



Universidade do Porto
Faculdade de Engenharia

FEUP

FCT project “Assistive Real-Time Technology in Singing” (PTDC/SAU-BEB/104995/2008)

(<http://gnomo.fe.up.pt/~voicestudies/artts/>)

Final project meeting (Room I-105, FEUP)

Morning (9:30 – 12:30): presentations /demos

Afternoon (14:00 – 15:30): demo + LIVE + closing

University of Porto, FEUP- DEEC

Saturday, February 22nd, 2014



Objectives/tasks of the ARTTS project

- **to articulate expertise and knowhow in different domains, notably singing pedagogy, engineering/signal processing and medical/laryngology, such as to design, develop and validate innovative computer-assisted methodologies and technologies in three main application areas:**
 - **i) real-time visual feedback of relevant quality/expressive parameters of the singing voice,**
 - **ii) new technology-assisted pedagogic methodologies in singing teaching/learning,**
 - **iii) real-time monitoring and assessment of the singing voice with the purpose to prevent voice disorders.**



Objectives/tasks of the ARTTS project

- **Tasks**

- **TASK1-correlation between subjective quality parameters of the singing voice and objective acoustic features,**
- **TASK2-new technology-assisted methodologies in singing teaching/learning,**
- **TASK3-singing to musical score transcription and music composition,**
- **TASK4-correlation between objective acoustic features of the singing voice and voice disorders in singing,**
- **TASK5-robust real-time glottal pulse estimation from running singing,**
- **TASK6-real-time preventive assessment of the singing voice,**
- **TASK7-management.**



Tasks of the ARTTS project

Task 1

perceptual parameters
perceptual evaluation

Voice quality/expressivity



acoustic features
acoustic analysis

Task 2

algorithms, estimation

visual feedback of singing

computer-assisted teaching/learning methodologies

Task 3

**singing to music score transcription
+ singing voice synthesis**



Tasks of the ARTTS project

Task 5

glottal pulse estimation from vowels/singing

Task 4

voice alterations/disorders in singing

perceptual evaluation



acoustic features/analysis

Task 6

algorithms for singing monitoring

preventive assessment of vocal stress/overload



ARTTS net results, in a table

	TASK1	TASK2	TASK3	TASK4	TASK5	TASK6	TOTAL
PhD dissert	1(SF) + 1(RS)		1(NF)				3
MSc dissert	1(VA) + 1(JT)	1(JV) + 1(DM)	1(MG)		1(SD)		6
J. papers	1(RS) +1 (SF)						2
C. papers	3(RS)	1(DM) + 2(RS/AF)			2(SD) + 1(RS)		9
reports			1(AC)	1(IM) + 1(JM)			3
Monog.	1(SF) + 1(JT) + 1(VA)	1(RT)	1(MG)		1(SD)		6
SW prototypes	1 (V-PE)	1(SS) + 1(SSiOS) + 1(VS)	1 (SB)				5



Agenda

9:30

Aníbal Ferreira, Opening and overview of the project, activities and results

10:00

Susana Freitas, “Voice-PE a tool for the training in audio - perceptual evaluation”

10:20

Ricardo Sousa, “VoiceStudio a tool for the acoustic evaluation of the voice”

10:40

Inês Moura, “Research results on singing voice perturbations”

11:00 Coffee break

11:30

Ricardo Sousa, “SingingStudio a tool for the analysis of the singing voice”

11:50

Joana Martinez, “Research results on spoken voice perturbations”

12:10

Sérgio Lopes, “SingingStudio and MasterPitch- software apps for iOS platforms”



Agenda

12:45 Lunch

14:00

Mário Alves, “SingingBattle, an interactive software application for the Educational Service at Casa da Música”

14:30

The Singing Voice, **LIVE!**

Rui Taveira -introduction

Marta Martins (Soprano)

Luis Neiva (Bass)

Angel Casado –piano

15:00 Closing session

-concluding notes by Aníbal Ferreira and Sten Ternström (Prof. at KTH, Sweden, via videoconferencing)

-enquiry on possible new research avenues, challenges and projects

- Farewell.



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A sample of the ARTTS team

