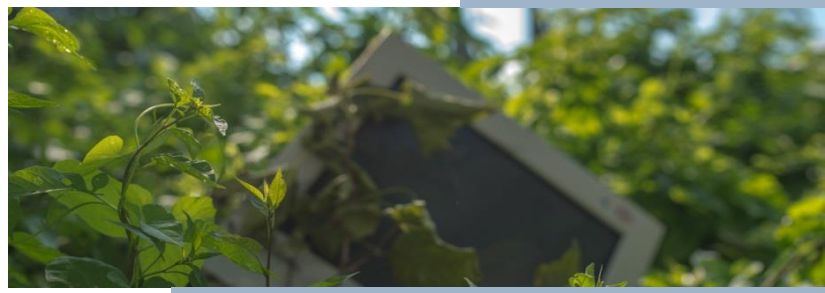
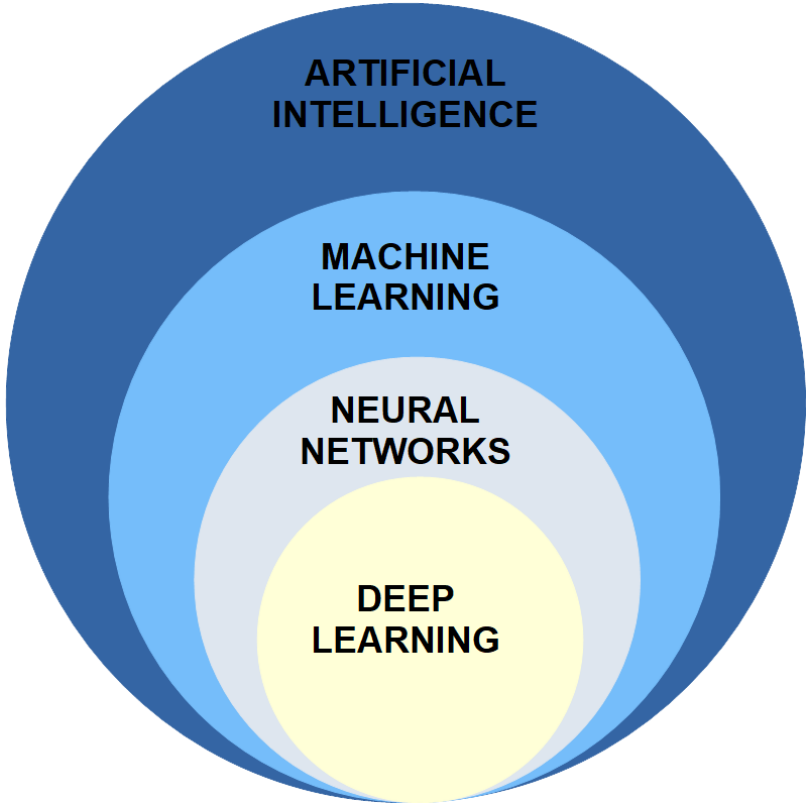
Philipps Universität Marburg

Deep Learning - AI for high-resolution imagery



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

Deep Learning – Just another Learning?



