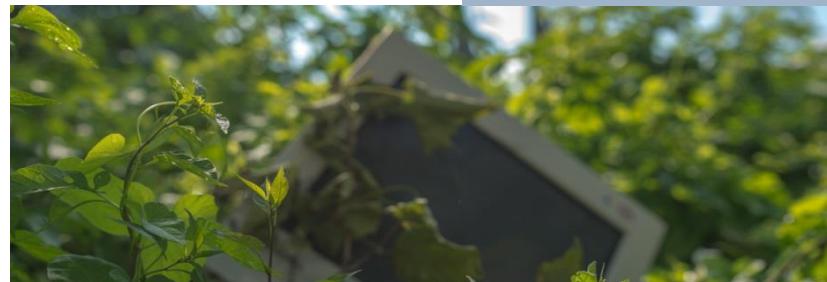




Unit 04 Deep Learning - Just another Learning?

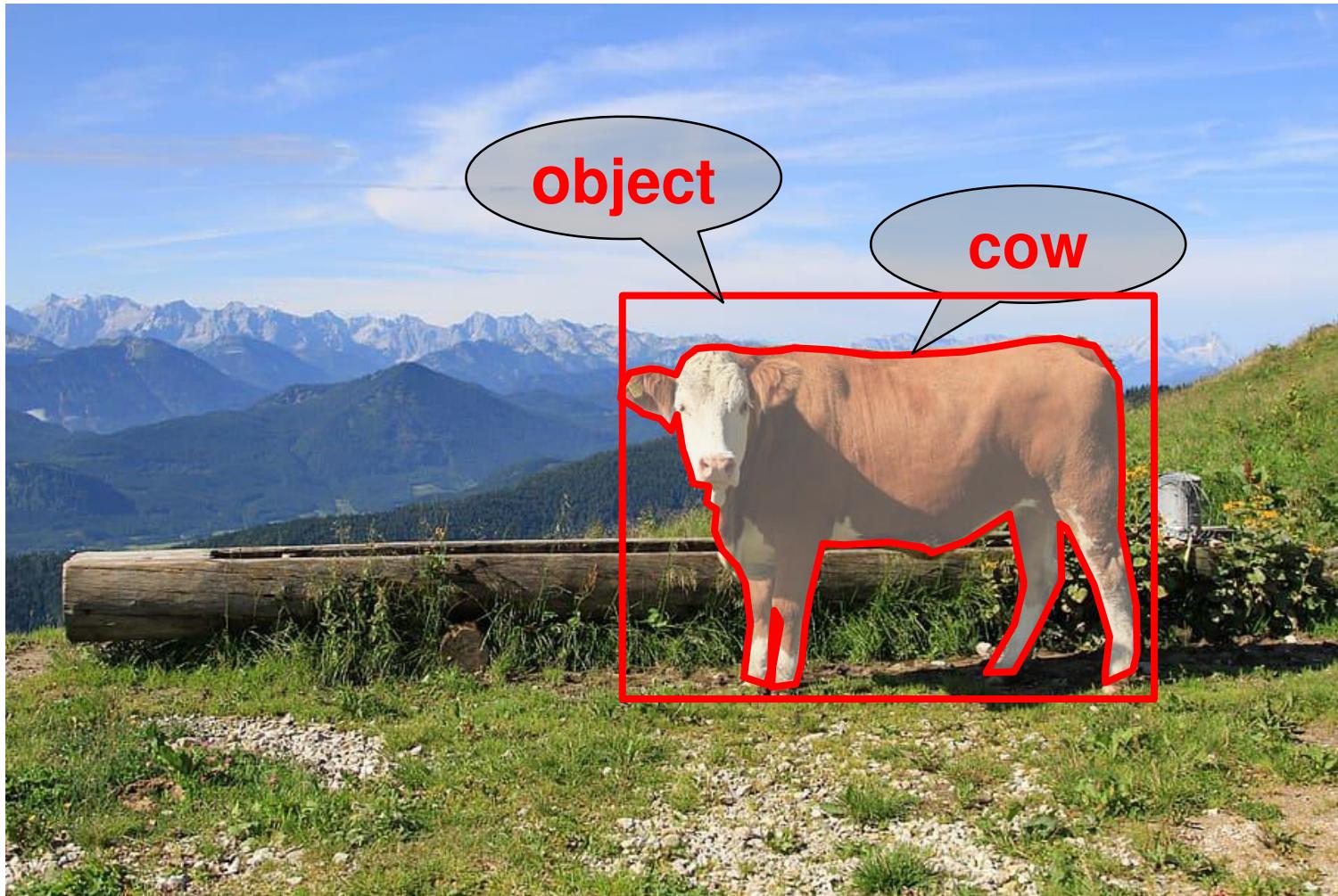
Introduction





Credits: <https://geomoer.github.io/geoAI/>

Object detection and classification



