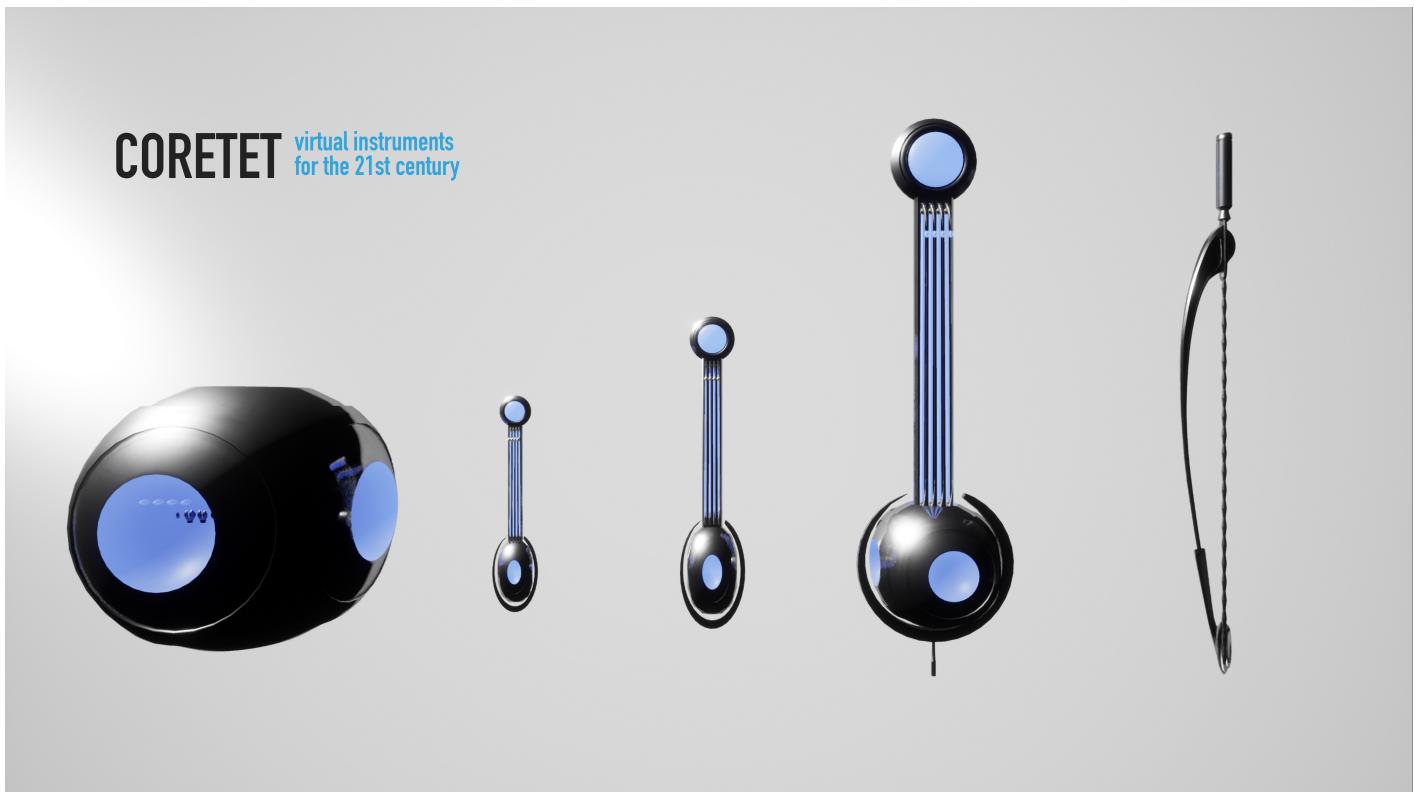


# Coretet: A Dynamic Virtual Musical Instrument for the Twenty-First Century

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## ABSTRACT

Coretet is a virtual reality musical instrument that explores the translation of performance gesture and mechanic from traditional bowed string instruments into an inherently non-physical implementation. Built using the Unreal Engine 4 and Pure Data, Coretet offers musicians both a flexible and articulate musical instrument to play as well as a networked performance environment capable of supporting and presenting a traditional four-member string quartet. Building on traditional stringed instrument performance practices, Coretet was designed as a futuristic ‘21<sup>st</sup> Century’ implementation of the core gestural and interaction modalities that generate musical sound in the violin, viola and cello. Coretet exists as a client-server software system designed to be controlled using an Oculus Rift head-mounted display (HMD) and the Oculus Touch hand-tracking controllers. The instrument and performance environment are built using the Unreal Engine 4. Gesture and audio output is generated using interaction data from the engine streamed to a Pure Data (PD) [2] server via Open Sound Control (OSC) [3]. Within PD, gestural control data from Coretet is processed and used to control a variety of audio generation and

manipulation processes including the [bowed~] string physical model from the Synthesis Toolkit (STK) [1].

**Keywords:** Virtual Instruments for Music Expression (VIME)

**Video Link:** <https://youtu.be/cgODPY90pAU>

**Web:** <http://robhamilton.io>

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