EO Topic 24: Building mapping through deep learning

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IDEA MAP SUDAN

African Population and Health Research Center

ITC UNIVERSITY OF TWENTE.

ULB

Nuffic meet the world

IDEAMAP SUDAN

Overview

Recap: Neural Networks

Recap: The CNN

Model architecture

Training configuration

Building mapping

- **Recap: The Neural Networks**
- **Recap: The CNN**
- **Model architecture**
- **Training Configuration**
- **Building mapping**

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Machine learning with the Neural Networks

Recap: Neural Networks

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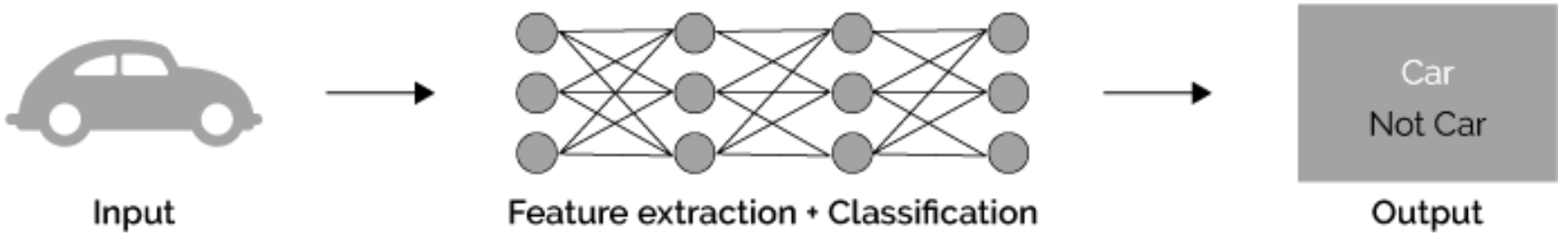
- **Inference:** constructing a certain mapping/relationship between known input and output
- **Prediction:** estimate unknown output with new input



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The CNN: for different purposes

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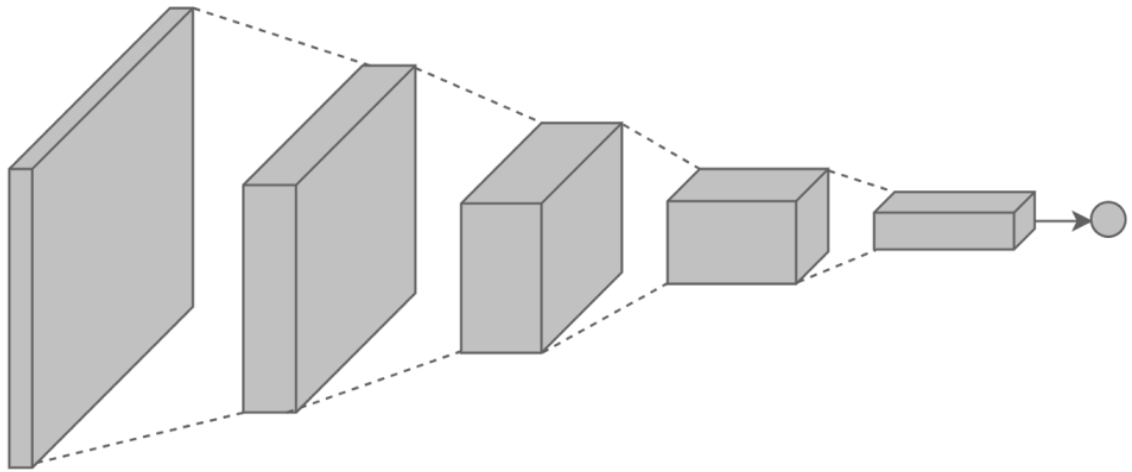

