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TEXT RECOGNITION IN HISTORICAL MAPS

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HISTORICAL MAPS – EXAMPLE 1

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HISTORICAL MAPS – EXAMPLE 2

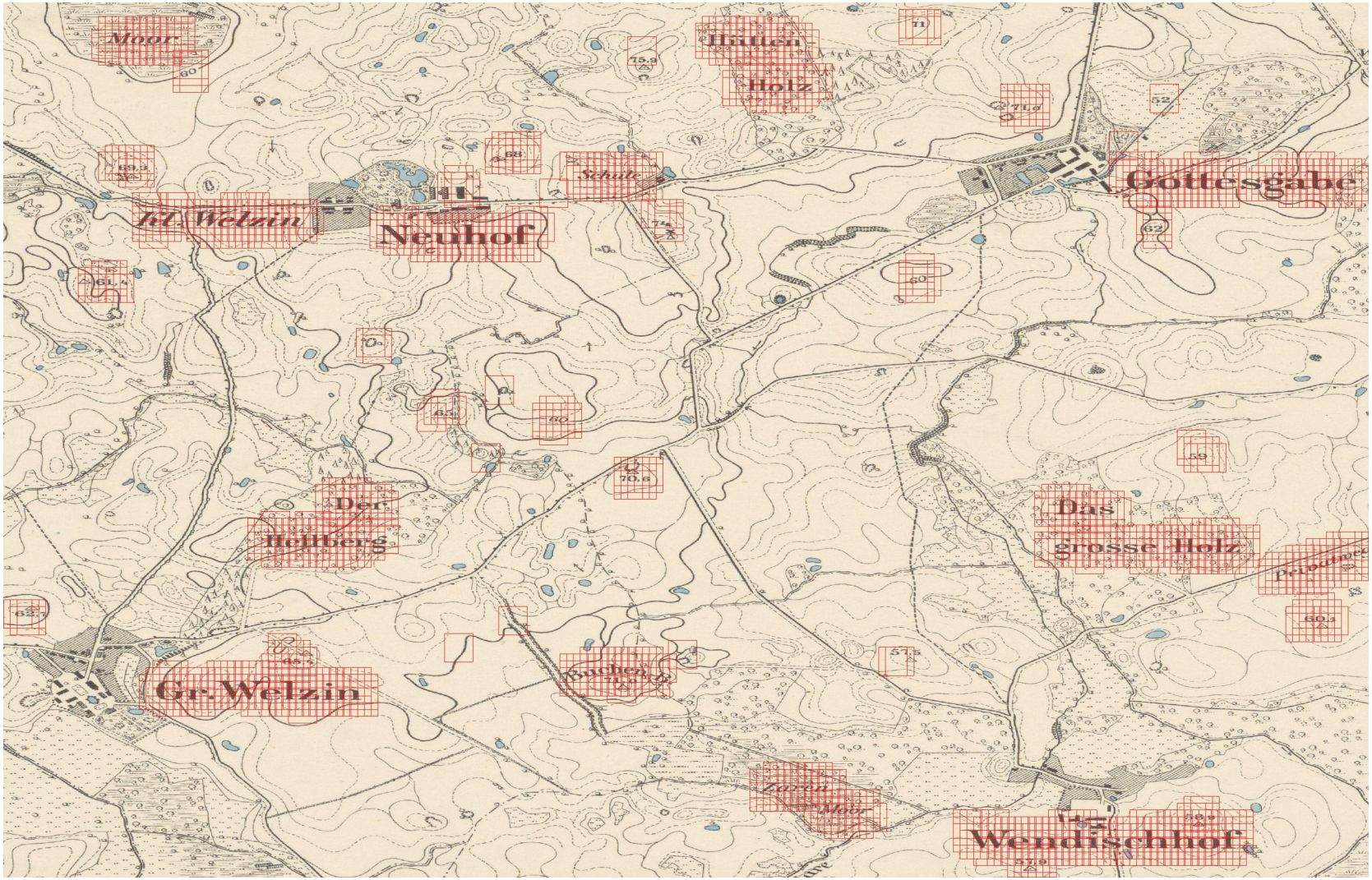
OBJECTIVES

- Large-scale analysis of historical maps
  - Historical maps contain precious information for urban and regional planning and ecological research
  - Development of settlements
  - Changes of land-use

- Mapset “Messtischblätter“
  - Middle-European maps from 1850-1943
  - Scale 1:25 000
  - Available from the SLUB Dresden

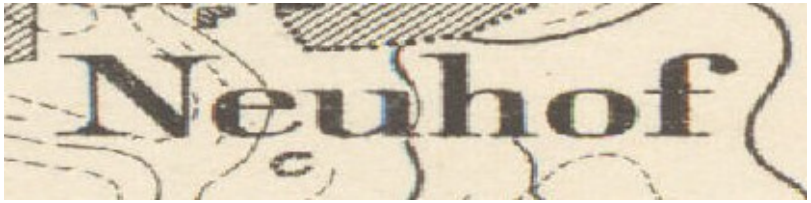
- Text recognition in two steps
  - Text detection (finding the location of the Text)
  - Optical character recognition (OCR)

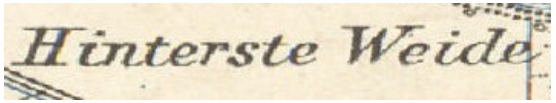
TEXT DETECTION

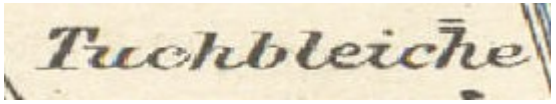


Source: Nathanael Philipp, ASV Uni Leipzig

EASY AND TRICKY CASES...







TEXT RECOGNITION: ONGOING WORK

- Convolutional neural network
  - One-hot encoding
- Artificial training data
  - Ca 120 fonts
  - 40 000 words
  - Background randomly chosen from different maps
  - Choice of colours automatised
  - Use of dictionary possible
  - Score: less than 40% (validation)
- Test case:
  - Counting letters (without recognition of letters)
  - Score: 55% (validation)

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ARTIFICIAL TRAINING DATA

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THANKS FOR YOUR ATTENTION!