

# GONG RONG

rong.gong@upf.edu  $\diamond$  ronggong.github.io

Zhong guan cun bei yi tiao jia 5 lou 3 dan yuan 501, 100190 Beijing China

Roc Boronat, 138, 55-302, 08018 Barcelona Spain

## EDUCATION

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### MTG-Universitat Pompeu Fabra

*May 2015-Present*

*PhD candidate, expected thesis submission date: 30th September, 2018*

*Barcelona, Spain*

Data-driven method for automatic pronunciation assessment of Jingju music singing voice

### UPMC/IRCAM/TELECOM

*September 2013-September 2014*

*Master 2 ATIAM*

*Paris, France*

Acoustics, Signal Processing and Computer Science in Musical Applications

**Mention:** Awarded with honours (Assez bien)

**Thesis:** Score following for the alignment of singing voice

### Université du Maine

*September 2012-July 2013*

*Master 1 in Acoustics and Signal processing*

*Le Mans, France*

Acoustics, Signal Processing and Computer Science in Musical Applications

**Mention:** Awarded with honours (Assez bien) **Rank:** 1/20.

**Project:** Dimensioning of an elliptical opening on the top plate of the Chinese instrument Pi'pa

### Communication University of China

*September 2008-July 2011*

*Master in Acoustics, Psychoacoustics and Signal Processing*

*Beijing, China*

**Thesis:** Analysis on timbre features of the plucked-string instruments

### Northwest University

*September 2004-July 2008*

*Bachelor in Applied Mathematics*

*Xi'an, China*

## SUMMARY OF COMPETENCES

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### Music Signal Processing

$\triangleright$  Chorus detection.  $\triangleright$  Melody extraction.  $\triangleright$  Intonation element segmentation.  $\triangleright$  Note transcription.  $\triangleright$  Tempo estimation.  $\triangleright$  High resolution methods for spectral estimation (MUSIC, ESPRIT).

### Machine Learning

$\triangleright$  Deep learning (CNNs, RNNs).  $\triangleright$  Gradient boosting machine.  $\triangleright$  Data clustering (PCA, K-means, Decision tree).  $\triangleright$  Bayesian inference (HMMs, HSMMs, CRFs).

### Speech Technologies

$\triangleright$  Spectral subtraction (implicit Wiener filter, a priori SNR estimation Wiener filter).  $\triangleright$  One step prediction Kalman filter.  $\triangleright$  Noise power estimation by minimum statistics.  $\triangleright$  KALDI speech recognition

### Computer Music

$\triangleright$  Digital filter VST plugins programming.  $\triangleright$  Language LISP.  $\triangleright$  Constraint programming.  $\triangleright$  MIDI protocol.

## RESEARCH EXPERIENCES

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### MTG-UPF

*TECSOME project*

April 2018-Present

*Barcelona, Spain*

- Develop automatic solfège assessment API using KALDI.

### National Academy of Chinese Theatre Arts (NACTA)

*Project collaborator-Beijing City Social Science Foundation 16JDYTA016*

September 2016-Present

*Beijing and Barcelona*

- Collect jingju singing recording materials of both professional and amateur singers.
- Develop iOS jingju singing courseware.

### MTG-UPF

*CompMusic project*

May 2015-Present

*Barcelona, Spain*

- Develop algorithms for computer-aided jingju (Beijing opera) singing learning system.
- Automatically retrieving Jingju singing features (syllable segmentation, singing phrase identification).

### iOS developer

*iOS music application development*

October 2014-May 2015

*Paris, France*

- Develop the iOS application - Acousticbrainz jukebox for exploring music by emotion.

### IRCAM

*Master 2 internship*

March 2014-August 2014

*Paris, France*

- Improve the performance of the score following system - Antescofo on singing voice.

### Université du Maine

*Master 1 project*

March 2013-June 2013

*Le Mans, France*

- Design the opening on the top plate of the traditional Chinese instrument - Pi'pa to augment its low-frequency performance.

