

WIRE COMMUNICATIONS LABORATORY (WCL)
UNIVERSITY OF PATRAS
DEPARTMENT OF ELECTRICAL & COMPUTER ENGINEERING

PROFILE

WCL was established in 1967 at the School of Engineering of the University of Patras and began its activities two years later with the election of Professor George Kokkinakis as its director. It currently employs 50 persons (faculty members, researchers, post-graduate students and support personnel) and is active in three main R&D areas with organized teams: Telecommunications, Speech and Language Technology, Audio and Electro-acoustics.

WCL's R&D activity in Telecommunications includes the design and construction up to the level of laboratory prototype of advanced μ P-controlled equipment, multimedia applications and network management. In the Speech and Language area, R&D includes speech and speaker recognition, speech synthesis, speech coding and enhancement, lexicography, linguistic processing of texts and AI-applications. Emphasis is given to the modern Greek language. R&D in Audio and Electro-acoustics consists of perceptual audio coding, audio signal enhancement, digital loudspeaker and room equalization. A major part of R&D is carried out in the framework of Ph.D. theses.

WCL cooperates with Greek and foreign firms and is a partner in several projects supported by the EU, the Greek Ministry of Industry, the Regional Administration, etc.

SYSTEMS & TOOLS DEVELOPED AT WCL

Some major tools and systems developed at WCL in the last ten years are given in the following:

**SPEECH TECHNOLOGY*

- Real Time Text-to-Speech System for Greek
- Large Vocabulary Isolated Word Recognition System for Greek, (10,000 Words, Expandable, Speaker Adaptable)
- Continuous Speech Recognition System (~1000 Words, Speaker Adaptable)
- Real Time Speaker Verification System
- Greek Speech Data Bases
 - SAM-Data Base (60 Speakers)
 - POLYGLOT-Data Base (10 Speakers)
 - WCL-Data Base (222 Speakers, 96 words)
 - SPEECHDAT-Data Base (5,000 Speakers, under construction)

**LANGUAGE TECHNOLOGY*

- Software for Automatic Analysis of Greek Texts (Statistics, Text Labeling, Knowledge Extraction)

- Software for Automatic Grapheme-to-Phoneme and Phoneme-to-Grapheme Transcription for Greek
- Software for Corpus Based Lexicography
- Select Greek Corpora (~50m, unlabelled)
- Labelled Greek Corpora (700,000 Words, Detailed Grammatical Categories)
- Greek Electronic Dictionaries (Morphological, Lemmatic, Pronunciation of Proper Names)
- Collins Greek-English, English-Greek Dictionary

CURRENT R&D PROJECTS

WCL participates in the following national and international projects:

- LE 1802 ACCeSS: Automated Call Center through Speech Understanding System, 1996-1999
- LE 2-4001 10373/0 SPEECHDAT: Speech Databases for Creation of Voice Driven Services, 1996-1997
- GSRT DIALOGOS: Improvement of Man-Machine Communication Through Language Technology, 1995-1997
- GSRT: Speaker Independent System for the Recognition of the Greek Digits and Control Commands over the Telephone Network, 1994-1997
- SOCRATES/LINGUA 1995-1-GR-30: Electro-nic Dictionary of Pronunciation and Usage of Modern Greek for Foreigners, 1995-1997
- SOCRATES/LINGUA 96-06-MDD-013700: Electronic Dictionary of Pronunciation and Usage of the Grecanic Dialect of South Italy, 1996-1998
- LE-Project IDAS: Interactive Telephone-Based Directory Assistance Services, 1998-2000
- LE-Project SpeechDat-Car: Speech Databases for Voice-Driven Teleservices and Control in Automotive Environments, 1998-2000

(GSRT: *General Secretariat of Research and Technology*)

DEMONSTRATIONS AT EUROSPEECH '97

At WCL's booth at the Exhibition the following demonstrations will be carried out:

- TTS-System for Greek
- Large Vocabulary IWSR for Greek
- Speech and Audio Coding
- Speech Enhancement
- Speaker Recognition
- Speaker Independent IWSR System for Greek Digits and Commands
- Dictionaries on CD-ROM