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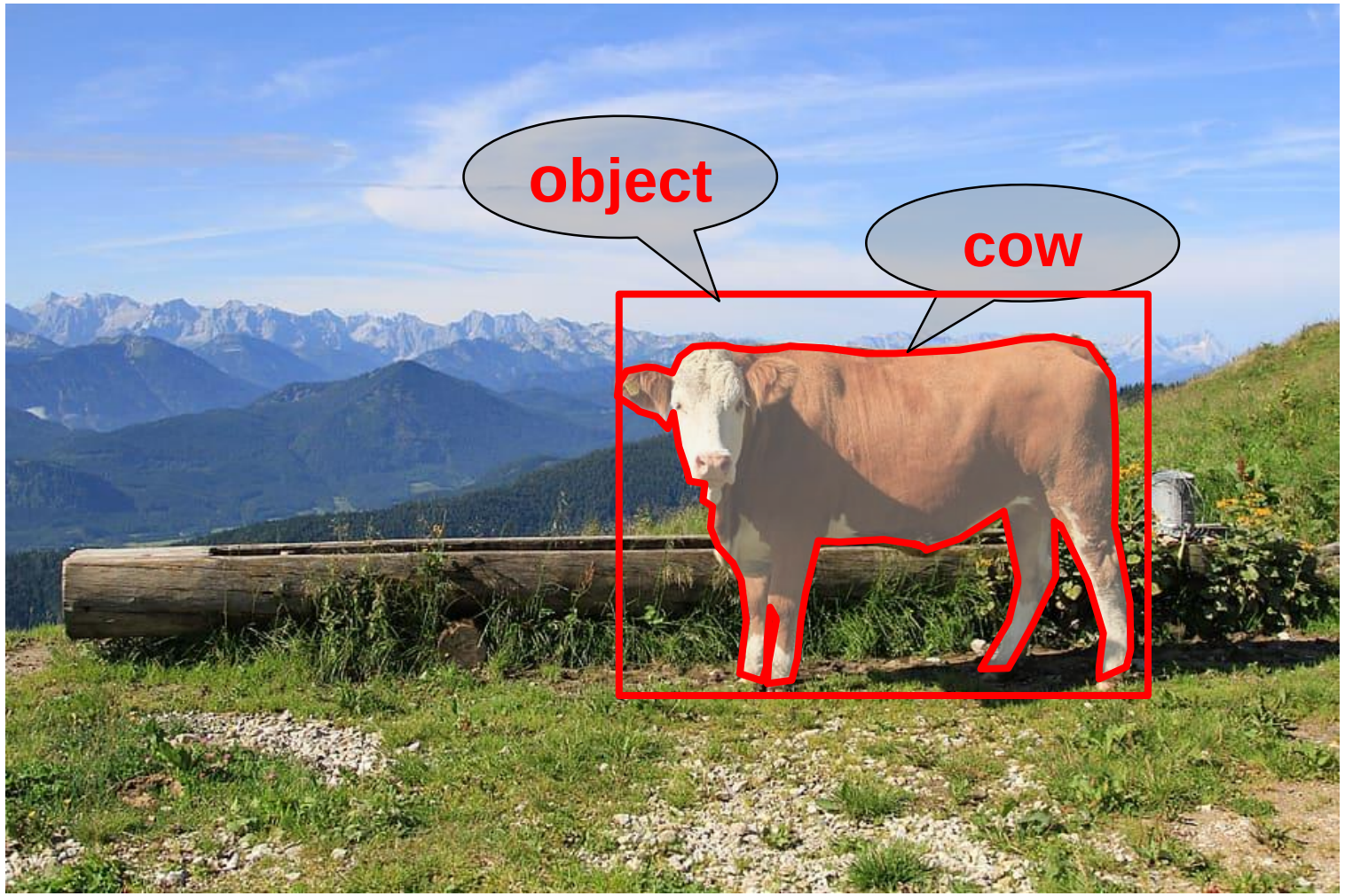
What do we need conceptually?

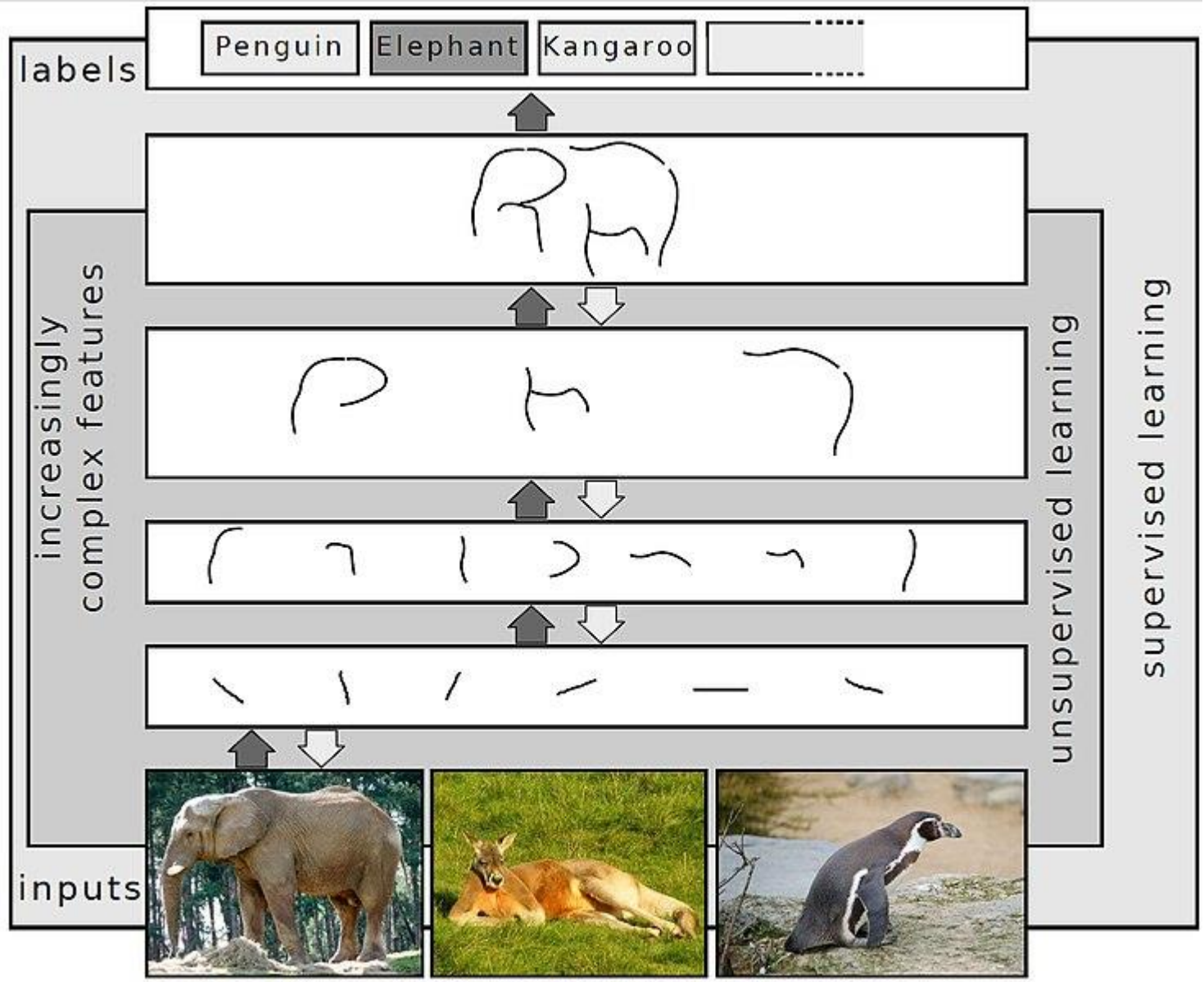
- Define object animal
- Identify object(s) in arbitrary images
- Segment exact object and classify it according defined training rules



