

# Beach Music

*commissioned by Gary Stegall with funding from Coastal Carolina University*



for Piano/Synthesizer, 2 Percussionists and MAX/MSP Computer

Robert J. Frank



# Beach Music

## **Instrumentation:**

**Percussion One:** Marimba, 3 Timpani, wind chimes (light, glass preferred)

**Percussion Two:** Drum Set with two ride cymbals, hi-hat, hi, med. low toms, and kick/bass.

Drum Set

Bass Kick    Low Tom    Mid Tom    Hi-Tom/Tenor    Open Hi-hat    Closed Hi-Hat    Low Ride Cymb.    High Ride Cymb.

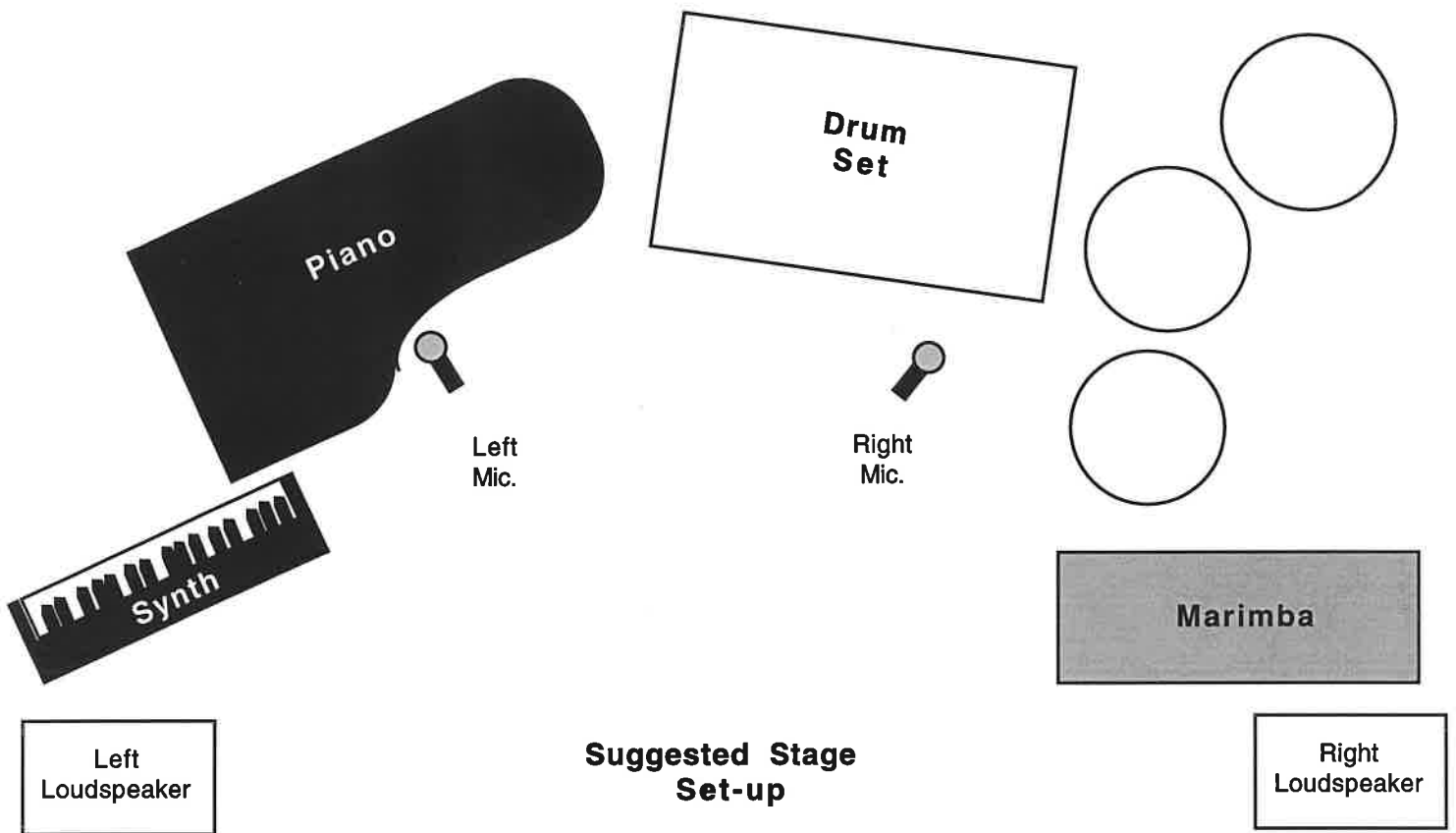
**Keyboardist:** Acoustic Piano, GMIDI Synth