Credits: <https://p1.pxfuel.com/preview/359/465/210/meadow-grass-landscape-agriculture.jpg>

See you next time!

Philipps



Universität
Marburg

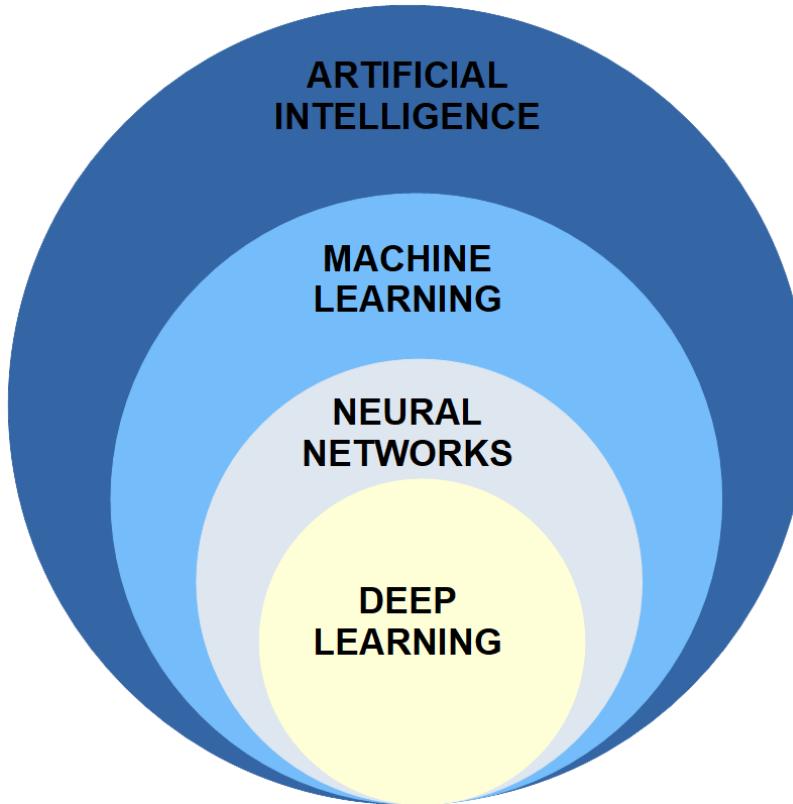
Deep Learning - AI for high-resolution imagery





