Parking Spot Detector

Computer Vision

David Thrien, 11. April 2025

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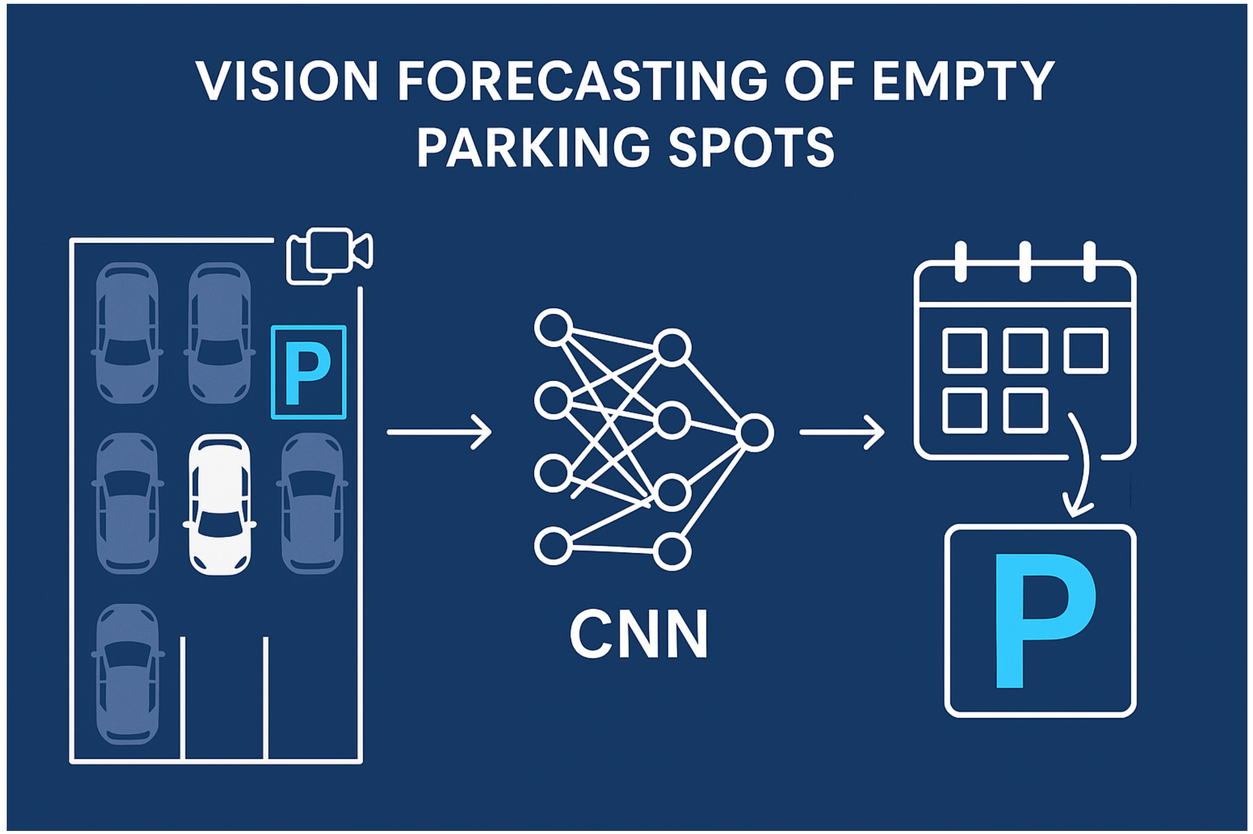
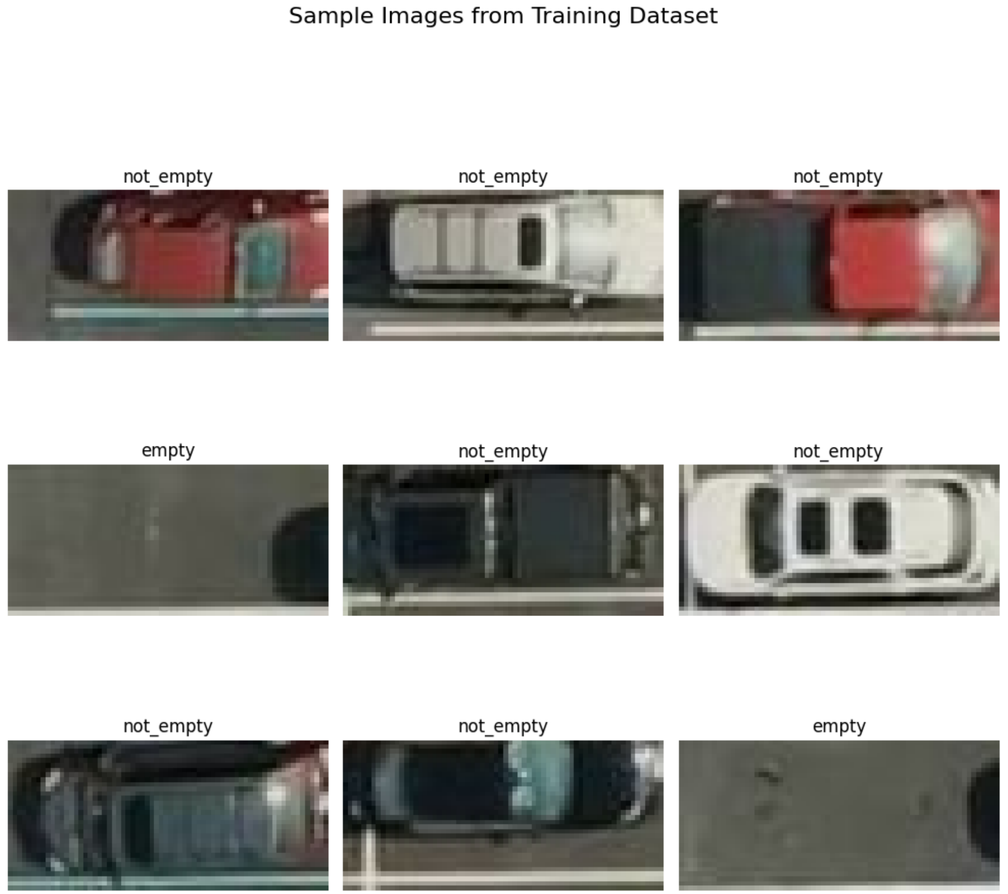


