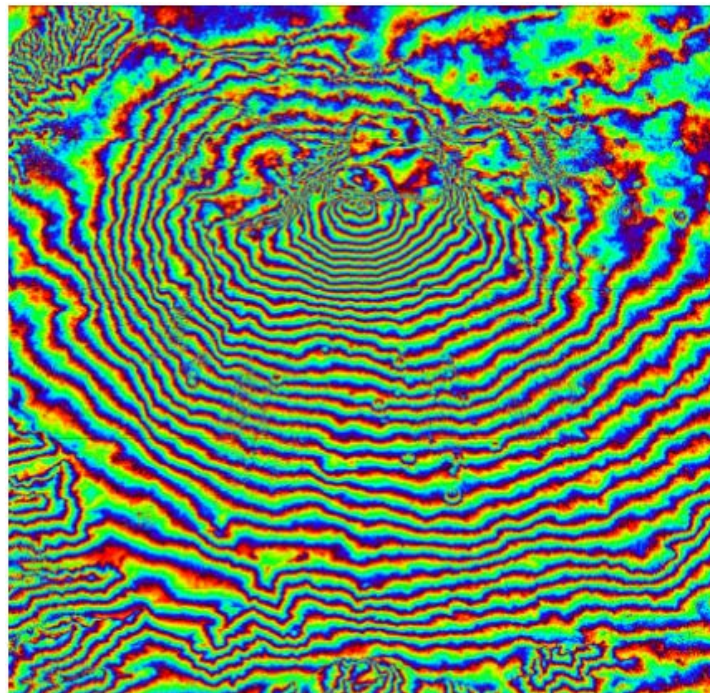
What Do I Need to Know to Know What I Need?



Some More Questions:



What am I?



These are interferograms of the same place, why are they so different?

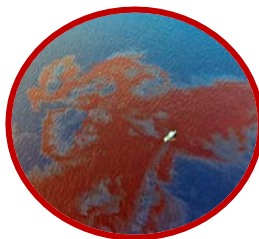
Resources Available



Landslides



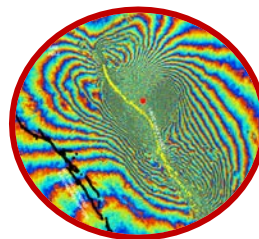
Glaciers and
permafrost



Oil spills



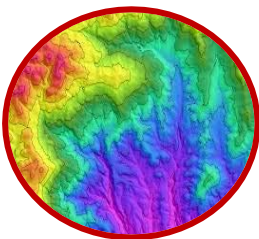
Subsidence



Earthquakes



Shipping



DEM
generation



Burn Area
Analysis



Deforestation



Flooding



Volcano
monitoring



Activity
monitoring

- SARscape Analytics**
 - SAR Change Detection
 - SAR Change Detection classification refinement
 - SAR DEM Extraction
 - SAR Displacement Mapping
 - SAR Flood Mapping
 - SAR Flood Mapping classification refinement
 - SAR Image Geocoding
 - SAR Persistent Scatterers
 - SAR Sentinel Auxiliary File Download
 - SAR Sentinel Download
 - SAR Ship Detection
 - SAR Time Series
- SARscape Management Tools**

publications

esa

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Publications

- ESA Impact
- ESA Highlights
- Brochures
- Archive

ESA > About Us > ESA Publications

INSAR PRINCIPLES: GUIDELINES FOR SAR INTERFEROMETRY PROCESSING AND INTERPRETATION (ESA TM-19)

Search here

Previous issues

Suggested Links

- ERS overview
- Envisat overview
- ESA on-line multi-



So the Question?



"The only thing we can do now," said Benjy, crouching and stroking his whiskers in thought, "is to try and fake a question, invent one that will sound plausible."

Then Frankie said: "Here's a thought. How many roads must a man walk down?"

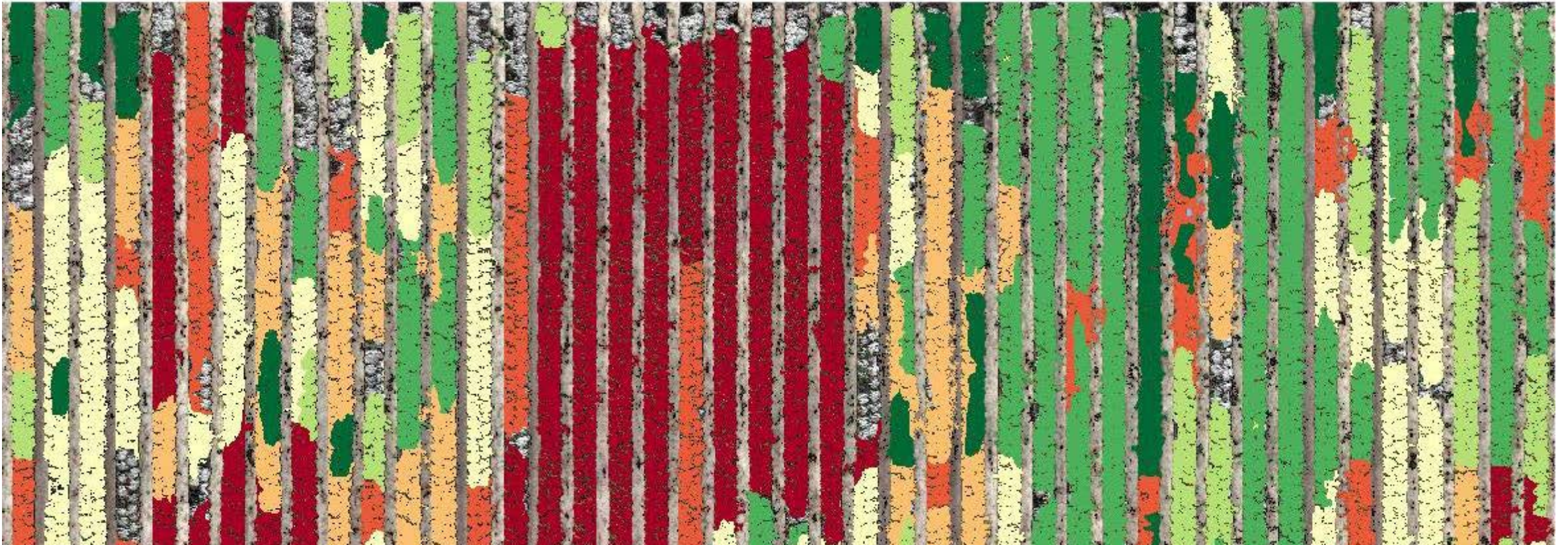
"Ah," said Benjy. "Aha, now that does sound promising!" He rolled the phrase around a little. "Yes," he said, "that's excellent! Sounds very significant without actually tying you down to meaning anything at all. How many roads must a man walk down? Forty-two. Excellent, excellent, that'll fox 'em. Frankie baby, we are made!"

- Douglas Adams, *Hitchhiker's Guide to the Galaxy*

The Answer! ... But Not the Right Question



How do we make it easier to educate people on what they actually need?



Questions?



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