Macintosh G3/G4 or iMac computer w/64MB RAM minimum (128MB recommended), MIDI interface and Beach Music software provided on CD-ROM.

**Mixer**  
microphones (2)  
amplification and speakers suitable for performance space.

Duration: 9-12 minutes

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### Technical Set-up

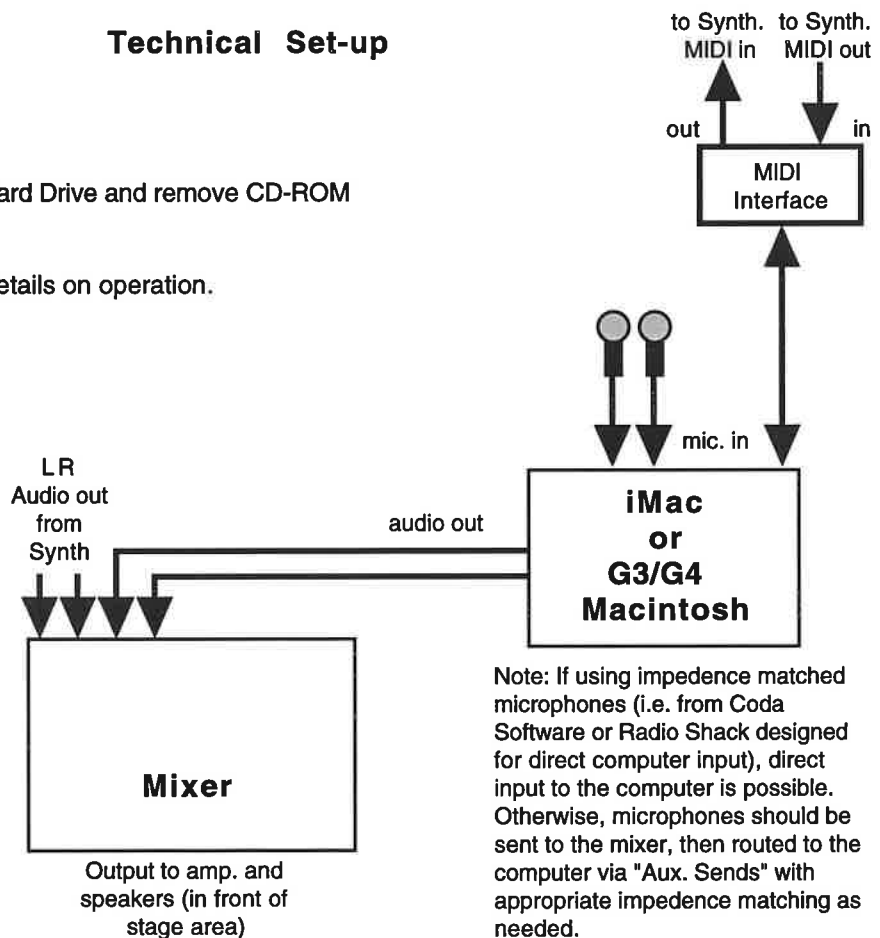
Software Installation:  
 Load CD-ROM (included)  
 Copy files in "BeachMAX" folder to Hard Drive and remove CD-ROM  
 Double click the file "Beach Music"

See Software Instruction sheet for details on operation.