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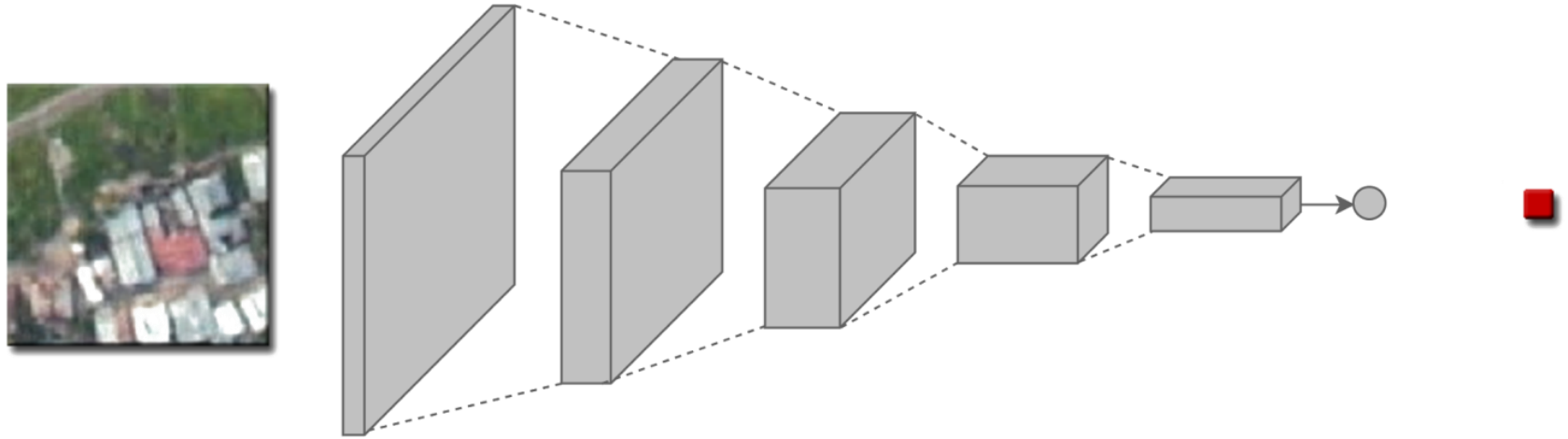

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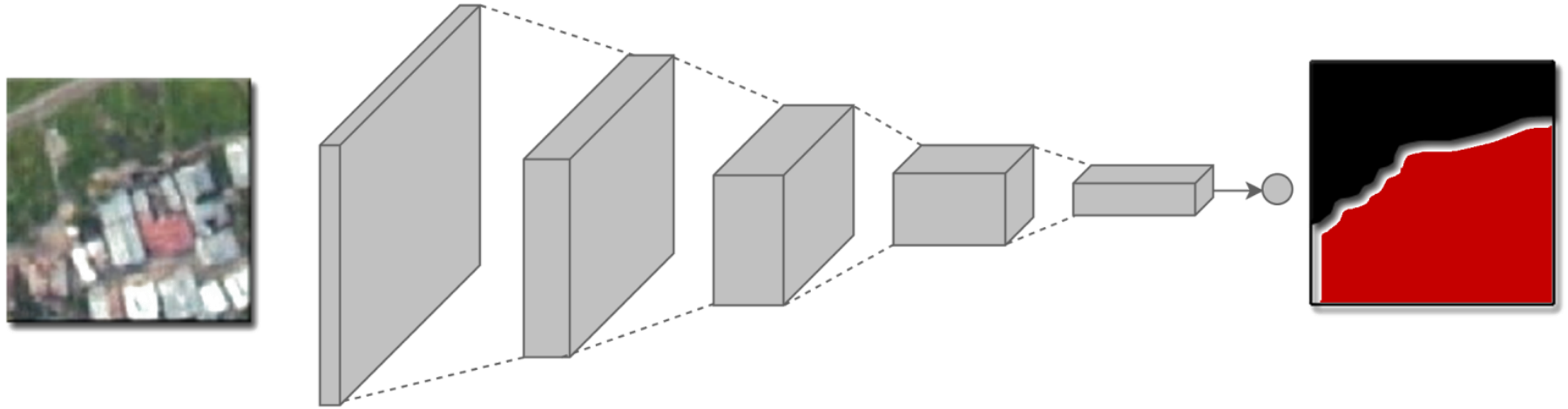