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

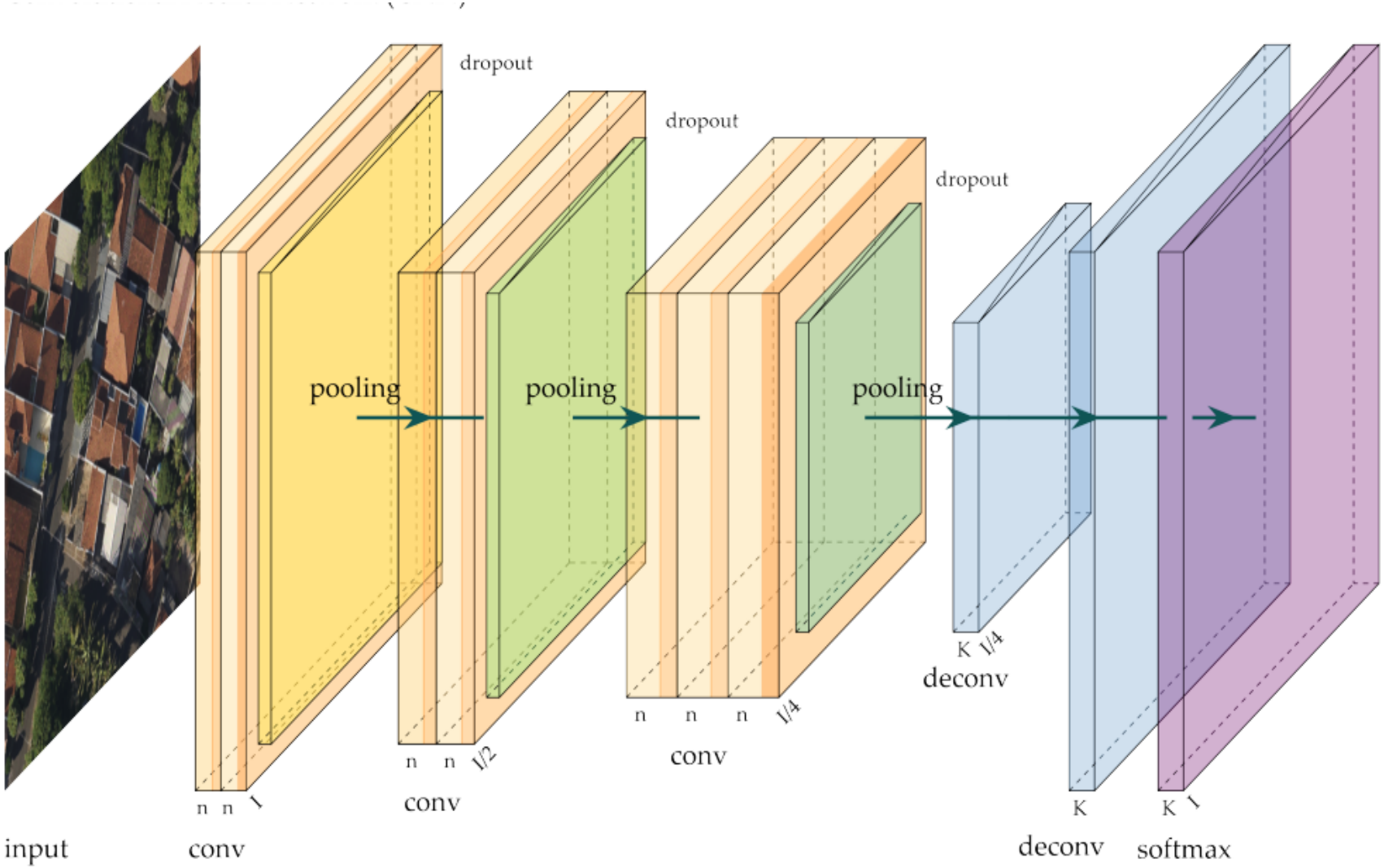
How does it work?

