

MPEG-4 style object-based codec with MatLab

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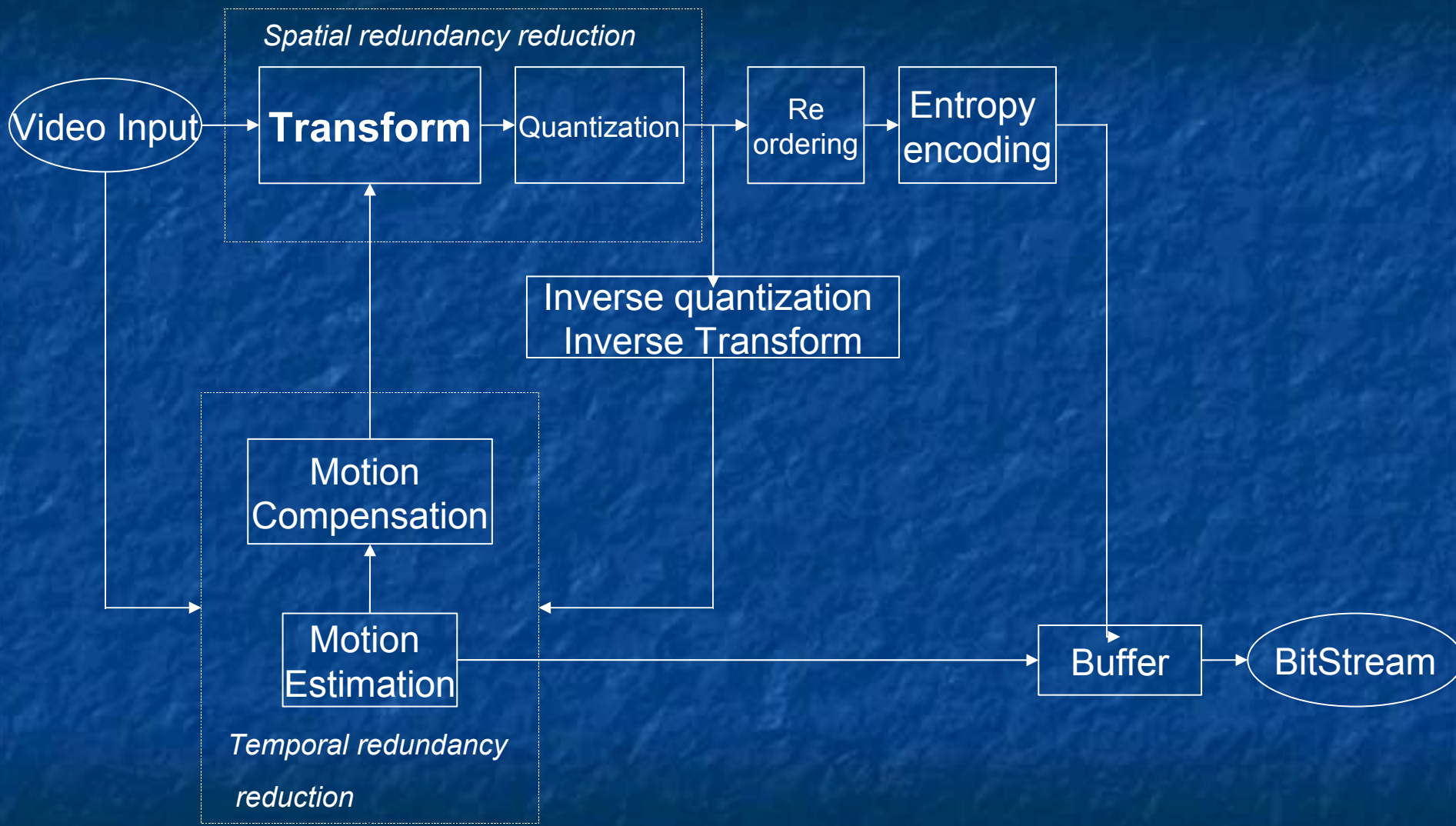
- Compression needed in several fields.
- Storage? and transmission.