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For image segmentations: AutoEncoder

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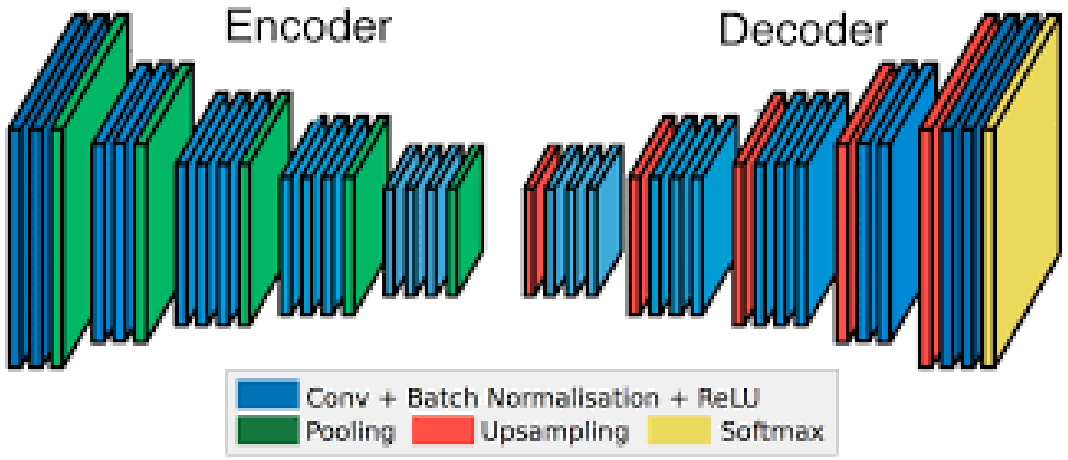

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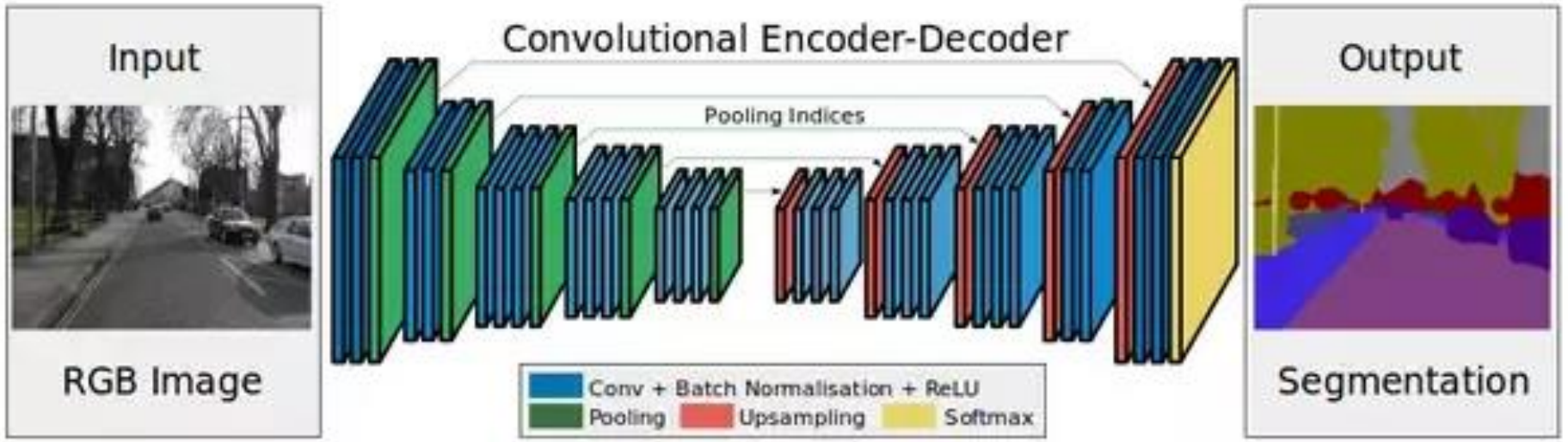

