Recognizing Hebrew alphabet of specific handwriting

Introduction to Computational and Biological Vision 2010

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Motivation

• Usage of existing function on the text.
• Reprocessing and rearranging the text.
• Redesign the text.
• Combining the text with another document.
• Using other applications that require text files.
Goal

- Recognize handwritten Hebrew alphabet of specific handwriting, known in advance.
- When given a scanned image of an alphabetic letter, we would like to recognize this letter.
Chain code - reminder

- Absolute
- Relative
Generic Algorithm

• Input: scanned letter image.
• Output: Numerical chain code.
• Find black pixel to start the encoding from.

While there is black pixel who wasn't visited:
  – Find a direction to continue.
  – Update chain code and mark the pixel as visited.
  – Move forward to the chosen pixel.

Return chain code.
Question marks

• How to choose the beginning pixel?
• How to choose the next direction if there is more than one option?
• Which encoder to use?
• What to do if we reached dead-end, but there are still black pixels left?
In our project

• Three different approaches
  – Same beginning pixel
  – Encoder
  – Method for progressing
  – Dead end

• State machine
An easier problem

• Easier problem then recognize is to determine if an input letter is a specific target letter or not.

• cannot produce good results, as long as using chain codes as described before
Conclusions

• The chain code must describe the shape of the letter.

• For thin letters we had good results, but for regular letters it is much harder.

• Improvement

• Reduction
Questions...?

Thank you! 😊