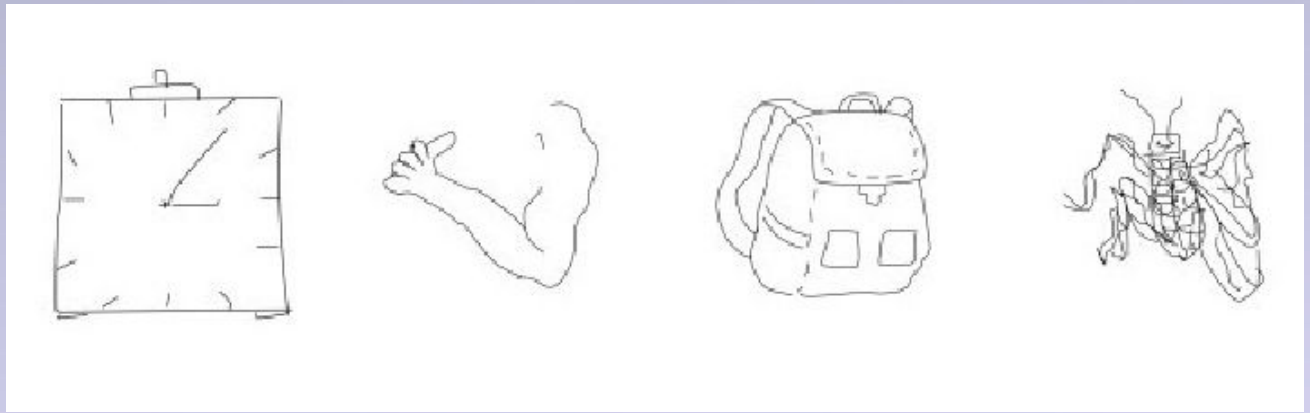
LauzHack

AXA

Introduction

- **Focus device:** Meta Quest 3 or 3S
- Use an **efficient deep learning model** to **classify doodles** (hand-written sketches) using MX Ink for drawing



Model - Intro

EfficientNet B7 architecture[1]

[1] EfficientNet: Rethinking Model Scaling for Convolutional Neural Networks, Tan et al, 2019

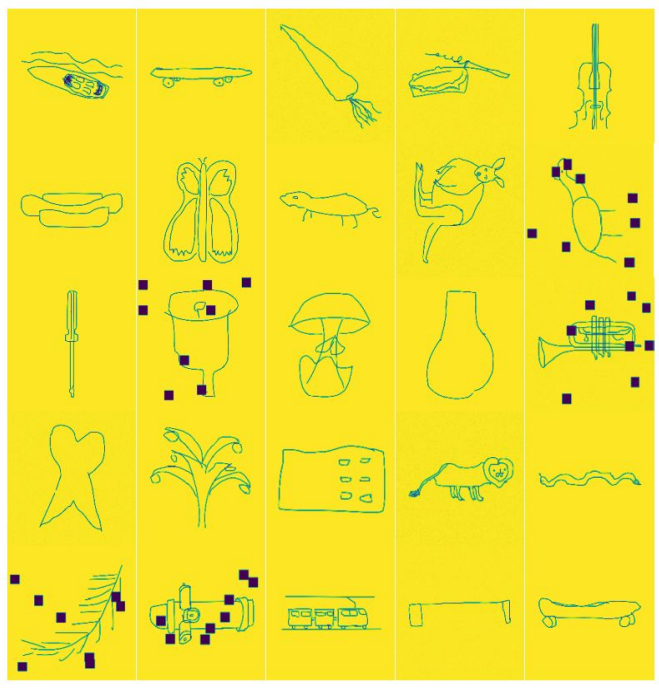
Model - Training

Dataset

- TU-Berlin Sketch Dataset
  - 20k sketches over 250 classes
- Data augmentation (Flips, crops, resize, etc…)

Training (PyTorch)

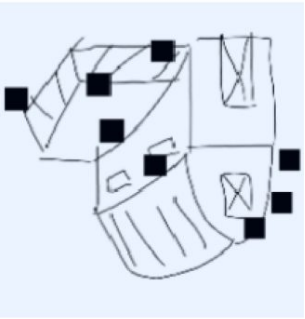
- Batch size: 32 imgs / batch
- Adam optimizer (LR=1e-3, 50 epochs)
- Cross-entropy loss
- F1-score accuracy



Augmented batch of data

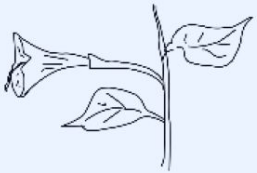
Model - Results 1

P: house
T: barn

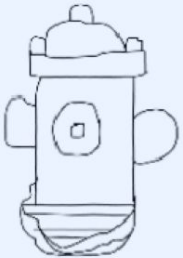


P: guitar
T: violin

P: flower with stem
T: flower with stem

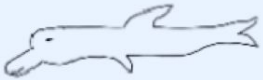


P: fire hydrant
T: fire hydrant

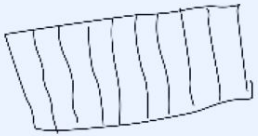


P: envelope
T: envelope

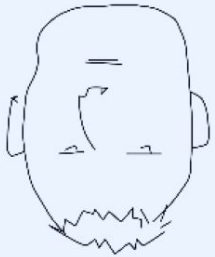
P: shark
T: dolphin



P: bread
T: bread



P: head
T: head

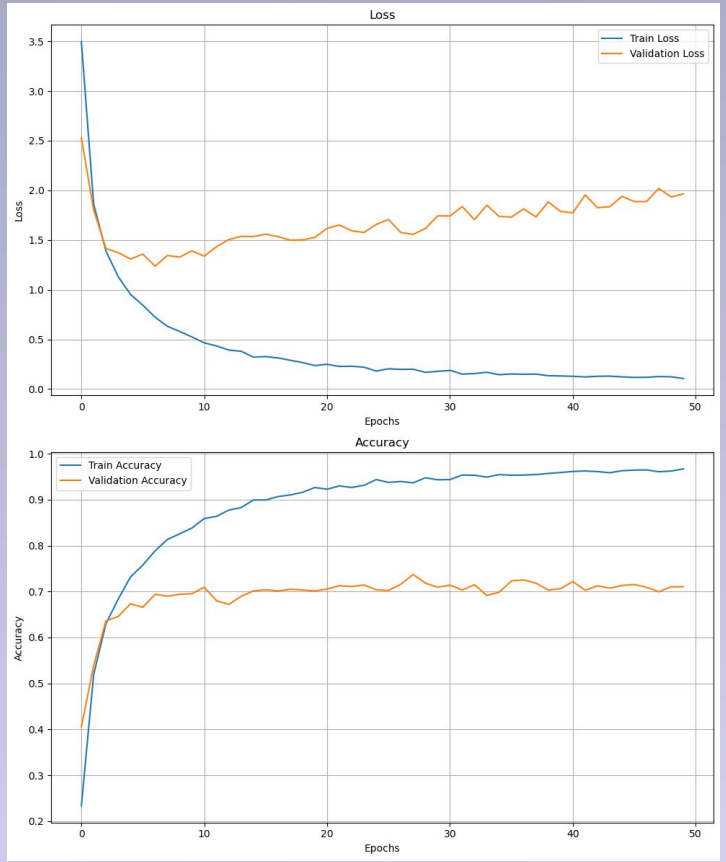


Model - Results 2

F1-Score: 70%*

Loss: 1.82

* Using **testing** dataset (10% of entire dataset)




TracXR