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Variations of encoder-decoder architecture

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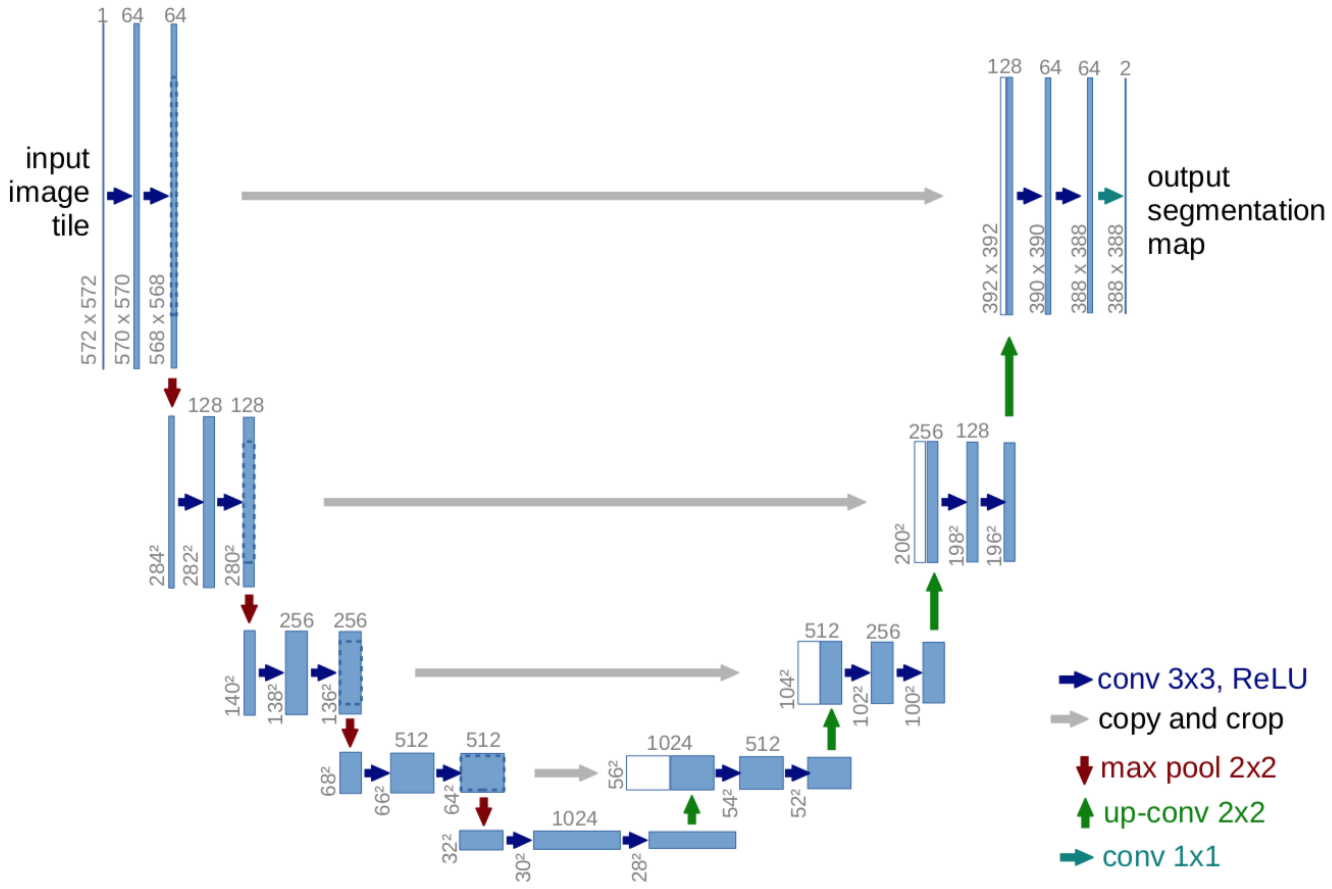