Outlines

- Overview of compression
- Standards
- MPEG-4:
 - Object based encoder.
 - DWT
- MatLab implementation

Compression

- Quality and efficiency
- Human visual deficiencies and redundancy
 - Spatial Redundancy
 - Temporal Redundancy



Standards

- Compatibility between systems.
- Motion Pictures Expert Group.
- MPEG-1, MPEG-2, MPEG-4
 - Levels and profiles.

MPEG-4

- Content-based Encoding
 - Main and Core profiles
- DWT

Lack in MPEG-4

- Main and Core profiles
- Developers still working

- MatLab implementation.

Object based encoding

- Background vs Foreground

Segmentation

Foreground

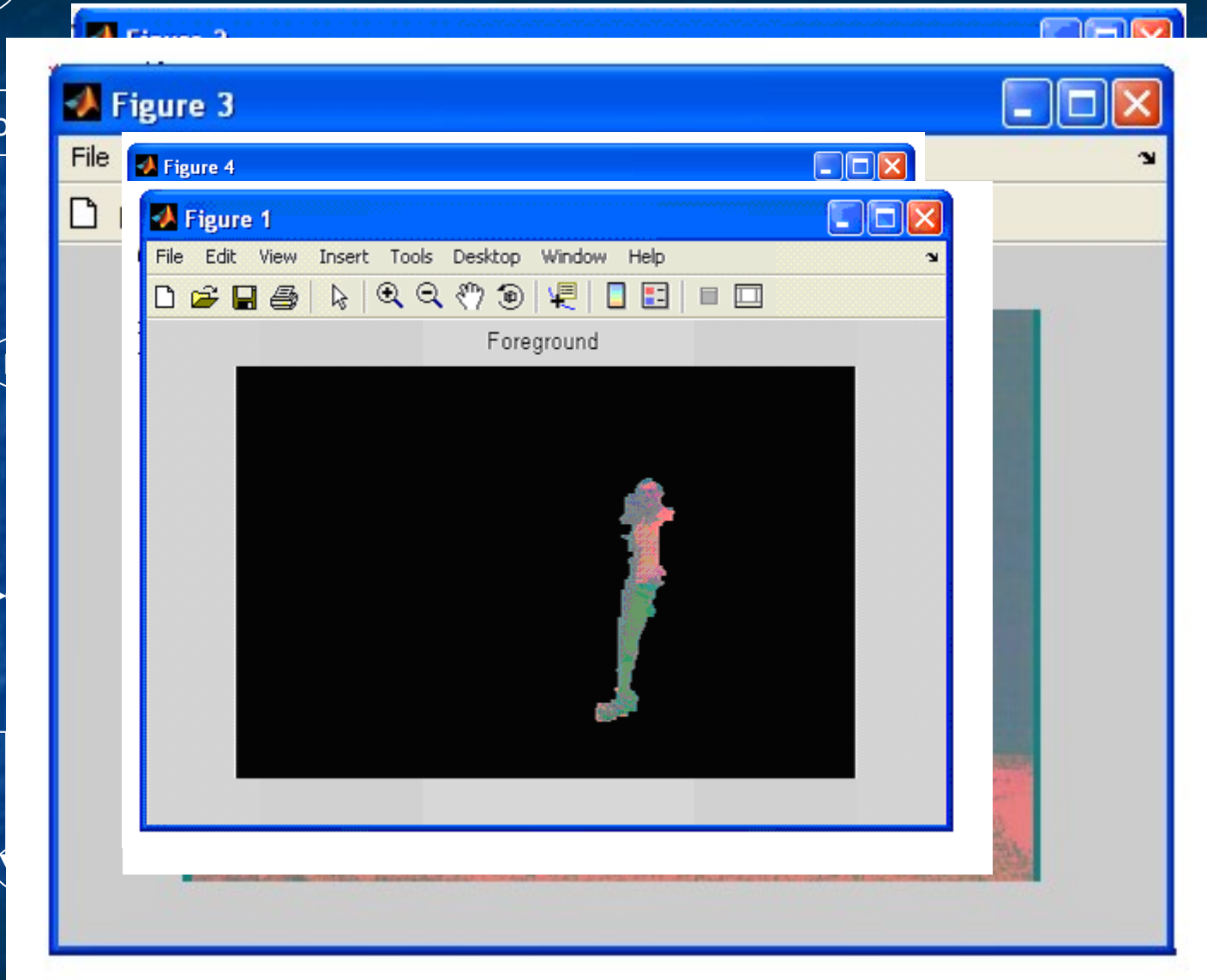
Background (scalability)