Credits: <https://geomoer.github.io/geoAI/>

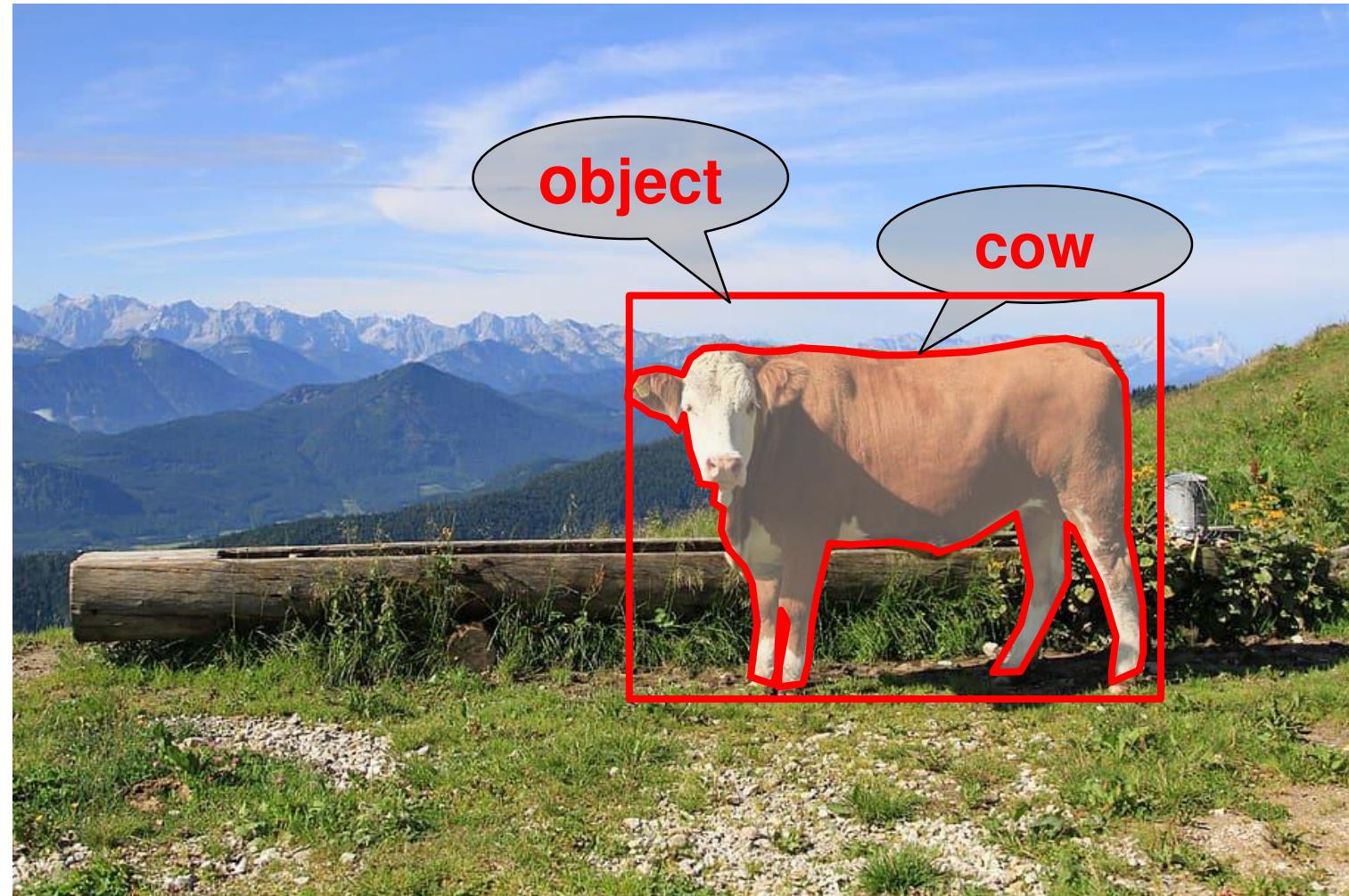
Deep Learning – Just another Learning?



Credits: <https://geomoor.github.io/geoAI/>

What do we need conceptually?