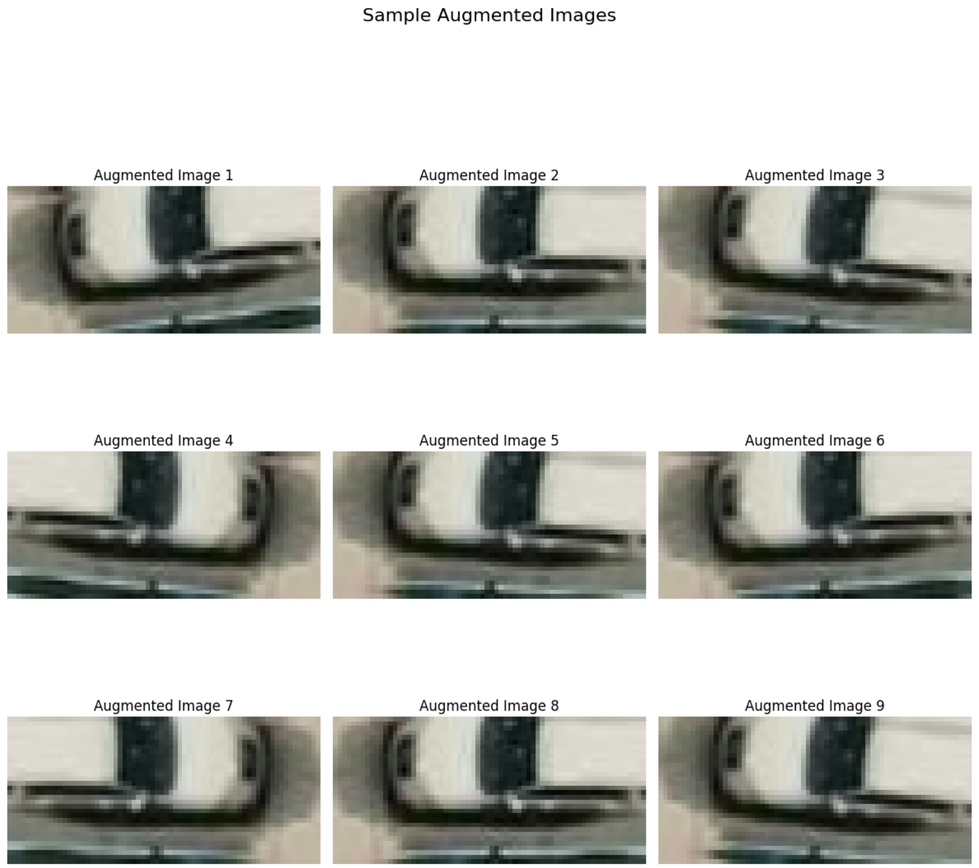
Target and Data Basis

- **Target:**
  - Labeling images of parking spots as „empty“ or „not empty“
- **Data Basis**
  - 6090 images
  - Balanced data set of „not empty“ and „empty“ parking spots



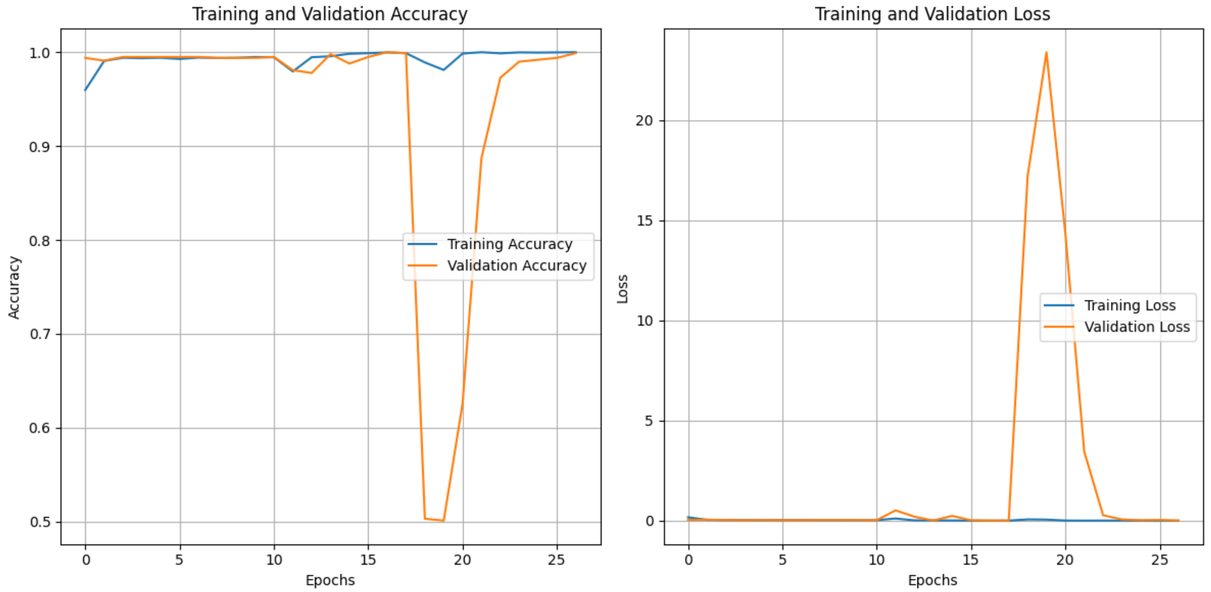
Data Preparation

- Resizing the images with padding to 32 x 68 + augmentation
- 80/20-split for training and validation
- Validation data set is again split 80/20 for validation and testing