- Additional steps and information needed

Object-based encoder Diagram

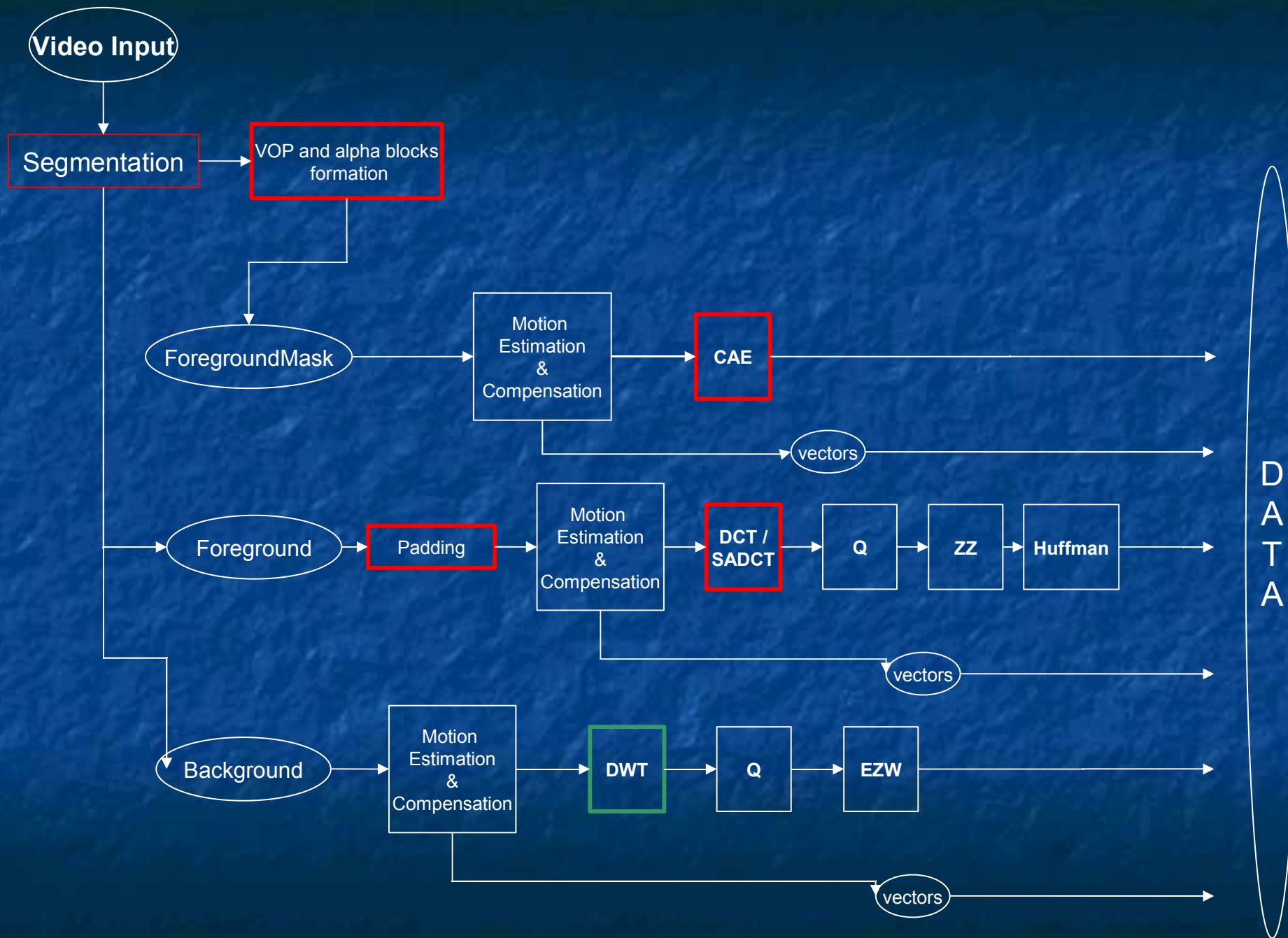