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Training configuration

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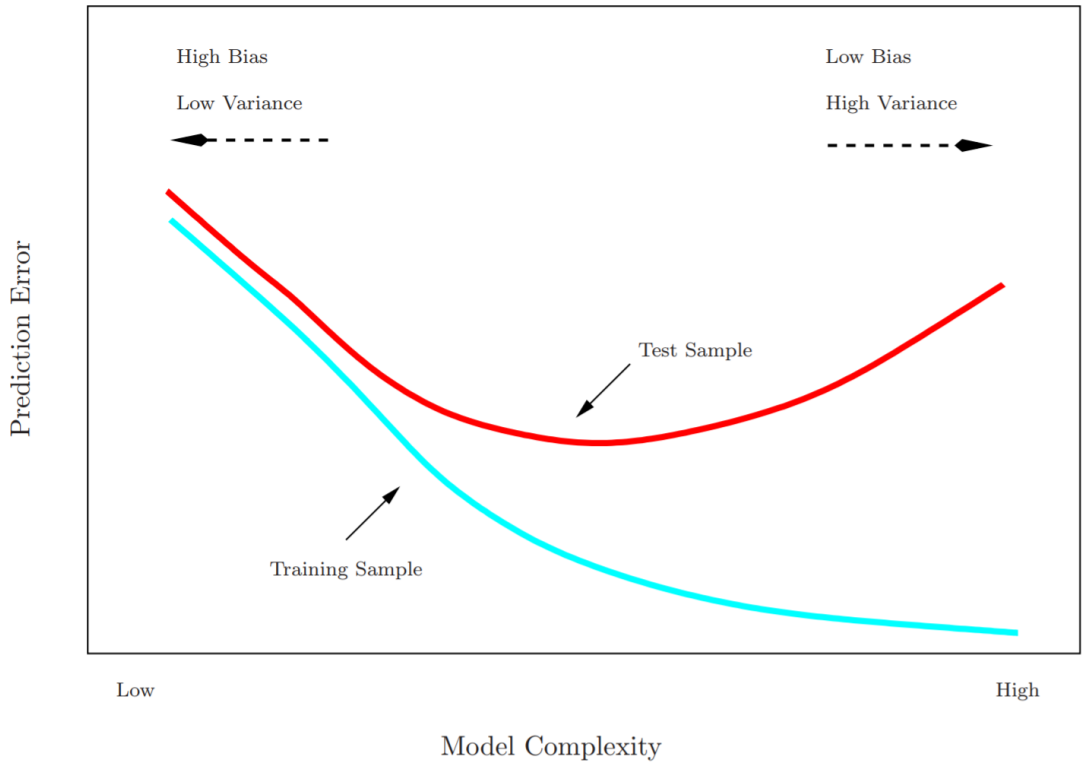
- **Training data preparation: generalizable**
- **Model configuration: complexity, over/under-fit**



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Building mapping: Important!

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https://newatlas.com/unequal-scenes-drone-photograpy/55899/#gallery