**IMPORTANT:**

**MAX/MSP is real-time software, and as such needs your computer's full "attention"...**

**Turn off all power saving/screensaver software and disable all background processes such as disk indexing, Appletalk, networking, etc. as these may (and likely will) interfere with program operation and cause failures!!!**



Note: If using impedance matched microphones (i.e. from Coda Software or Radio Shack designed for direct computer input), direct input to the computer is possible. Otherwise, microphones should be sent to the mixer, then routed to the computer via "Aux. Sends" with appropriate impedance matching as needed.

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6-7 sec. ♩.60 c.a. wind chimes wind chimes

Timpani (3)

Perc. 1

Marimba

Drum Set

MAX/MSP

Piano

*p* *mp* *mf*

*pp* *mp* *mf*

*p* *mp* *mf*

3-4 sec. 3-4 sec. 3-4 sec. 3-4 sec.

(with piano)

Drum set quietly improvises on boxed figures, one every 2-3 sec. c.a. using wire brushes

(Beach sounds -- wind, surf, etc.)

on Synth. on Piano

(low "C" triggers start of MAX)

Red.

6

Mar.

Drums

Piano

*p* *mf* *mf*

(quietly continue boxed figures)

Red.

9

Timp. *mf*

Mar. *mf* *f*

Drums

Red. *f* Red.

12

Mar. *p* *f* *♩=120*

Drums *p* *f*

MAX *mp* (MAX/MSP)

Red. *mp* Red. *mf* Red. *ff* \*

on Synth.

on Piano

15

Mar. *mp*

Drums *p* *mp* *mf* *p*

MAX

*mp* 3 3 3 3 3

*ped.* *ped.* *ped.*

regular sticks L.V.

19

Mar.

Drums

MAX

*mf* (R.H.) 3 3 3

*ped.* *sim.*

21

Mar.

Drums

MAX

Piano

23

Mar.

Drums

MAX

Piano



26

Mar.

Drums

MAX

3

3

3

3

28

Mar.

Drums

MAX

3

3

3

3

3

31

Mar.

Drums

MAX

33

35

Mar.

Drums

MAX

*mf*

*f*

*mf*

36

5 5 5 5 5 5

Mar.

Drums

MAX

39

5 5 5 5 5 5

Mar.

Drums

MAX

5

42

43

Mar.

Drums

MAX

*p*

*mp*

*p*

*mp*

*espressivo*

*mf*

3

3

3

3

46

Mar.

Drums

MAX

*mf*

*mf*

(side stick)

3

3

3

49

Mar. *mp* *p* *mf* *espressivo* 3

Drums

MAX

3 *mp*

52

Mar. *mf* *f* *mp* 3

Drums

MAX

*mf* *mf*

56 *mf* 3 3 58 *mf* 3

Mar.

Drums

MAX *mf*

*Red.* *Red.*

59 3 3 3 3 3 3 3 3

Mar.

Drums

MAX

*Red.* *Red.* *Red.* *Red.* *Red.* *Red.* *Red.* *Red.*

63

Mar.

Drums

MAX

Ped.

Musical score for measures 63-65. The Maracas part features three triplet patterns. The Drums part has a complex rhythmic pattern with accents. The MAX part consists of chords. The Piano part has a melodic line with triplets and a bass line with 'Ped.' markings.

66

to Timpani

Mar.

Drums

MAX

4

Musical score for measures 66-68. The Maracas part is silent. The Drums part has a rhythmic pattern with accents. The MAX part consists of chords. The Piano part has a melodic line with a quartet and a bass line with '4' markings.

69

Drums

MAX

Musical score for measures 69-72. The Drums part features a snare and tom pattern with accents. The MAX part consists of chordal accompaniment with accents. The Piano part has a treble clef with chords and four-measure rests, and a bass clef with a bass line. The key signature is two flats and the time signature is 4/4.

73

74

Timp.

Drums

MAX

Musical score for measures 73-76. The Timp. part has a timpani line with accents and dynamics. The Drums part features a snare and tom pattern with accents and dynamics. The MAX part consists of chordal accompaniment with accents and dynamics. The Piano part has a treble clef with chords and dynamics, and a bass clef with a bass line and dynamics. The key signature is two flats and the time signature is 4/4.



77

Timp.

Drums

MAX

82

Timp.