Video Input

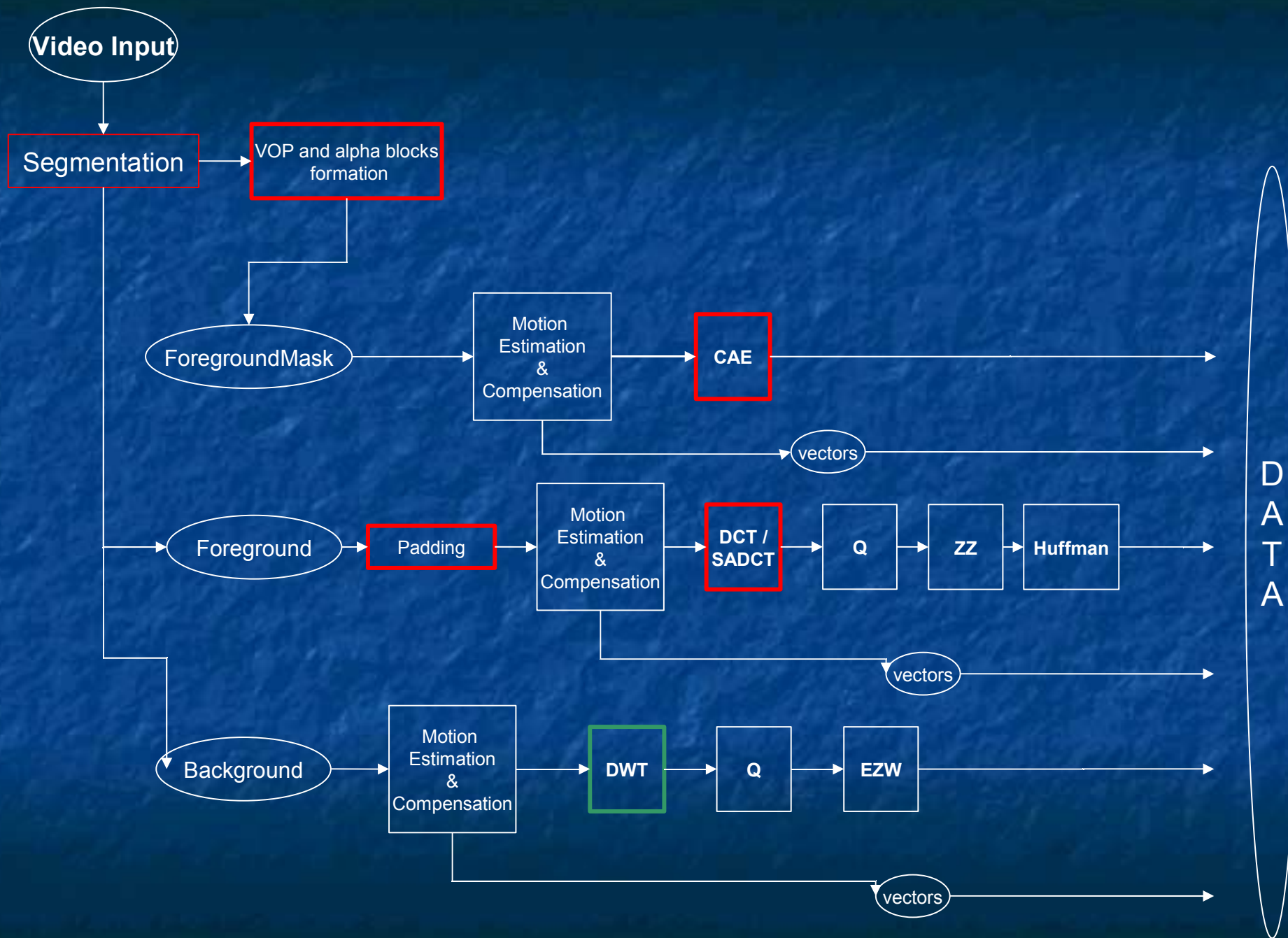
Segmentation



