

# Deep Learning for Case-Based Reasoning through Prototypes: A Neural Network that Explains Its Predictions

(Li et al, AAAI, 2018)

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Some MNIST data

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Prototypes to compare with.  
(NOT MNIST data)

How does the network classify an image?



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|   |  |  |  |
|---|--|--|--|
|   |   |   |   |
| 0.98  | 1.47   | 0.70   | 1.55   |
|   |   |   |   |
| 0.29  | 1.69   | 1.02   | 0.41   |
|  |  |  |  |
| 0.88  | 1.40   | 1.45   | 1.28   |

# Nearest neighbors

- + Interpretable
- + Can be as accurate as any other method
- Can be inaccurate if bad distance metric is used
- An extra layer of complexity to learn the distance metric, not that easy to do