# Making of VITESSIMO for Augmented Violin: Compositional Process and Performance

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## ABSTRACT

This paper describes the compositional process for creating the interactive work for violin entitled VITESSIMO using the Augmented Violin [1].

## Keywords

Augmented Violin, gesture tracking, interactive performance

## 1. INTRODUCTION

In June 2006, after meeting at 2006 NIME at IRCAM, Dr. Frédéric Bevilacqua (who has previously collaborated with composer Florance Baschet [2]), and I decided to collaborate, which became my project of creating a new work entitled VITESSIMO for Violin and the Augmented Violin, commissioned by Harvestworks. Nicolas Rasamimanana, one of the designers of the Augmented Violin said, "It is important for us to stress that IRCAM's ultimate goal is to make such a device affordable and easy for any acoustic instrument to be "augmented" [3]

## 2. How to use the Augmented Violin

I understood very early that Augmented Violin could become just a fancy device ends up becoming an alternative to a simple footswitch, only to create what George Lewis would call the "Command and Obey" mechanism, and not a true interaction. [4] Dr. Andrew Schloss, one of the foremost composer/percussionist working with the Radio Drum, a 3-dimensional computerized gesture controller, [5] mentions that he also differentiates two kinds of information coming out from his device: "meta-information" and "information", as the meta-information is information about the event, but not the event itself. [6] Dr. Schloss's comment corresponds to my own observation of violin bowing described below.

### 2.1 Observing Bowings

For composing VITESSIMO using the Augmented Violin, I started making observations of my bowings. My findings so far, can be described in two main points below:

A. Bowing is a functional movement to create sounds. But the

musical expressions created by the sounds do not exactly have the direct correlation with bowing. [Figure 1] shows a short phrase, where the highest amplitude is where the bowing is still in the process of making the *crescendo*. Bowing movements do not physically illustrate the curves or designs of musical expression and the perceptual effect.



**Figure 1.** *Crescendo* **and amplitude discrepancy**

B. However, bowing movements before and after a functional bowing, how you prepare before starting a stroke, and how you release the bow after ending a stroke, directly affect the expression that the bow arm must make (or just made), in order to create a 'correct' or desired movement and musical expression. I personally recognize these 'non-sound producing' movements as a kind of a gold mine of musical expression, as such information is not transmittable without the Augmented Violin; it 'augments' the expression of the violin.

## 3. Building a 'palette'

It was essential for me to first acquire an entirely new 'palette' of expressions using the Augmented Violin in order to start composing VITESSIMO. Interactive Installation artist David Rokeby wrote, "Rather than creating finished works, the interactive artist creates relationships. The ability to represent relationships in a functional way adds significantly to the expressive palette available to artists." [7]

I imagined performance scenarios that can only be made using the Augmented Violin, such as:

### 3.1 'Silent' violin

[Example 1] These low 'echo' pizzicatos are generated by the Augmented Violin, which detects a 'mock' pizzicato movement of my right arm.
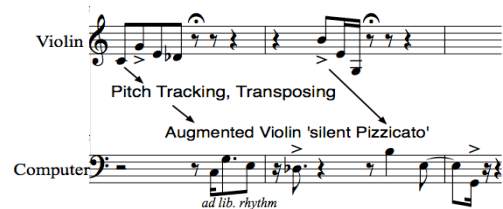


[Example 1] 'silent Pizzicato'

## 3.2 Control Sounds or Rhythm

[Example 2] shows a transition between two phrases in VITESSIMO. The violin plays a soft phrase, decreasing in both speed ("*molto rit.*") and dynamics (*decrescendo* to *pianissimo*). As the bow slows down to a halt, the scaled output from the Augmented Violin sends a rhythm that slows down as well, corresponding to the decreasing bow speed.
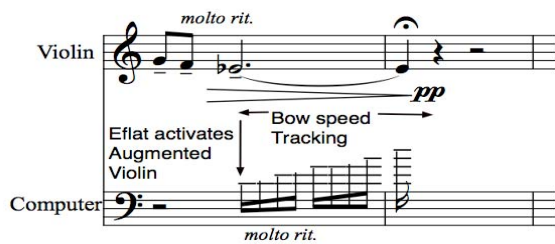


**[Example 2] Tracking '*molto rit.*'**

## 3.3 Control without playing

I use 'retake' bowing gesture for creating expressions, especially movements right before the second stroke, I believe, must be consistent with the expression of the musical context of the second stroke. [Example 3] shows the non-sound making up-bow 'retake' movement, controlling the glissando rate of the pitch-shifted, delayed chord.
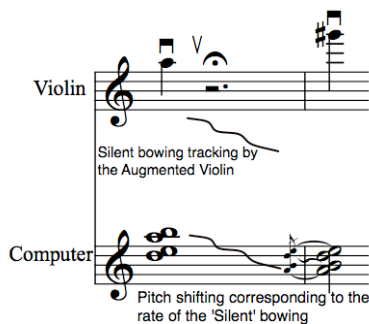


**[Example 3] 'Retake' tracking**

## 4. Making the Augmented Violin Glove

When Dr. Bevilacqua loaned me the Augmented Violin, the device was made of two small parts connected with short wires. The sensor portion attaches to the bow, and a small circuit board containing a battery and wireless portion attaches to the bow arm with a Velcro band. Therefore I created my own Augmented Violin Glove, which is a lace glove containing both the sensor and the battery portion of the Augmented Violin. The glove is made of Velcro strips, balloons attached to a lace glove for elasticity. The Velcro strips allow experimenting quickly with the different placement and angles of the accelerometers. (See [Figure 2])



A. Augmented Violin Glove     B. Original prototype of Augmented Violin

**[Figure 2] Augmented Violin Glove**

## 5. Conclusion

This paper describes a 'palette' of expression using the Augmented Violin. I believe that a gesture-tracking device such as the Augmented Violin should be musically coherent and effective, even without visual effect. There is also a danger that a gesture-tracking interface could make a performer unknowingly calibrate his/her gestures for the device. At the same time, I believe that using the Augmented Violin and creating new 'palette' of expression, is an extraordinary learning process of human-machine interaction, developing new kinds of expression of our time.

## ACKNOWLEDGMENTS

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