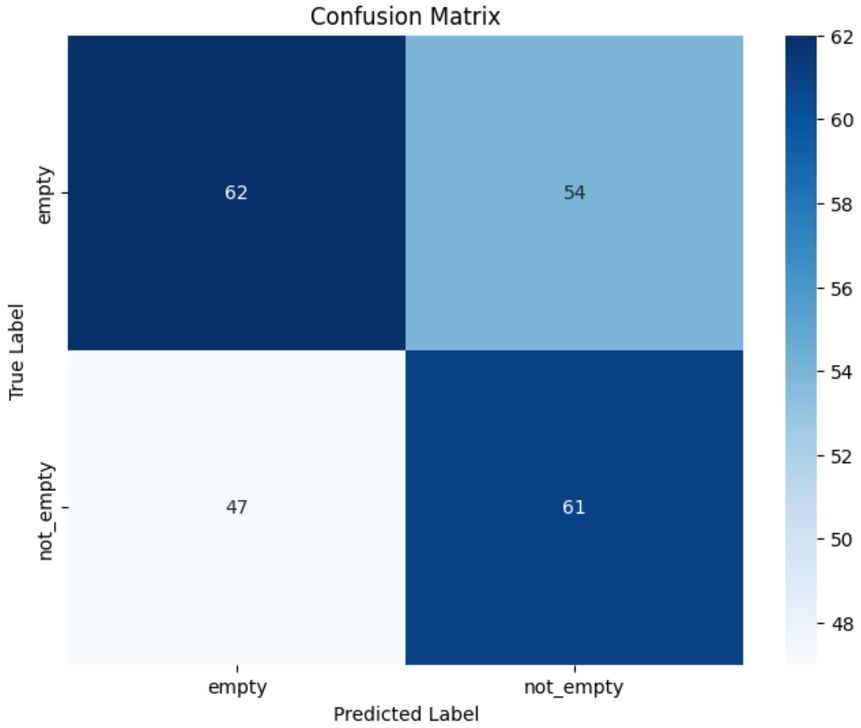


Model

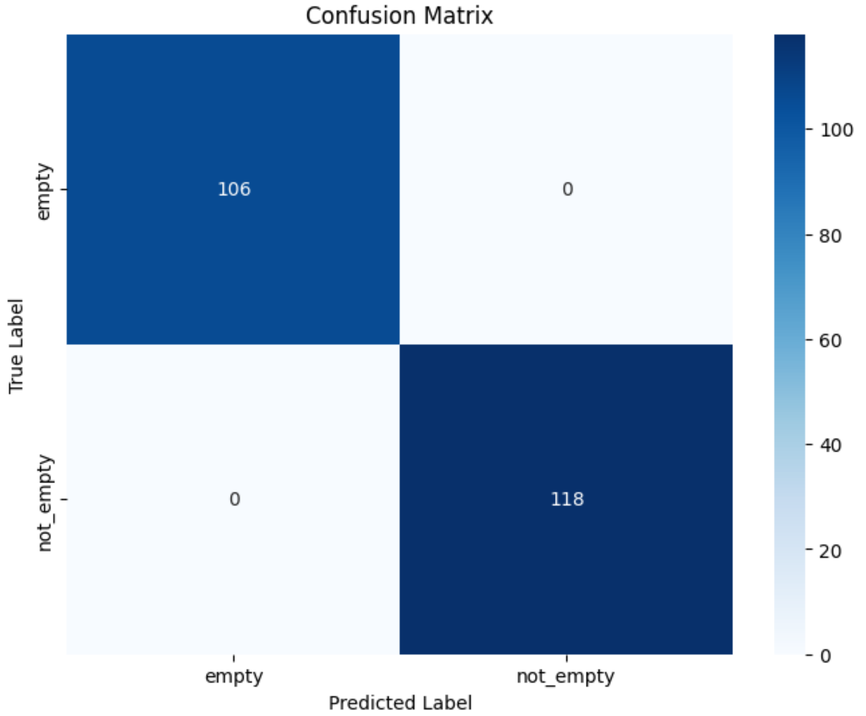
- **MobileNetV2 (transfer learning)**
  - 32 batch size
  - Initial learning rate 0.01 with 0.8 decay and patience of 7
  - Fine-tuning with 10 times lower learning rate and patience of 10



Results



- Suspicion: Overfitting?



- After using a loop and model.predict and integers for the binary prediction

Results


Predictions on Test Data = Model Accuracy of 1
True: empty
Pred: empty
True: not_empty
Pred: not_empty
True: not_empty
Pred: not_empty
True: not_empty
Pred: not_empty
True: not_empty
Pred: not_empty
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True: not_empty
Pred: not_empty
True: not_empty
Pred: not_empty

Thank you!

Q&A