Deep *"KNOWLEDGE"* in the

Language Engineering Domain

♦ **LE Activities of the Company**

- **Speech Processing**

  * Speech Recognition (Hidden Markov Modelling, TDNNs)
    ◊ Isolated Word
    ◊ Connected Digits/Words
    ◊ Keyword Spotting
    ◊ Continuous Speech
  * Speaker Verification (GMMs)
    ◊ Text Dependent
    ◊ Text Independent
  * Speech Synthesis
  * Speech Coding
  * Speech Understanding
    ◊ Language Modelling
    ◊ Dialogue Control

- **Natural Language Processing**

  * Morphosyntactic and Semantic processing
  * Natural Language Generation
  * Intelligent Spellers
  * Interactive Corpus-based Translation drafting tools
  * Grammatical and Style Checkers
  * Natural Language Interfaces
  * Multilingual Library Automation Systems

- **Resources**

  Speech Database for 5000 speakers (11 European languages, 9 Dialects)
  Electronic Dictionaries (Monolingual [Greek], Bilingual [Greek-English, English-Greek])
  Multilingual Thesaurus and Terminological Database
  Hybrid Natural Language Generator (template-based + phrase-based)
  Greek PC-Kimmo Morphological Processor
  Greek Syntactic Parser
  Semantic Grammar (domain-oriented, utilised in operating systems applications)

♦ **Selected RTD Projects**

- *ACCeSS (LE-1 1802):* Automated Call Center through Speech Understanding System

- *VASME (TRANSPORT PL-00010):* Value-Added Services for Maritime Environment

- *DIALOGOS (EPET II):* Improvement of man-machine communication using linguistic technologies

- *SPEECHDAT (TELEMATICS LE-2 4001):* Collection of a speech database from 5000 speakers

- *TRANSLIB (LIB93 - 3038):* Advanced Tools for Accessing Multilingual Library Catalogues

- *LOGOS (STRIDE-15):* Development of the Language and Speech Industry

- *BECOS (EURECA EU-385):* A Natural Language Front-End to Databases with Speech Facilities

- ♦ **Selected Products**

  - **EMPHASIS** Digital Signal Processing Environment. EMPHASIS is a completed tool supporting a variety of functionalities such as speech analysis, parameter presentation and modification, pitch analysis and formant tracking, manual segmentation and labelling, real time FFT and acquisition of speech signals.

  - **ORPHEUS** Speaker independent word spotting. ORPHEUS is a small-medium (10-500 words) vocabulary, speaker independent, word spotting system that forms the central module in a variety of customized applications.

  - **SESAMI** Text independent speaker recognition. SESAMI is a high accurate, text-independent speaker recognition (verification and identification) system that can be used also through public telephone network .

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