DEAMAP SUDAN

Training labels for the model

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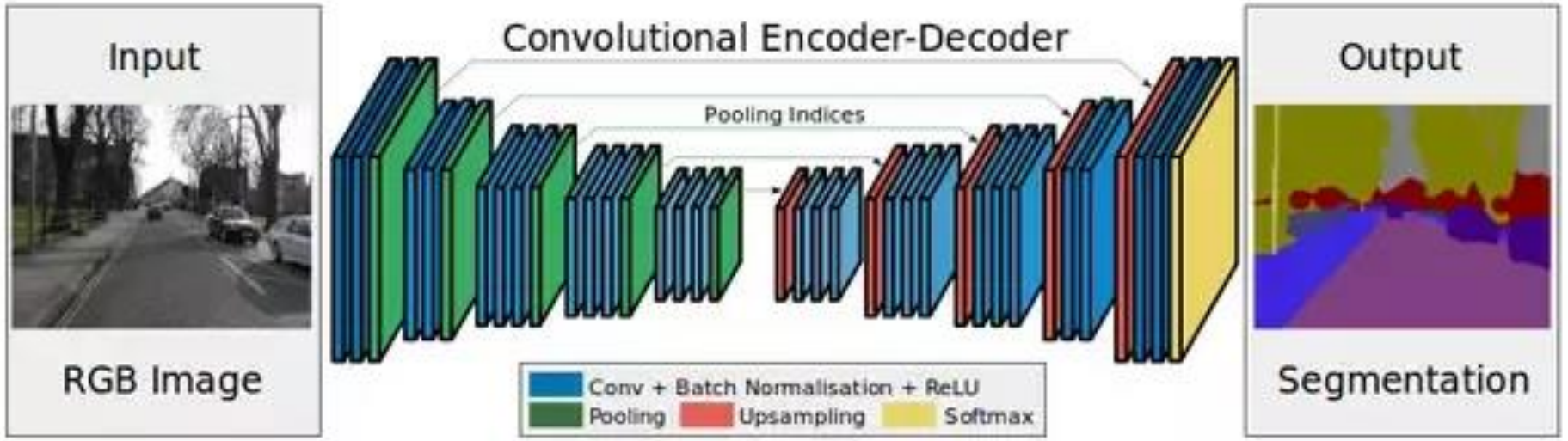