Drums

MAX

*ff*

*ff*

*ff*

*ff*

*ff*

83

Timp.

Drums

MAX

Musical score for measures 83-85. The score is in 3/4 time. The Timp. part (bass clef) features a melodic line with accents and slurs. The Drums part (percussion clef) shows a complex rhythmic pattern with various drum sounds. The MAX part (treble clef) consists of dense, multi-measure rests with various accidentals. The Violin and Viola parts (treble and bass clefs) play sustained notes with dynamics like *ped.* and *Viol.*

86

Timp.

Drums

MAX

Musical score for measures 86-88. The score is in 3/4 time. The Timp. part (bass clef) continues the melodic line with accents. The Drums part (percussion clef) maintains the rhythmic pattern. The MAX part (treble clef) continues with dense rests and accidentals. The Violin and Viola parts (treble and bass clefs) play sustained notes with dynamics like *ped.* and *Viol.*

89 90

Timp. *Glissandi*

Drums fill improvise, interacting with instruments & computer

MAX

Violin (V) Viola (Vi)

Led.

92

Timp.

Drums

MAX

Violin (V) Viola (Vi)

95

Timp.

Measures 95-98 of the tympani part. The staff is in bass clef with a 3/4 time signature. It features a melodic line with various rhythmic values including eighth and sixteenth notes, and rests. The key signature has one sharp (F#).

Drums

Drum staff for measures 95-98, showing a consistent rhythmic pattern of eighth notes.

MAX

MAX staff for measures 95-98, featuring a complex rhythmic pattern with many sixteenth notes and accents.

Piano staff for measures 95-98, including both treble and bass clefs. It contains a melodic line in the treble and a bass line in the bass clef, with various articulations and dynamics.

99

Timp.

Measures 99-102 of the tympani part. The staff is in bass clef with a 3/4 time signature. It features a melodic line with various rhythmic values including eighth and sixteenth notes, and rests. The key signature has one sharp (F#).

Drums

Drum staff for measures 99-102, showing a consistent rhythmic pattern of eighth notes.

MAX

MAX staff for measures 99-102, featuring a complex rhythmic pattern with many sixteenth notes and accents.

Piano staff for measures 99-102, including both treble and bass clefs. It contains a melodic line in the treble and a bass line in the bass clef, with various articulations and dynamics.

103

Timp.

Drums

MAX

The musical score is divided into four staves. The top staff is for Timpani (Timp.) in bass clef, 3/4 time, with a key signature of one sharp (F#). It contains 12 measures of music, including eighth and sixteenth notes, rests, and dynamic markings like accents (>) and slurs. The second staff is for Drums, showing a simple rhythmic pattern with slashes for drum hits. The third staff is for MAX in treble clef, 3/4 time, featuring a complex rhythmic pattern with many sixteenth notes and rests. The bottom two staves are for piano accompaniment, with the right hand in treble clef and the left hand in bass clef, both in 3/4 time. The piano part includes chords, single notes, and dynamic markings.

105

(3-5 sec.)

(5-7 sec.)

*fff*

*mf*

*Leg.* \*

Timpani

Drum Set

Pianist should proceed immediately with these two gestures.  
 All performers begin improvisation section after the second gesture.

Piano or Synth.

*f*

*mp*

*mf*

*mp*

*pp*

*rit.*

*f*

*mf*

*sfz*

*mf*

improvise any short motif,  
 (shorter than 3 beats)

This rhythm on any pitch(es)

This rhythm on any pitch(es)

improvise any short motif,  
(shorter than 3 beats)

any MM7, Aug, add 6th, or 9th chord  
in any range

any pitches in  
general range

any pitches in the same general contour

freely improvise on any  
previous material

*fff*

(in either direction)

*Glissando*

*Glissando*

3

3

During this section, performers perform the given figures in any order, allowing 1-10 seconds space between and interacting as much as possible with the processed sound from the computer and each other. The pianist may perform the given figures as written or in any order with a few seconds between each gesture. These gestures may be played any number of times on either piano or synth. Drum Set figures should be performed with wire brushes. Timpani (bass clef) and drum set (perc. clef) boxed figures should serve to independently imitate and embellish the piano part. When not specified, dynamics are ad lib. When ready (after 2-4 minutes c.a.), the pianist should proceed on to the following page first and begin the repeated section. Timp. and Drum performers should independently proceed to the repeated figure when ready, and join in (in tempo).

