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# A FIRST APPROACH TO HÁT XÂM USING SPECTROGRAM TO AID THE TRANSCRIPTION AND IDENTIFICATION OF ITS DISTINCTIVE FEATURES

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## English Abstract [294 words -- limit 300 words]

A large portion of Vietnamese folk music features an oral tradition, and of the fine and delicate instances of improvisations in performance and composition... They have been the sources of problems in the classification of its genres. Even today, the determination of styles and distinctive features of traditional music described only in terms of self expression of the artists, without scientific consensus, is the source of heated debates among ethnomusicologists.

The situation is worsened by the fact that traditional Vietnamese music is not based on European well-tempered standard—even though convenient, unable to represent music adequately.

This paper introduces spectrographic data from conventional recordings as an alternative representation—a 3-dimensional matrix of **pitch** in *Hertz*, **intensity** in *Decibels* over **time** in *milliseconds*. We shall use a web music processor to: (a) separate the concert parts, (b) identify notes as peak frequencies on music staves and compare them with manual transcriptions, (c) identify the distinct features of each part by computing song ranges and key  $n$ -adjacent pitches in context,  $1 \leq n$ ,

The paper further introduces the concept of *chữ nhạc* “melodic unit” of *đàn ca tài tử Nam Bộ* “southern amateur jamming sessions”, to transform a *Hát*

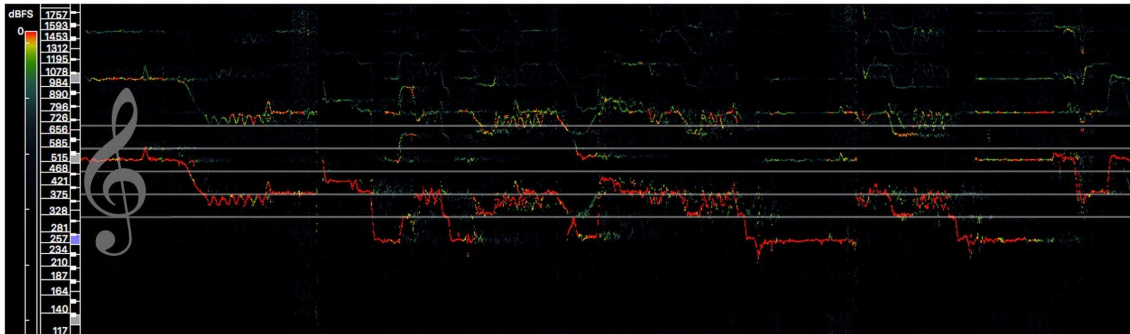
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*Xâm* song spectrogram into strings of *chữ nhạc* for form and structure determination. It is hoped that this informatic approach will help create a common representation for multi-disciplinary research.



Sample spectrogram, y-axis in Hz, x-axis ms, and peak intensity dBs in red, trough 0 dB in black.

We shall use one *khố* “paragraph” in her 13’20” masterpiece *Dạt nước cánh bèo* “Like a fern petal in the turbulent stream,” in *xâm Hà Liễu* style, performed by Hà Thị Cầu,<sup>4</sup> The lyrics tells the hard life of a woman, born into a beggar family, and becoming the 18th wife of a *trùm xâm*, a beggar master.

**Keywords:** spectrogram, music of the blind traveling beggars, distinctive features, ...

### Short Biographies

**Nguyễn Thị Mỹ Liêm**, Associate Professor, Ph.D., Vice Director of Hồ Chí Minh City Conservatory of Music (2006 – 2016), and teaches at Department of Arts, Sài Gòn University (2017 – present). She is a member of the Executive Committee of the Vietnam Musician’s Association (2010 – present), a member of the Executive Committee of The Hồ Chí Minh City Music Association and a member of the Vietnamese Folk Arts Association. She is also a *đàn tranh* [16-string zither] and *đàn bầu* [monochord] musician.

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<sup>4</sup> YouTube, <https://youtu.be/ykE-YNkeaQ4>, by The Vietnam National Academy of Music, 1999,

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