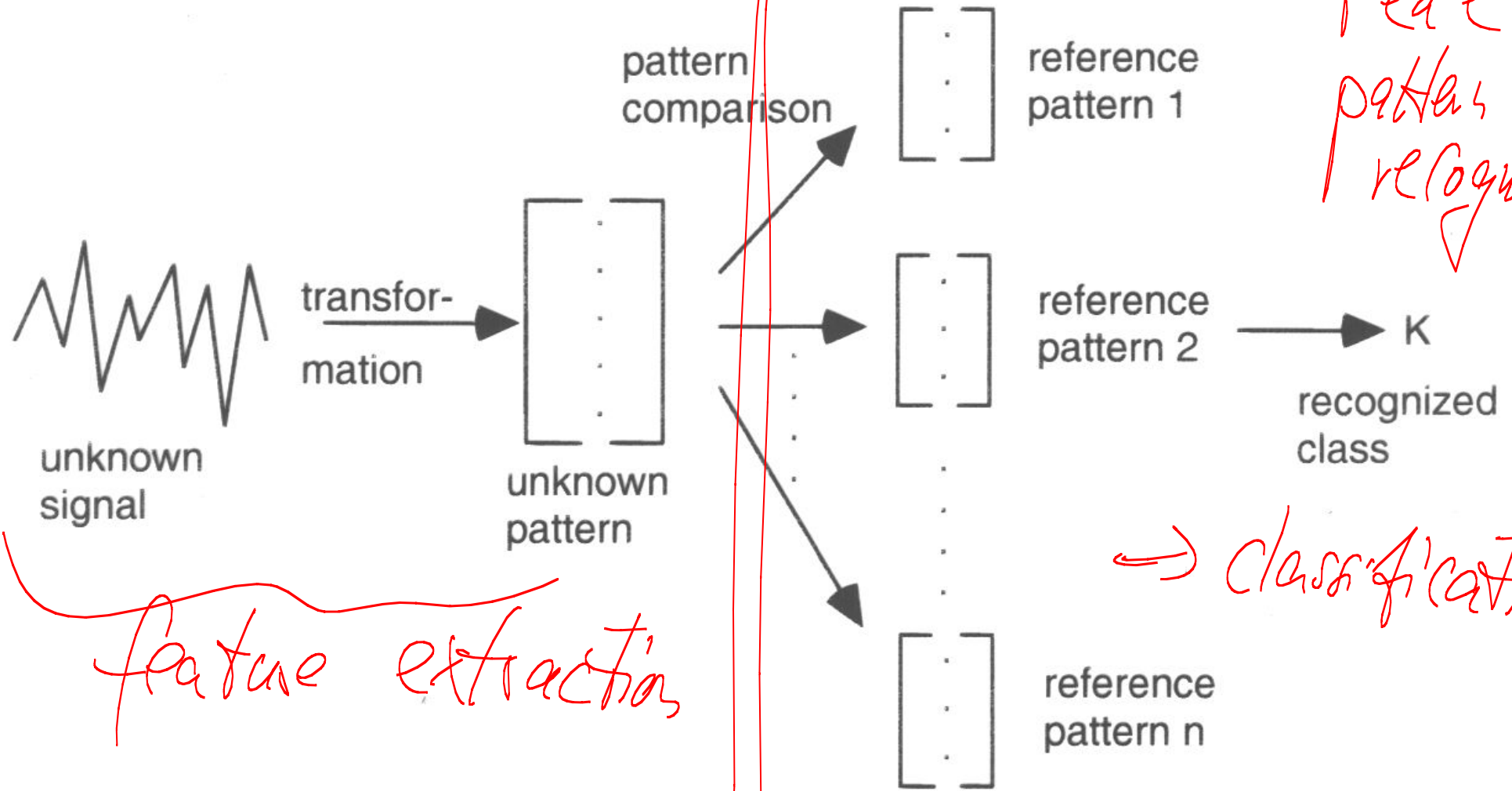


1. Introduction to Pattern Recognition

9.4.2014

17.10.2008



Major challenges:

- 1) Feature extraction: Task dependent
 - noise robustness
 - multiple features
 - feature combination, feature selection
- 2) Distance measures:
 - how define similarity
 - multiple reference patterns

3) Methods of pattern recognition:

- deterministic methods
- probabilistic methods
- neural networks
- fuzzy logic

4) Special research problem:

- very large number of classes
- dynamic, time-varying patterns

1-dimensional patterns

- Speech signals (isolated, spoken continuously)
- Noises (e.g. of engines)
- Impact sounds (e.g. of machines)
- Measurement signals (derived from sensors)
- Medical signals (e.g. ECG, ...)
- Radar signals (e.g. flight traffic, submarine, speed control)
- Echoes (e.g. from telephone lines)

2-dimensional patterns

- sampled or scanned image data
- videos
- signs and characters
- handwriting strokes
- radar / x-ray images
- sketches, maps, documents
- image sequences
- surfaces, textures

3-dimensional patterns

- clinical applications
- 3D-scans of bodies or objects