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



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

Technically a lot of computing ...



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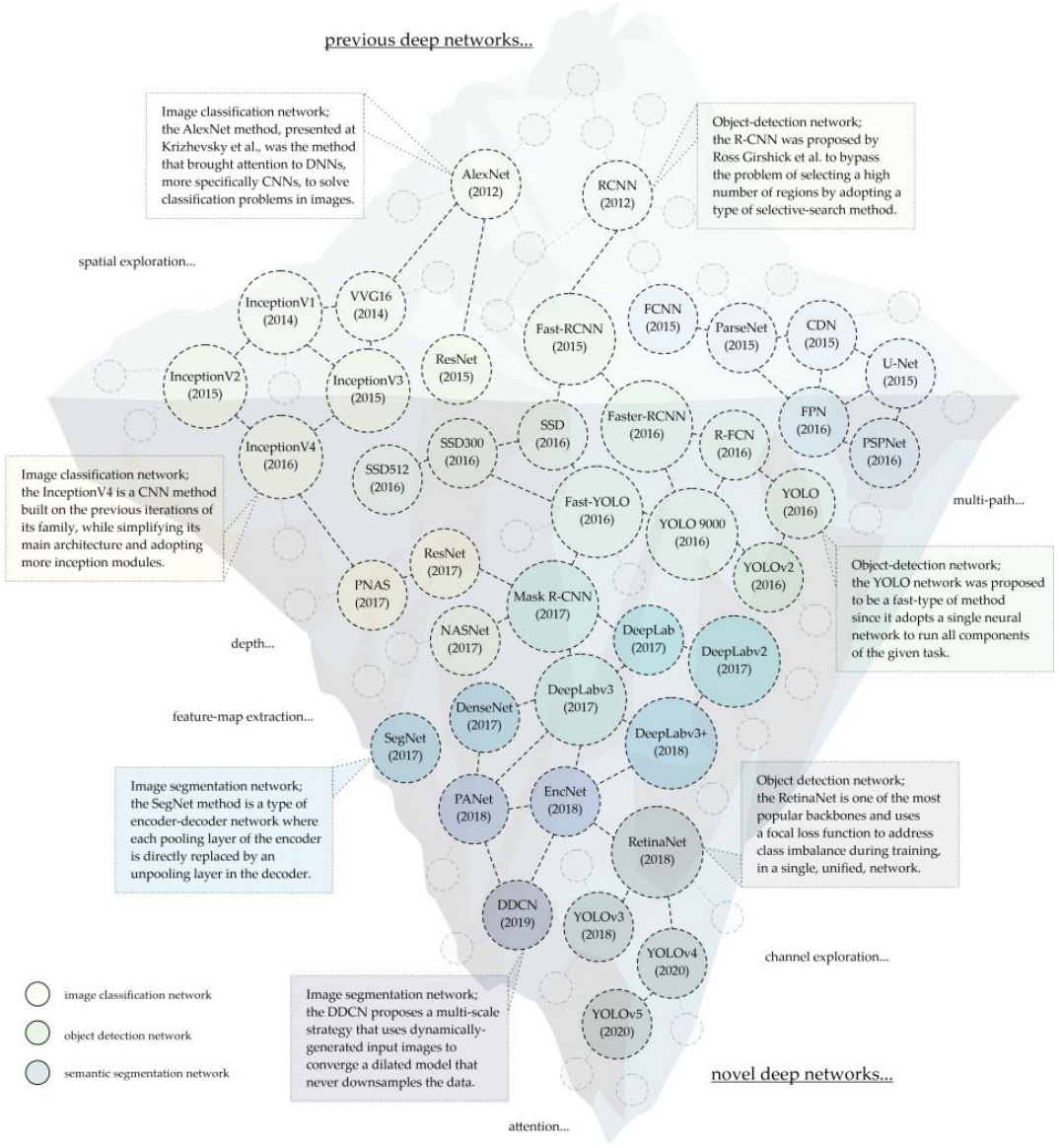
and many, many frameworks