Gradually end improvisation and join in this 2 measure repeat.  
 Keep repeating until the entire ensemble is together, and dynamic is up to *ff*  
 then take the final ending, triggering the MAX sequence.

final repeat

final repeat

final repeat

final repeat

on Piano

on Synth.

*mf* *ff*

gradually cresc. as more members join in

Low "B" triggers start of the MAX sequence

108  $\downarrow$ -120 Tempo Primo (following MAX/MSP)

*ff*

*ff*

on Piano



112

Timp. *Gliss.* *Glissando*

Drums

MAX

116

Timp.

Drums

MAX

120

Timp.

Drums

MAX

This musical score block covers measures 120 to 123. It features four staves: Timp., Drums, MAX, and a grand staff (treble and bass clefs). The Timp. staff is in bass clef and shows a melodic line with a glissando effect at the end of measure 123. The Drums staff shows a complex rhythmic pattern with various drum notes. The MAX staff is in treble clef and contains dense chordal textures with many notes. The grand staff provides harmonic support with chords and moving lines in both hands.

124

Timp.

Drums

MAX

This musical score block covers measures 124 to 127. It features four staves: Timp., Drums, MAX, and a grand staff (treble and bass clefs). The Timp. staff is in bass clef and shows a melodic line. The Drums staff shows a complex rhythmic pattern with various drum notes. The MAX staff is in treble clef and contains dense chordal textures with many notes. The grand staff provides harmonic support with chords and moving lines in both hands.

128 to Marimba

Timp.

Drums

MAX

*mf*

131 to Marimba

Timp.

Drums

MAX

*dolce*

*f*

135

Timpani (Timp.) part with a rest.

Drums part with a rhythmic pattern of eighth notes and quarter notes.

MAX part with chords and eighth notes.

Piano part with chords and eighth notes.

139

Mariaca (Mar.) part with a rhythmic pattern of eighth notes, starting with a *f* dynamic.

Drums part with a rhythmic pattern of eighth notes.

MAX part with chords and eighth notes, starting with a *f* dynamic.

Piano part with chords and eighth notes, featuring triplets and a *mf* dynamic.

143

Mar.

Drums

MAX

3

3

3

147

Mar.

Drums

MAX

*p*

*mp*

on Synth.

*espressivo*

3

149

Mar.

Drums

MAX

Musical score for measures 149-150. The Maracas part features a rhythmic pattern of eighth notes in pairs. The Drums part has a consistent pattern of eighth notes with 'x' marks. The MAX part consists of a steady eighth-note accompaniment. The Piano part has a melodic line with a triplet of eighth notes in the first measure of the second system.

151

Mar.

Drums

MAX

Musical score for measures 151-152. The Maracas part continues with the same rhythmic pattern. The Drums part has a similar pattern but with some variations in the second system. The MAX part continues with the eighth-note accompaniment. The Piano part has a melodic line with a triplet of eighth notes in the first measure of the second system and another triplet in the second measure of the second system.

153

Mar.

Drums

MAX

This system of music covers measures 153 and 154. It features four staves: Maracas (Mar.), Drums, MAX (likely a vocal line), and a grand staff for piano. The Maracas part consists of a continuous eighth-note pattern with a key signature change to one flat at measure 154. The Drums part shows a consistent rhythmic pattern with 'x' marks indicating cymbal hits. The MAX part consists of a series of chords. The piano part has a melodic line in the right hand with a triplet of eighth notes in measure 153 and a triplet of sixteenth notes in measure 154, while the left hand remains mostly silent.

155

Mar.

Drums

MAX

This system of music covers measures 155 and 156. It features four staves: Maracas (Mar.), Drums, MAX (likely a vocal line), and a grand staff for piano. The Maracas part continues with the eighth-note pattern and the one-flat key signature. The Drums part maintains the same rhythmic pattern. The MAX part continues with chords. The piano part has a melodic line in the right hand with a triplet of eighth notes in measure 155 and a triplet of sixteenth notes in measure 156, while the left hand remains mostly silent.