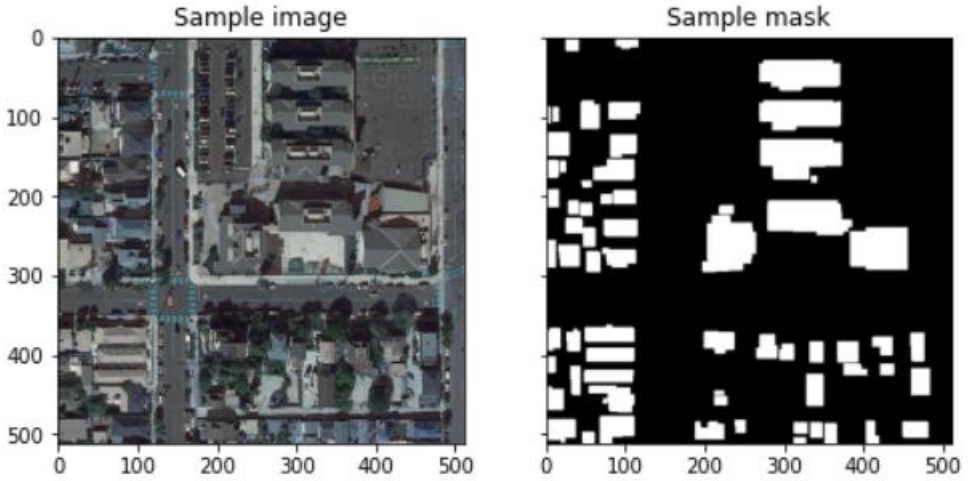

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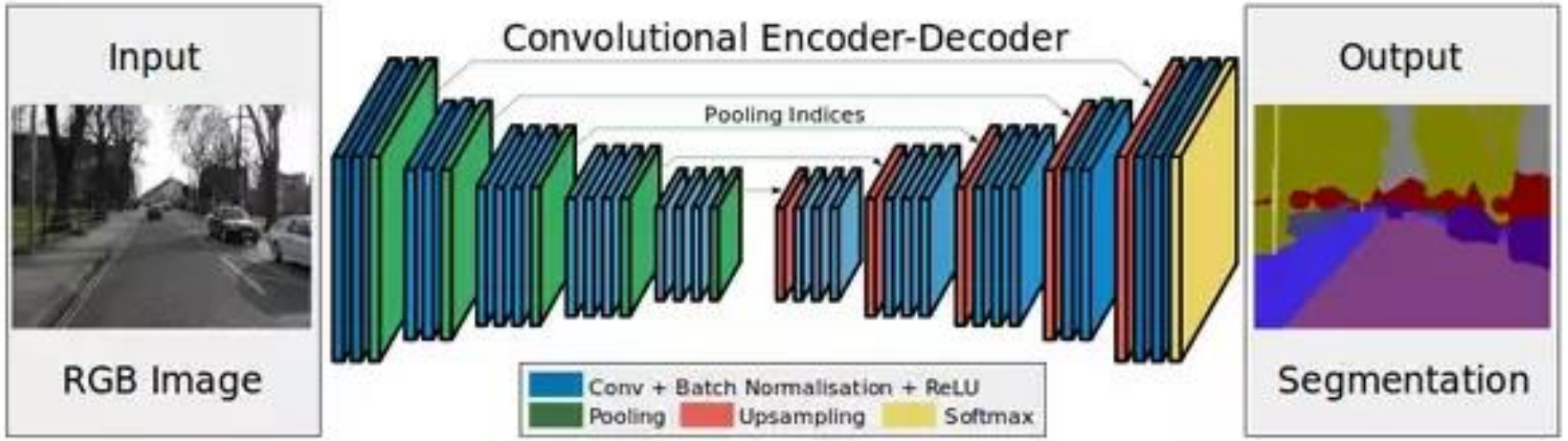

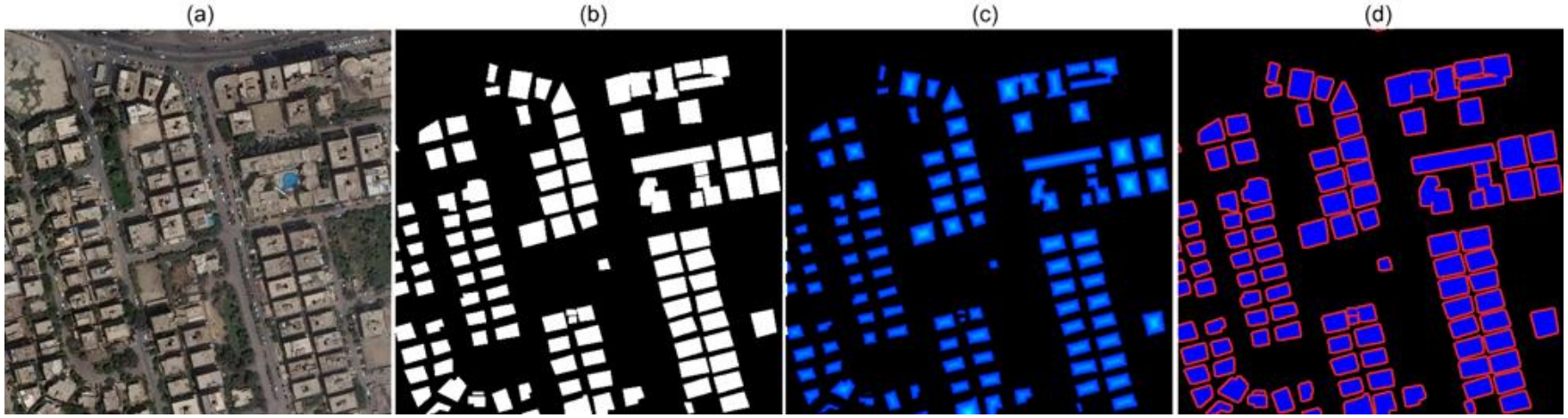

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Overview of the exercise

- **Python notebook on CRIB, ITC**
- **Load and preprocess data**
- **Prepare training data**
- **Training Configuration: architecture, learning rate, loss, epochs**
- **Prediction**