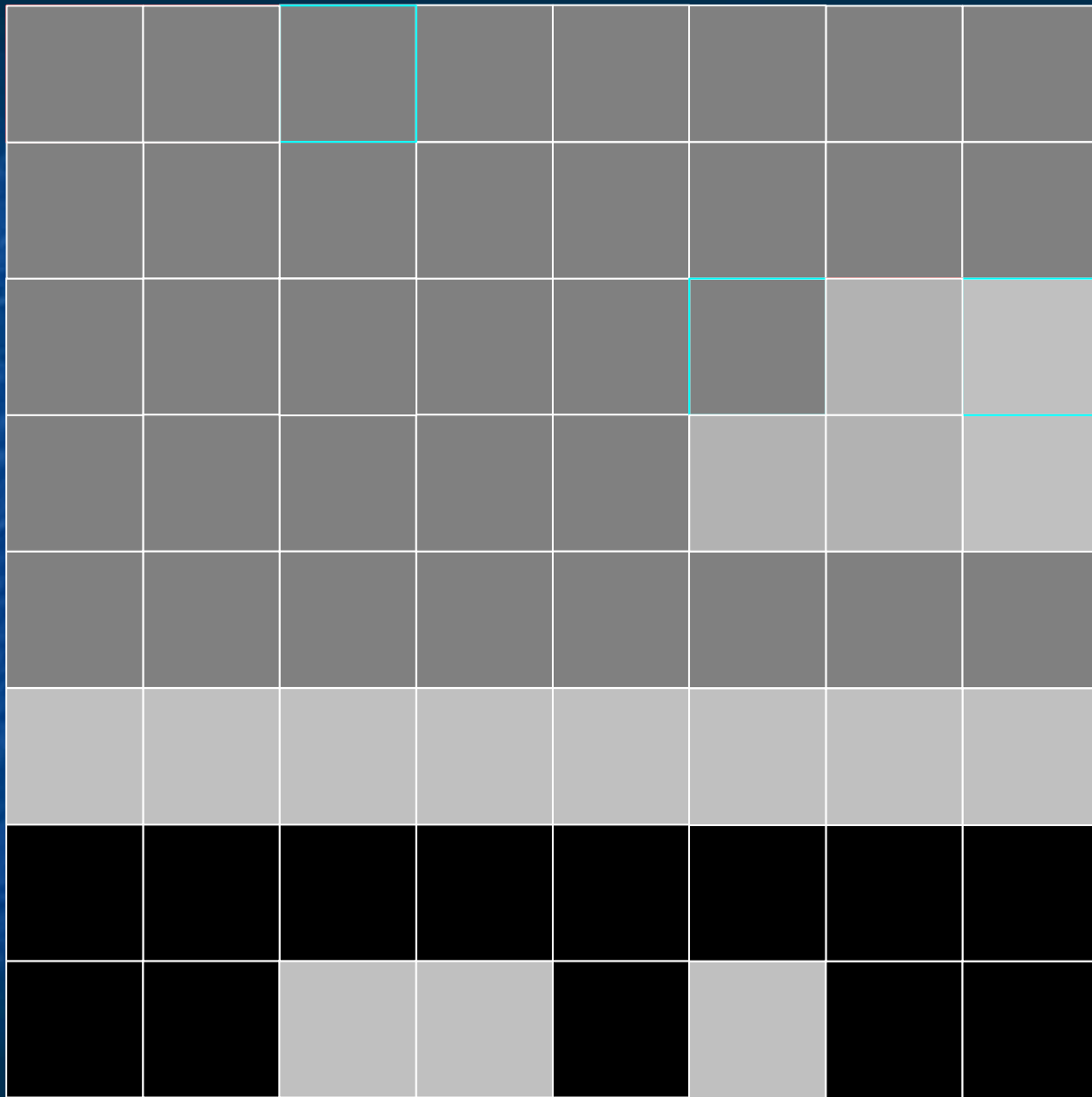
DATA

vectors

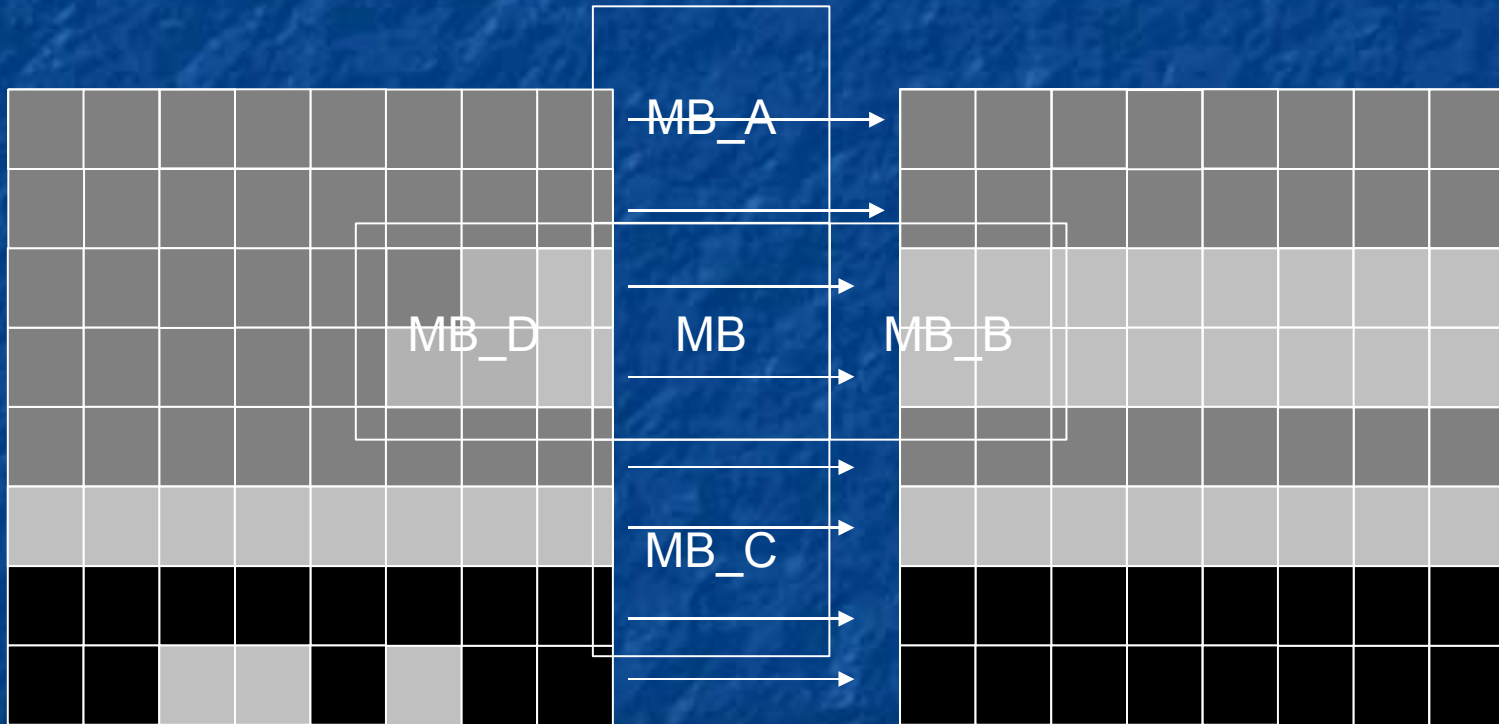