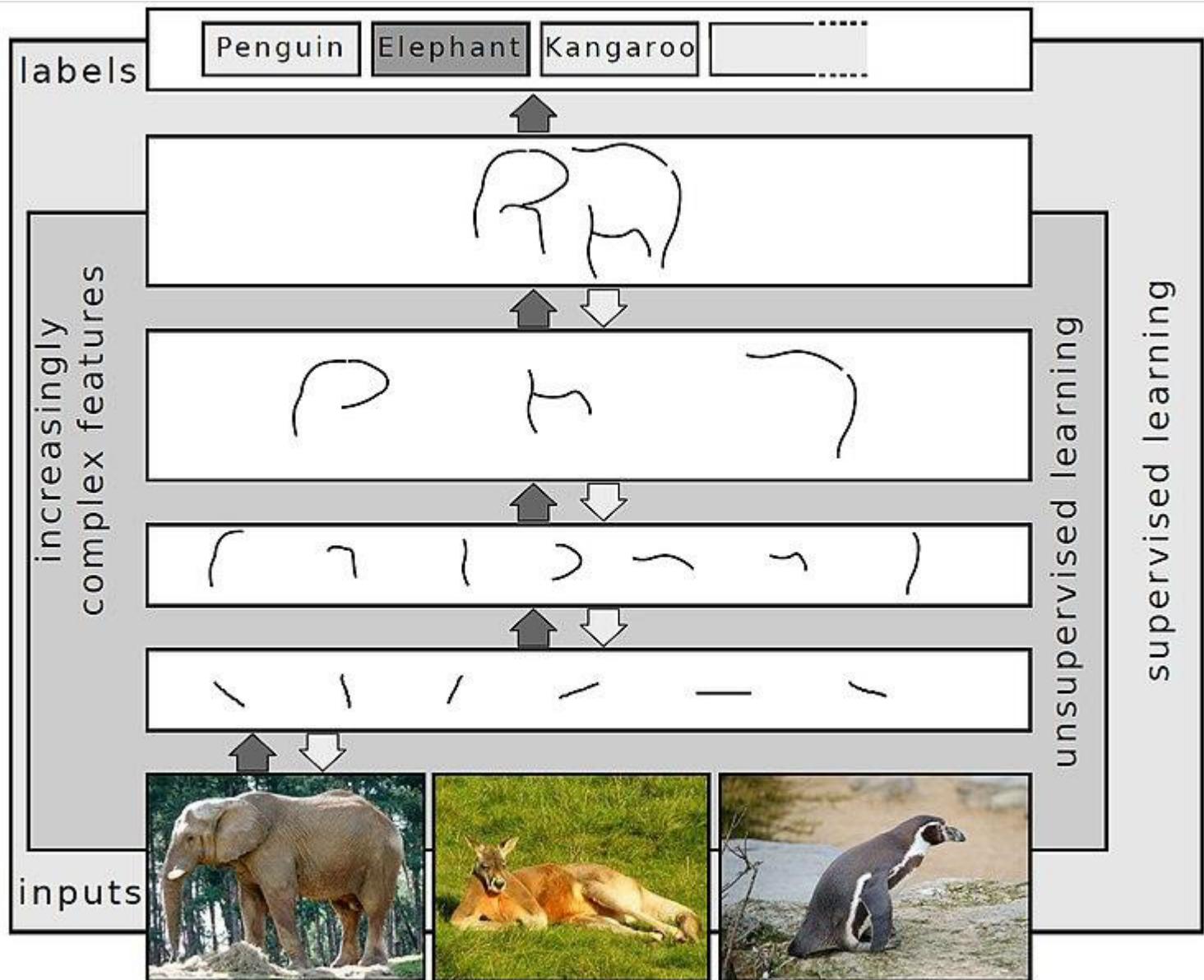
- Define object animal
- Identify object(s) in arbitrary images
- Segment exact object and classify it according defined training rules