157

Mar.

Drums

MAX

Musical score for measures 157-160. The Maracas part features a rhythmic pattern of eighth notes in pairs. The Drums part has a consistent pattern of eighth notes with rests. The MAX part consists of chords. The piano part has a melodic line with a triplet and a final chord.

159

Mar.

Drums

MAX

Musical score for measures 159-162. The Maracas part continues with eighth notes in pairs. The Drums part continues with eighth notes and rests. The MAX part has chords, including a flat. The piano part has a melodic line with triplets and a quintuplet.



161 162

Mar. *p*

Drums *p*

MAX *mp*

*p*

163

Mar.

Drums

MAX

*mf*

166

Mar.

transition into short, independent figures like in the beginning

Drums

MAX

*fade out...*

*mp*

169

Drums

MAX

*p*

172 Freely, independently (non-metered) wind chimes

Wind Chimes

Drums

MAX (Beach sounds only)

176 178 Together, slowly 6-8 sec.

Wind Chimes

Drums

MAX (Seagulls)



# Beach Music

## Installation Instructions Mac CD-ROM Software

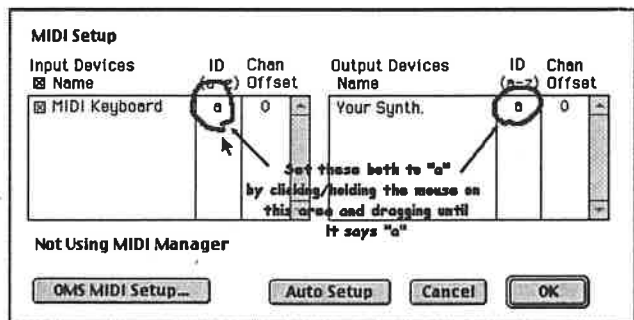
- 1) Insert *Beach Music* CD-ROM included on the back cover of the score. Double click the CD-ROM icon to open CD-ROM.
- 2) Copy the folder *BeachMAX* to your hard drive.
- 3) If OMS (Opcode Music System) is not installed on your computer, double click the *Install OMS 2.3.8* icon and follow the instructions. (OMS is included with many other music applications, and may be installed.)
- 4) Eject CD-ROM. Do not try to perform the Beach Music program directly from the CD-ROM, as this will cause poor audio quality and playback.

### Set-up Instructions

- 1) Under the **Apple Menu** (upper left corner of your screen) select **Control Panels** and then within that select **Sound**. In the window that follows, be sure that your input device is **External Microphone** and the output device is **Built-in sound**. Set output levels to full. Close the panel.
- 2) Turn off all screen savers, power saving/sleep functions, and background processes such as disk indexing, etc. Since MAX/MSP is real-time software, it requires your computer's full attention, and these programs may cause unwanted delays, glitches or even full crashes when running Beach Music.
- 3) Open the *BeachMAX* folder, and double click the *Beach Music* icon.
- 4) After the program loads, under the **File** menu, select **MIDI Setup...**



In the following window that opens, click “Auto Setup“. If your MIDI devices do not appear, you will need to click “OMS MIDI Setup” and then “New Easy Setup” to configure OMS to recognize your system and equipment. When finished you should relick “Auto Setup” and the full list of MIDI devices should appear.