### Communication University of China

*Master thesis work*

September 2010-September 2011

*Beijing, China*

- National Natural Science Foundation of China, NSFC10804100
- Analysis the timbre of traditional Chinese plucked-string instruments by musical features and subjective listening experience

### 3G Audio

*Master internship*

November 2010-January 2011

*Dongguan, China*

- Study the impact of membrane materials on the sound quality of loudspeaker

## ACADEMIC ACTIVITIES

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Google Speech Summit traveling grant, London, May 2018

Task captain of MIREX 2018: Automatic Lyrics-to-Audio Alignment

ISMIR conference reviewer 2017, 2018

## PUBLICATIONS IN CHRONOLOGICAL ORDER

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**Eduardo Fonseca, Rong Gong, Xavier Serra**

A Simple Fusion of Deep and Shallow Learning for Acoustic Scene Classification (Accepted)  
Sound and Music Computing Conference (SMC), Limassol, Cyprus, July 2018

**Eduardo Fonseca, Rong Gong, Dmitry Bogdanov, Olga Slizovskaia, Emilia Gomez, Xavier Serra**

Acoustic Scene Classification by Ensembling Gradient Boosting Machine and Convolutional Neural Networks

2nd workshop on Detection and Classification of Acoustic Scenes and Events (DCASE), Munich, Germany, November, 2017

**Rong Gong, Rafael Caro Repetto, Xavier Serra**

Creating an A Cappella Singing Audio Dataset for Automatic Jingju Singing Evaluation Research  
4th International Digital Libraries for Musicology workshop (DLfM 2017), Shanghai, China, October, 2017

**Rong Gong, Xavier Serra**

Identification of potential Music Information Retrieval technologies for computer-aided jingju singing training

Chinese traditional music technology session - China conference on sound and music technology, Suzhou, China, October, 2017

**Rong Gong, Jordi Pons, Xavier Serra**

Matching Audio to Score by Combining Phonetic and Duration Information

International Society for Music Information Retrieval Conference (ISMIR), Suzhou, China, October 2017

**Jordi Pons, Rong Gong, Xavier Serra**

Score-informed Syllable Onset Detection for A Cappella Singing Voice with Convolutional Neural Networks

International Society for Music Information Retrieval Conference (ISMIR), Suzhou, China, October 2017

**Jordi Pons, Olga Slizovskaia, Rong Gong, Xavier Serra**

Timbre Analysis of Music Audio Signals with Convolutional Neural Networks

European Signal Processing Conference (EUSIPCO), Kos island, Greece, August 2017

**Rong Gong, Nicolas Obin, Georgi Dzhambazov, Xavier Serra**

Score-informed Syllable Segmentation for Jingju A Cappella Singing Voice with Mel-frequency Intensity Profiles

Folk Music Analysis (FMA), Málaga, Spain, June 2017

**Rong Gong, Yile Yang, Xavier Serra**

Pitch Contour Segmentation for Computer-aided Jingju Singing Training

Sound and Music Computing Conference (SMC), Hamburg, Germany, August 2016

**Rafael Caro Repetto, Rong Gong, Nadine Kroher, Xavier Serra**

Comparison of The Singing Style Of Two Jingju Schools

International Society for Music Information Retrieval Conference (ISMIR), Málaga, Spain, October 2015

**Rong Gong, Philippe Cuvillier, Nicolas Obin, Arshia Cont**

Real-Time Audio-to-Score Alignment of Singing Voice Based on Melody and Lyric Information

Interspeech, Dresden, Germany, September 2015

**Xin Wang, Rong Gong**

Consonance of Musical Dyads of Chinese Plucked Instruments

2nd International Conference on Computer Science and Network  
Technology, ICCSNT, Changchun, China, 2012

**Rong Gong, Zihou Meng**

Analysis on Tonal Components of Plucked-String Instruments Tones  
National Youth Conference of Acoustical Society of China, CYCA 9th  
Guangzhou, China, November 2011

**Rong Gong, Zihou Meng**

Analysis on Feature Discrimination of Plucked-string Instruments Tones  
National Conference on Man-Machine Speech Communication, NCMMSC2011  
Xi'an, China, October 2011

## LANGUAGES

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<b>Mandarin</b>	Mother tongue
<b>English</b>	Diploma CLE B2
<b>French</b>	Diploma TCF B2
<b>Spanish</b>	B1

## COMPUTER SKILLS

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<b>Programming</b>	Python, Matlab, C, Objective-C, Swift
<b>Machine learning and Deep learning packages</b>	Keras, Tensorflow, Scikit-learn
<b>Speech analysis and recognition tools</b>	Praat, KALDI
<b>Music Production</b>	Ableton Live, Cubase