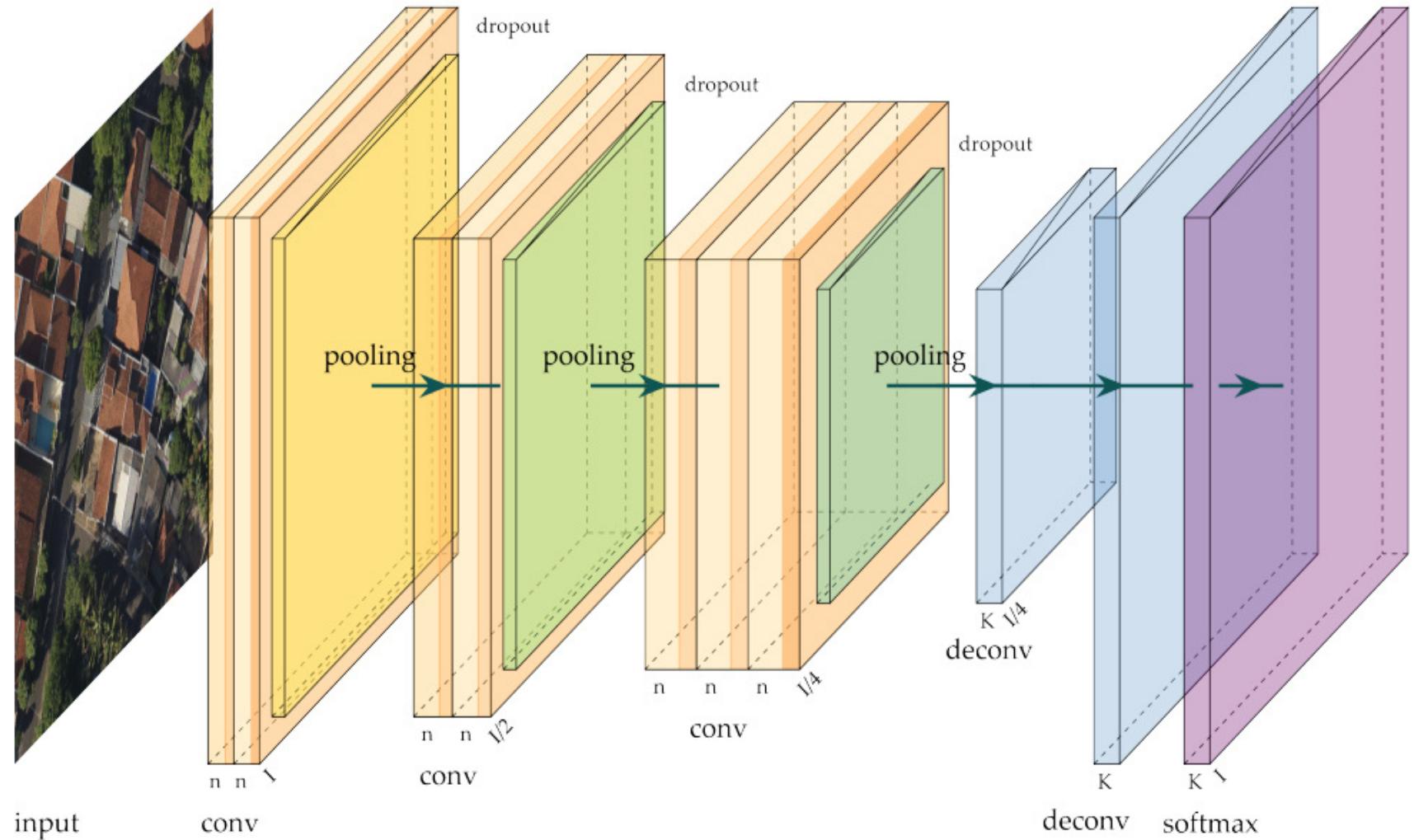
Credits: <https://p1.pxfuel.com/preview/359/465/210/meadow-grass-landscape-agriculture.jpg>

How does it work?

- Representation learning method
- Use supervised classification to label types
- Extract layers, coarse to fine
- Neurons reassemble, based on fit



