



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/>)

Second annual project meeting
(Room I-105, FEUP)

Morning (10:00 – 12:30): presentation /demos

Afternoon (14:15 – 15:15): presentation + plenary meeting

University of Porto, FEUP- DEEC

Saturday, January 19th, 2013



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



Agenda

10:15

Susana Freitas, “Susana Freitas, A brief overview of the “Human Voice Characterization using acoustic and perceptual evaluation” PhD work (Tasks 1/4)

10:30

Vitor Almeida, “The Voice-PE educational tool for perceptual evaluation” (Task 1)

10:45

Ricardo Sousa and Vitor Almeida , “Vibrato and formant detection in SingingStudio” (Task 2)

11:00

Tiago Campos, “SingingBattle –an entertaining and didactic environment allowing to discover, train and play with the singing voice” (Task 3)

11:20 Coffee break

11:30

Nuno Fonseca, “Singing Voice Resynthesis using Concatenation-based Techniques” (Task 3)

11:45

Inês Moura, Current status of the research concerning “Correlation between objective acoustic features of the singing voice and voice disorders in singing” (Task 4)



Agenda

12:00

Sandra Dias and Aníbal Ferreira, “Estimation of the Glottal Pulse from Speech or Singing Voice” (Task 5)

12:30 Lunch

14:15

João Terleira, “Relation between perceptual parameters of the singing voice and objective acoustic phenomena” (Task 1)

Afternoon: 14:30 – 15:15

Plenary meeting

- Main conclusions
- Administrative matters
- Planning ahead and immediate steps