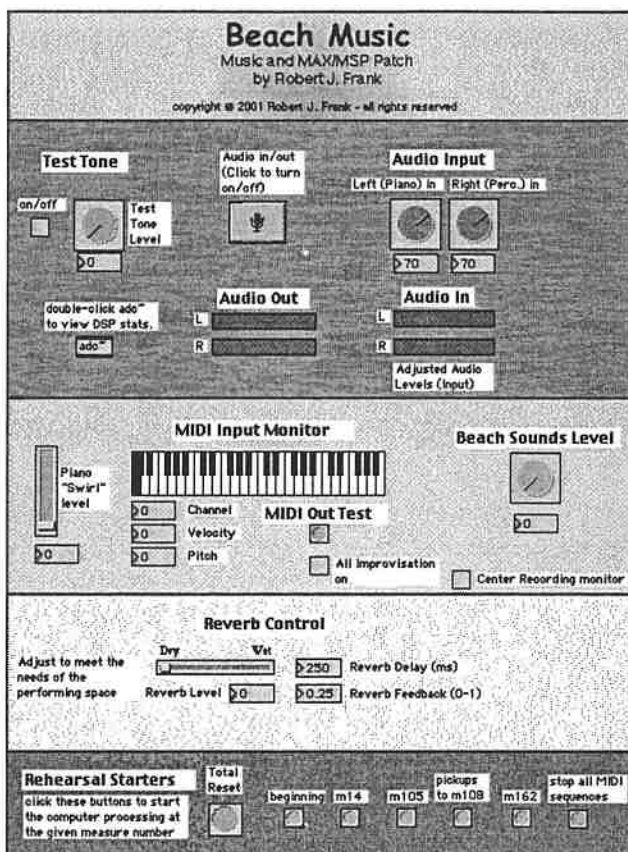
You must be sure that the MIDI Keyboard used in performance is selected as ID (port) “a”. The playback General MIDI Synth. must also be selected as ID (port) “a”. To change these if they are NOT already set as above, click-and-hold the mouse button while over the “ID (port) assignment area. Dragging the mouse up or down changes the values. Be sure that only one device is selected as “a” in each column.

You may test your MIDI system by being sure it is turned on and fully connected, then clicking the “MIDI Out Test” button on the Beach Music control screen (you should hear a chord). When you play notes on the keyboard, they should be reflected on the MIDI Input Monitor keyboard. Be sure your keyboard is transmitting on channel 1.

You may test your audio system by clicking the Microphone Button (Audio in/out) on the Beach Music control screen. Microphone input should register on the meters, and may be adjusted to proper levels (as strong as possible, yet below red “clipping” levels.) You may turn on the test tone to test audio out levels.

# Beach Music

## Rehearsal and Performance Instructions Mac CD-ROM Software



The Beach Music software is actually a program written in the MAX/MSP programming environment. During performance, MAX (the MIDI component) and MSP (the digital audio component) are making changes to how the sound is processed, recording and playing back live portions of the performance, playing back pre-set sound files (beach sounds, seagulls, wind, etc. all reacting/co-ordinating to the sounds it hears!), improvising by creating live MIDI reactions to the performers sound coming in the microphones, and all the while following the score and listening for control “triggers” on the MIDI Synth. All of this is pre programmed.

It has been designed to allow one-click performance (i.e. – you turn it on and click “beginning” under the **Rehearsal Starters**, and it does the rest!) If specific needs of the performance space require different setting for Audio Input, reverb control, etc. they may be manually adjusted during performance by a computer operator, but the need for this is highly unlikely.

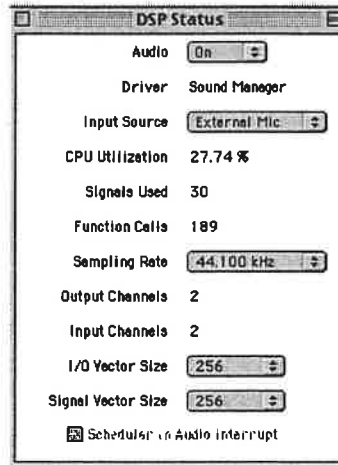
### Rehearsing:

To allow performers to start at various points within the piece (and to tell the software where you are starting) a series of **Rehearsal Starters** are provided. When you click on one of these buttons, the program immediately begins at the indicated measure. To stop MAX while it is playing a MIDI sequence, click the “stop all MIDI sequences” button. Note: a note may continue to sustain after clicking this. This is because you may have clicked right between the

time MAX started a note, and when it was getting ready to turn it off again... if this occurs, select the "All notes off" function on your synth (or turn it off and on again is another easy way to stop the annoying stuck note.) If strange audio or MIDI functions continue, try clicking the "Total Reset" button. After this, you will need to reselect which rehearsal point at which you wish to begin.