- 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



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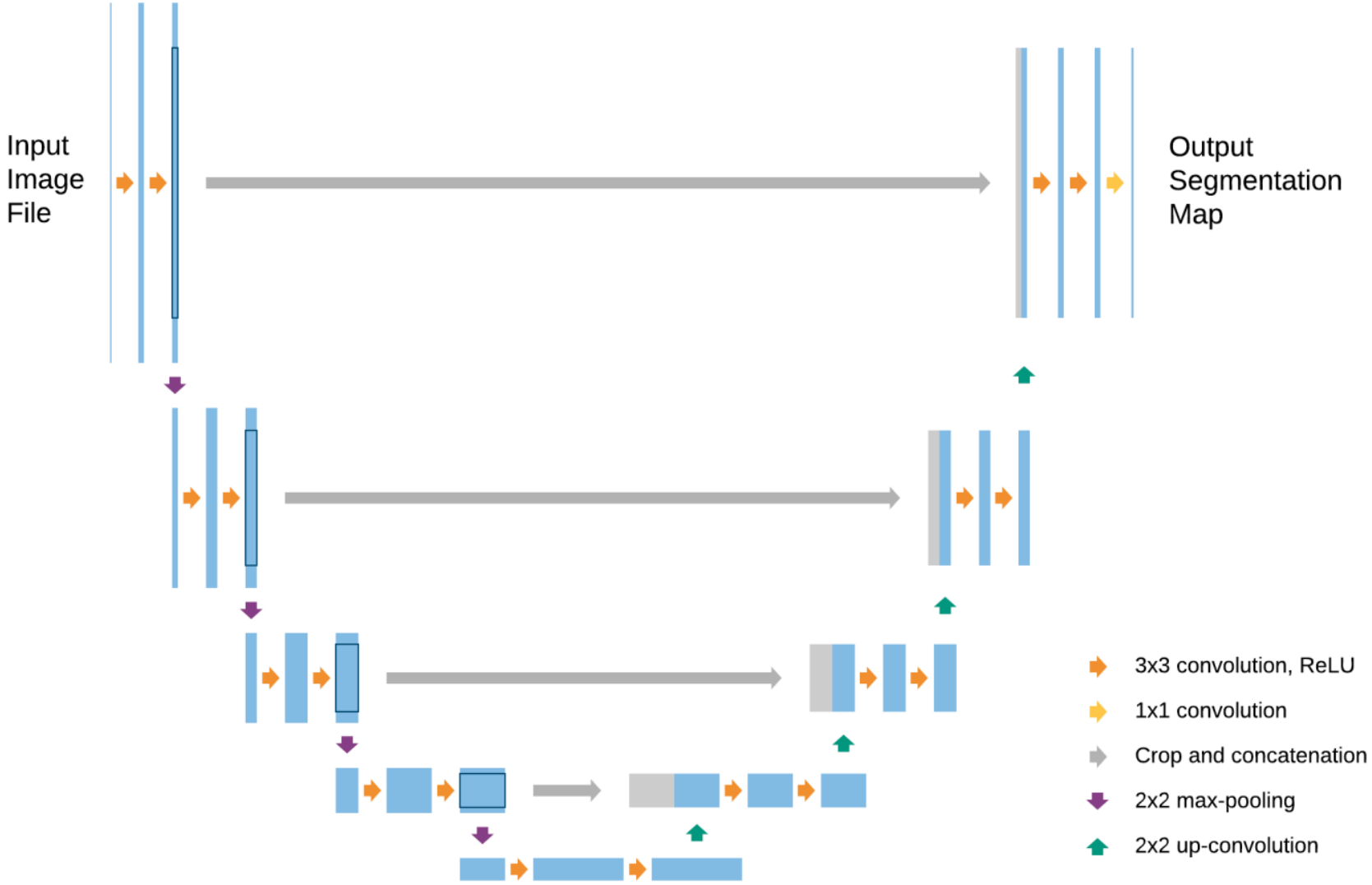
U-Net a robust choice



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

See you next time!