# SNS COLLEGE OF TECHNOLOGY

**Coimbatore-35**
**An Autonomous Institution**

Accredited by NBA – AICTE and Accredited by NAAC – UGC with 'A+' Grade
Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai

## DEPARTMENT OF BIOMEDICAL ENGINEERING

## 19BMB302 - BIOMEDICAL SIGNAL PROCESSING

III YEAR/ V SEMESTER

# Unit V : DATA REDUCTION TECHNIQUES

- Turning point algorithm
- AZTEC algorithm
- CORTES algorithm
- Fan algorithm
- Huffman algorithm

# CORTES algorithm

- The CORTES (Coordinate Reduction Time Encoding System) algorithm is a hybrid of the TP and AZTEC algorithms
- It attempts to exploit the strengths of each while sidestepping the weaknesses.
- CORTES uses AZTEC to discard clinically insignificant data in the isoelectric region with a high reduction ratio and applies the TP algorithm to the clinically significant high-frequency regions (QRS complexes).

# CORTES algorithm

- It executes the AZTEC and TP algorithms in parallel on the incoming ECG data.
- Whenever an AZTEC line is produced, the CORTES algorithm decides, based on the length of the line, whether the AZTEC data or the TP data are to be saved.
- If the line is longer than an empirically determined threshold, it saves the AZTEC line. Otherwise it saves the TP data points.

# CORTES algorithm

- Since TP is used to encode the QRS complexes, only AZTEC plateaus, not slopes, are implemented.
- The CORTES algorithm reconstructs the signal by expanding the AZTEC plateaus and interpolating between each pair of the TP data points.
- It then applies parabolic smoothing to the AZTEC portions to reduce discontinuities

# Thank You!