### Troubleshooting:

If you are getting strange breaks in the sound, gaps in audio playback, or no digital audio, double click the "adc~" box and check the DSP (digital signal processor) settings. The Settings should look as follows (with a varying CPU Utilization percentage of between 20-80%, depending on your system). Adjust changeable items to these settings.



If you are getting audio levels on the meters in the Beach Music control screen, but no audio out, check all connections and mixer/amp/mic connections and settings. This program has been tested extensively, and should remain stable. If you are getting crashes or other errors, first check your system and hardware with a local computer specialist. For tech support questions, feel free to email me at [robfrank@aol.com](mailto:robfrank@aol.com).

### Performance:

Performance is simple. Restart the Macintosh shortly before the performance (I strongly recommend against starting it before a concert and letting it sit idle for 10+ minutes... sleep functions often disable MIDI interfaces, especially USB connections!) Then double-click the *Beach Music* icon to run the program.

Turn on the Audio in/out by clicking the microphone icon on the *Beach Music* control screen.

You may do a quick MIDI Out and audio check if you like by selecting those buttons. All microphones are live when the digital audio is turned on. Readjust the **Audio Input** levels to pre-set levels if different from the default level of 70 (The software does not store changes... sorry!)

When ready to start the performance, click the "beginning" button under **Rehearsal Starters** and when the opening note is played on the MIDI keyboard, MAX/MSP begins with you!



## Here is a summary of what the software is doing throughout the piece:

**Beginning:** Upon the opening low “C”, the software plays a seagull sound, and begins quiet beach sounds (surf, wind, distant people). It adds a light reverb to the piano sound. It also listens to the percussionist via their microphone, and generates quiet percussive gestures based on the patterns it hears.

**m14:** When the middle “C” is played on the MIDI Keyboard, the software stops the percussion improvisation, and rapidly fades out the reverb. It begins a 60’s organ sounding pattern, as indicated in the score, at a tempo of 120 bpm. Now it is the ensemble’s turn to follow the computer! As this section progresses, the software plays seagull sounds on certain piano pitch areas (around an octave above middle “C”). It also synchronizes the beach waves to the tempo of the music and makes adjustment to the audio levels as the section progresses. After the timpani joins in, the software reacts to strong/loud notes in that instrument with two synth gestures. Beginning at m90, it records the ensemble and processes the sound for use in the background at m105-m108.

**m105:** In this section, the software loops/plays back in a greatly altered from the recording made moments before. It also “swirls” the piano and percussion sounds both spatially and time/pitch-wise. The MIDI Synth is also “swirled”. The MIDI percussion gesture imitation is resumed, and figures played on the MIDI keyboard are similarly altered and reacted to. Have fun “improvising” with the software, reacting to the gestures it creates, and noticing how it changes it’s reaction to your materials. Like performing with any live musician, practice will teach you how this “computer performer” reacts, and how you can create a spontaneous, interesting, live performance experience. This section may continue as long as the low “B” is not played on the synth. --- *that key triggers the pickup notes to m108!!!* So the pianist must be careful not to hit that pitch on the MIDI Keyboard, or the software will assume you are “ready to go” and will begin immediately at that point!!!

**m108:** Playing the low “B” on the MIDI Keyboard triggers the pickups to m108 in the previous tempo of 120 bpm. Background swirls and gestures are faded out slowly, the percussion improvisation function is turned off, and settings are smoothly returned to the m14 levels. The happy beach sounds return around m147.

**m162:** As the 60’s organ fades into the sunset, the seagulls respond to certain pitches played by the MIDI Keyboard. Reverb fades up a bit, and the percussion reaction function returns. The final F# in the last measure triggers a last call of the seagulls and fades out all beach sounds and effects. (note: be sure not to accidentally play that particular pitch on the synth after m162 but before then... it isn’t in the score!)

There are many other less important functions also occurring during the piece... a total of over 200 “objects” in the program are listening, reacting, and processing the sound. Enjoy playing *Beach Music!!!*

r.j.f.