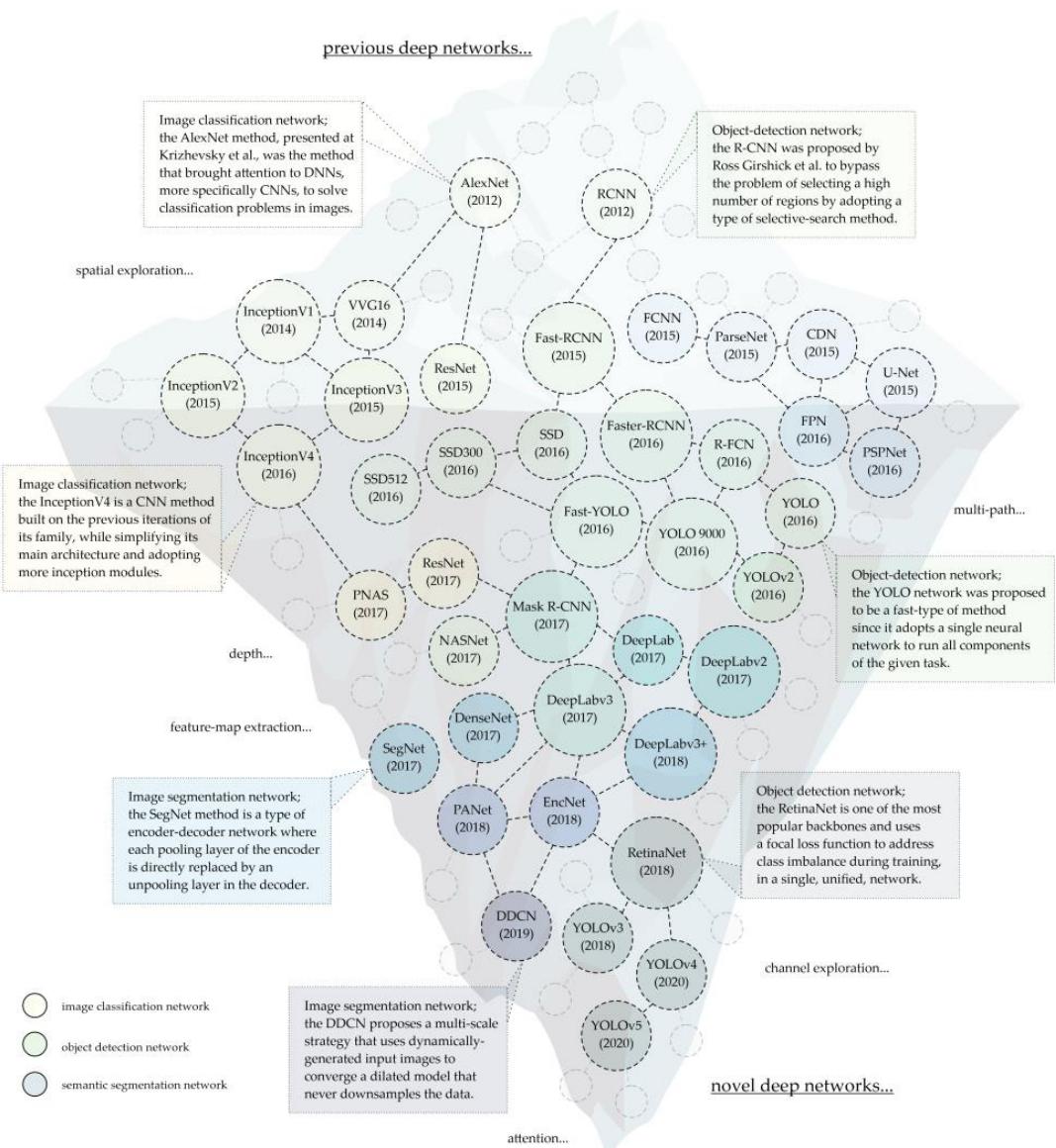
Technically a lot
of computing ...



