

Project presentation

Image analysis and pattern recognition

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May 29, 2020

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 - i normalize intensity of all frames
 - ii apply red mask on each normalized frame
 - iii compute location of the arrow in each frame, defined as the center of the red mask
 - iv store consecutive locations in list `arrow_locations`:

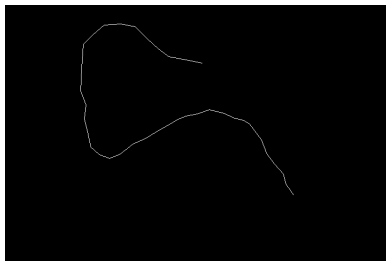


Figure: Arrow path

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 - iv note: to avoid arrow pieces being selected, consider the same window in the first and last frame and check that they are very similar
- ③ with the obtained windows, create list of dictionaries that have two keys: `image_box` and `center` (mean of white pixels)

3. Character classification

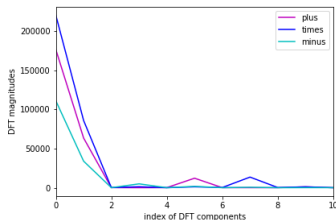
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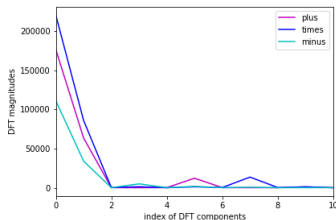
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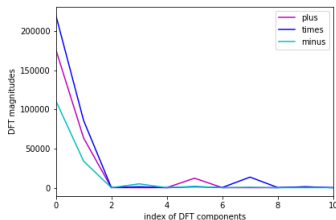


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- `classify_number`: CNN trained on augmented MNIST
 - ▶ problems to tackle: digits are hand-written, have varying contours, can be rotated, scaled, have a non-centered sliding window

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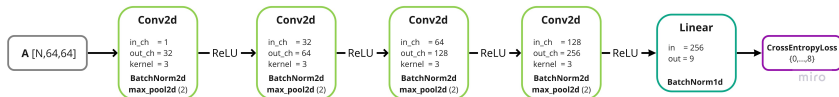


Figure: Architecture of the CNN

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 - ii at each iteration, write current state of formula