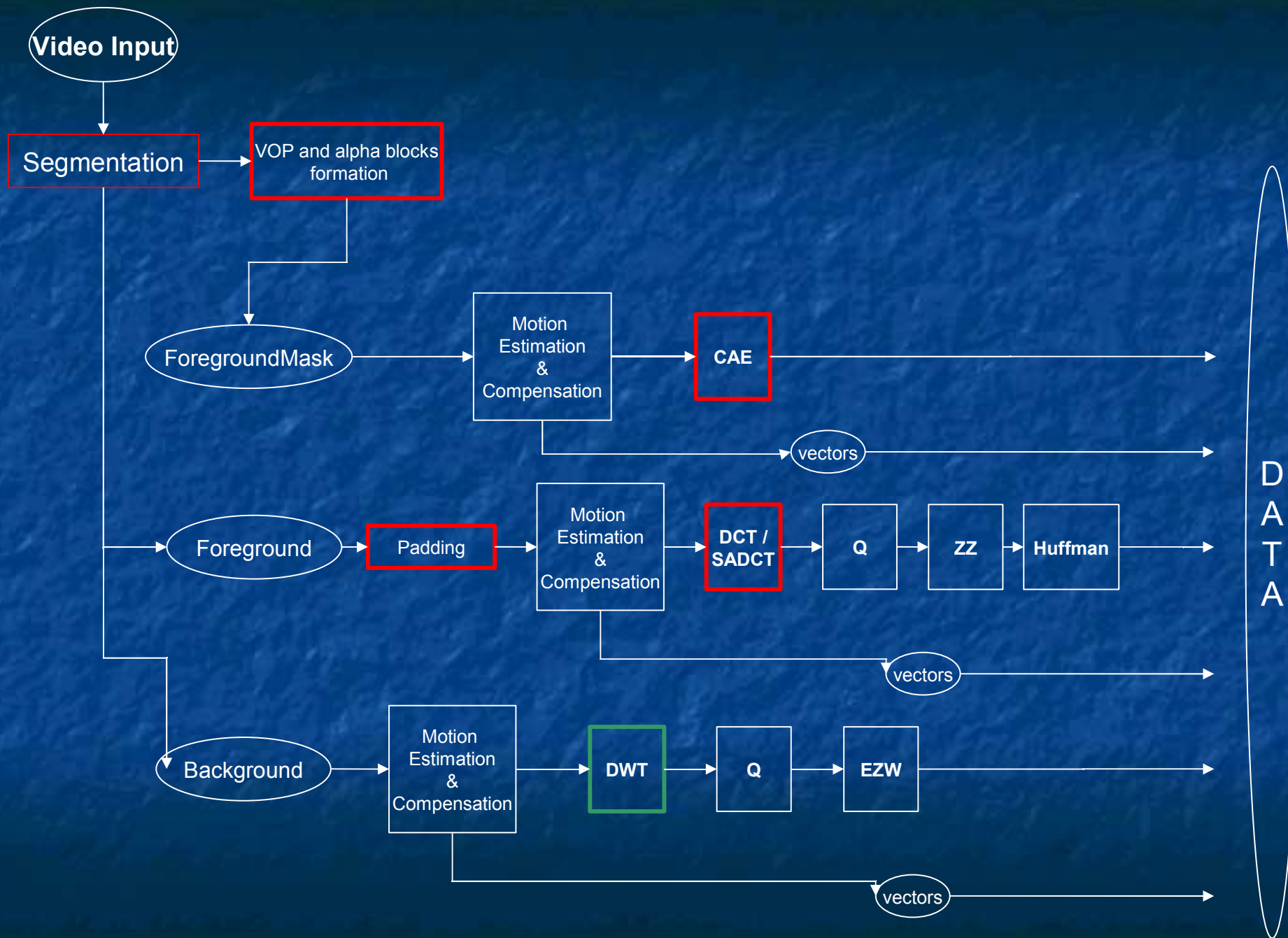


Padding

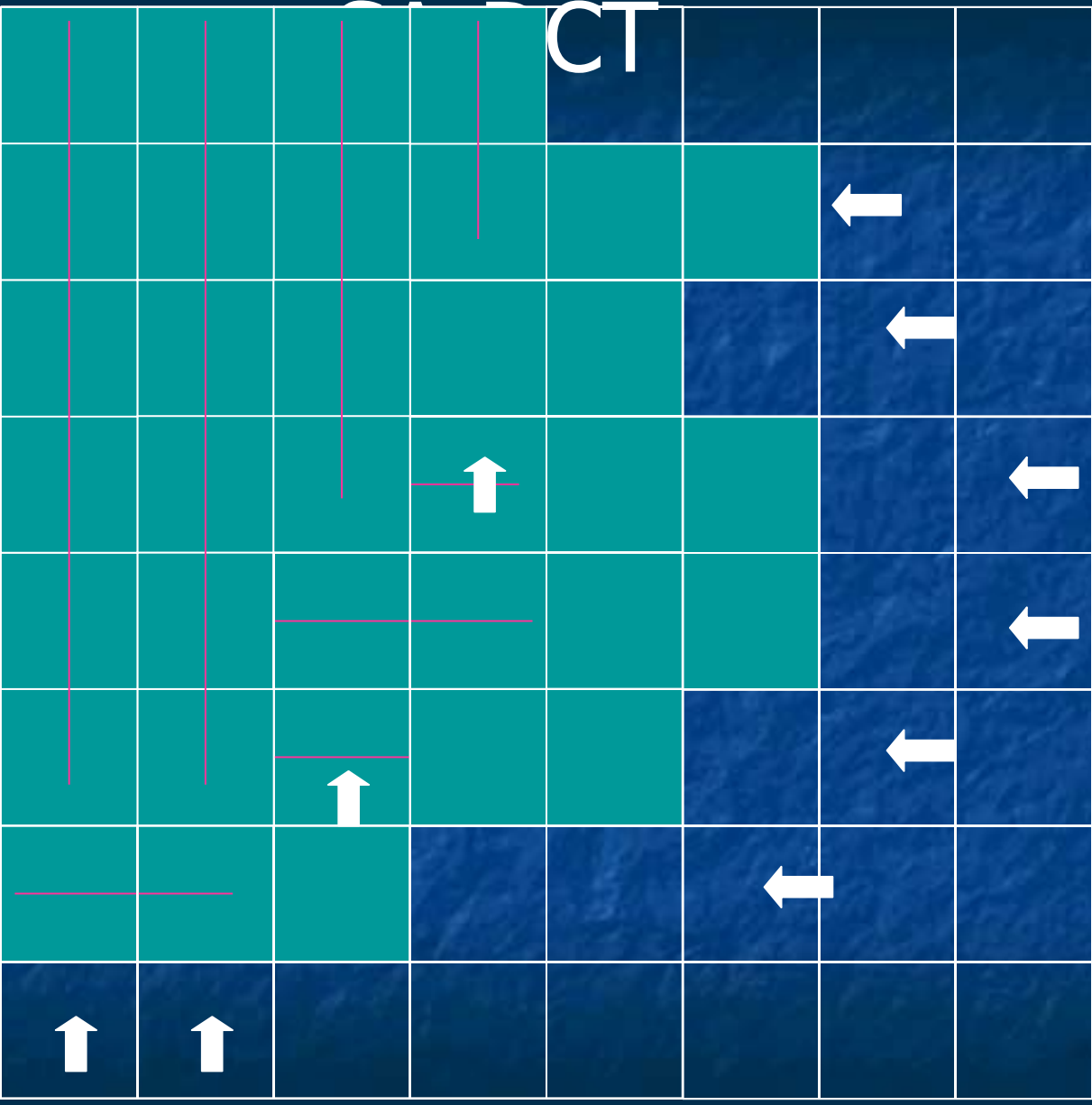


Exterior MB





Product



Results

- Time and computational demanding
- Good tool to understand process
- Tests and improvements

Conclusions

- Improvements needed
 - Segmentation
 - Bit rate
 - Utility
- Hopeful.