Credits:Oscio et al. 2021 <https://arxiv.org/pdf/2101.10861.pdf>

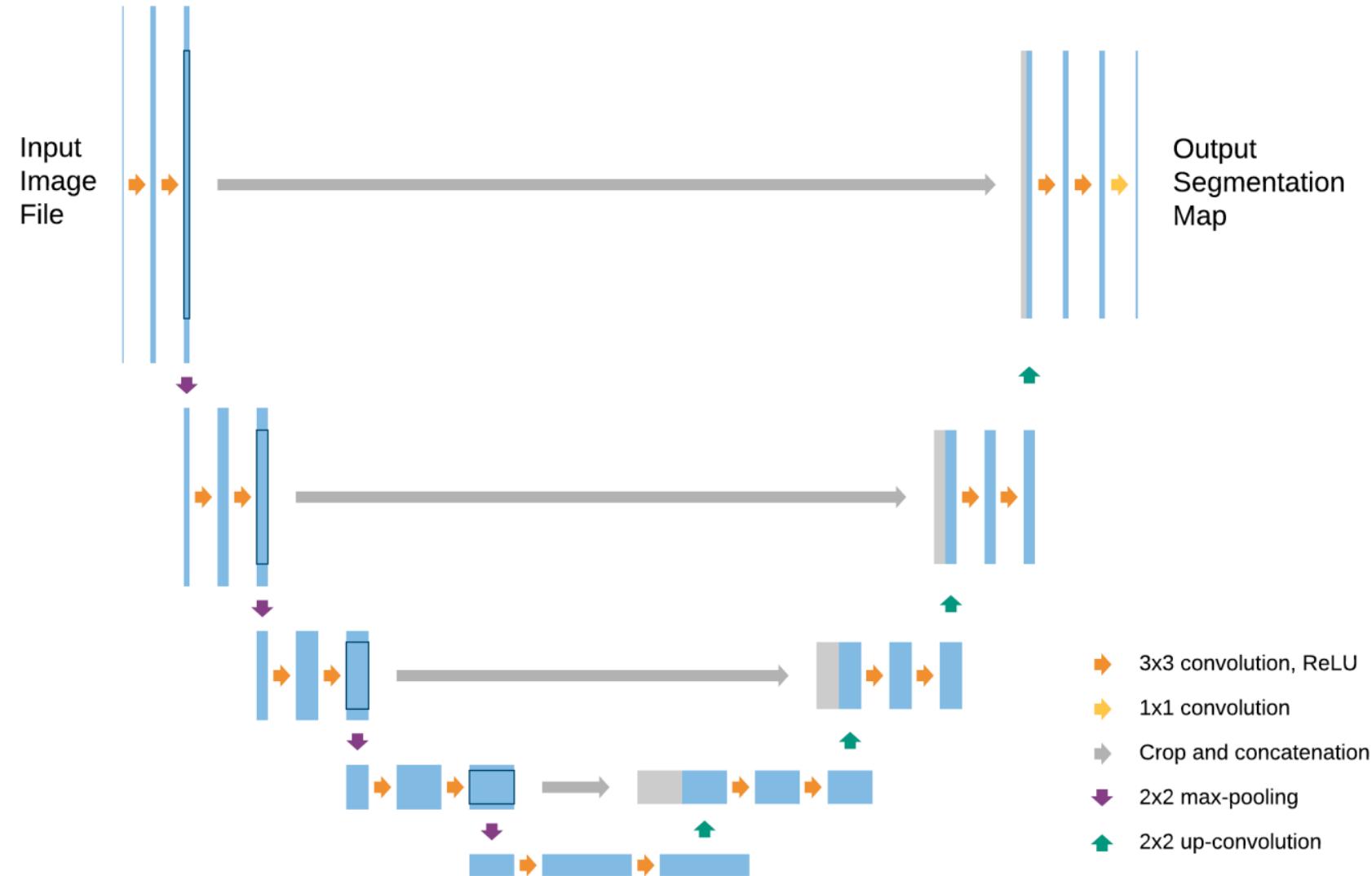
and many, many frameworks

- Many deep networks exist
- Semantic segmentation is important for object detection in UAV-based imagery
- U-Net, SegNet, DeepLabV3+ are at the forefront of current remote sensing research



Credits:Osco et al. 2021 <https://arxiv.org/pdf/2101.10861.pdf>

U-Net a robust choice



Credits: Siddique et al. 2020 <https://arxiv.org/pdf/2011.01118.pdf>

See you next time!