The idea for this piece came from the Bible. In John 12:24 we read: Verily, verily, I say unto you, Except a corn of wheat fall into the ground and die, it abideth alone: but if it die, it bringeth forth much fruit. (KJV).

Paradoxically, a single seed must die to produce many seeds. A small seed can become a big tree, and by dying it has the potential to become many trees (i.e. when planted it can germinate as a tree which in turn can produce many seeds) So we must die to live, and dying is not the ending point of life but the beginning of another, and to those who believe, equally real life. This second life is fruitful enough to produce many other seeds, which means many other new lives. Some trees are very big, some very small; some produce edible fruits, some
only flowers and microscopic seeds - but all develop according to inherent features which are not dependant on size or quantity of seed. All come from a single small seed.

The overall structure of the piece, Tree of Life for Orchestra, is based on the progression of the life of a tree. My intention is to describe the stages as the tree grows. This is accomplished through the use of transformations of harmonies, rhythmic figures, and specific orchestral tone colors. The piece consists of the seven parts: Andante, Poco piu Mosso (mm. 24), Allegretto (mm. 40), Energico (mm. 57), Molto Energico (mm. 81), Allegro non tanto (mm.98), and, finally, Grazioso (mm.116).

Five pitch series and five chords (for each instrument) can be considered as the basic tone and structural material for the piece. These were obtained using the Golden Section. This is a theory of proportions often found in Nature - from pine cones to tree branching. My approach was as follows: first I decided the normal orchestral range of each instrument used in the piece and then measured the number of half steps from the lowest to the highest pitch of each instrument’s normal orchestral range. I then applied the Golden Section to this range (multiplying the number of steps by the Golden Section number .618). The number thus
obtained was subjected to the same process to find the next higher pitches. Below is an example of using this method for the oboe, and all other 5-notes rows, and 5 chords obtained from each instrument’s group.

**Example of using this method for the oboe**

35 * .618 = 21.63 → 22

(35-21.63) * .618 + 21.63 = 29.89 → 30

(35-29.89) * .618 + 29.89 = 33.04 → 33

(35-33.04) * .618 + 33.04 = 34.25 → 34

* 5 pitches for the oboe: Bb, Ab, E, G, G#
5-note Row for Brass from Pitch-class Interval

- Horn in F: perfect 5th lower
- Trumpet in C
- Trombone
- Tuba

5-note Row for Strings from Pitch-class Interval

- Violin
- Viola
- Cello
- Contrabass (octave lower)

5 chords

- Woodwinds
- Brass
- Strings
Below is an example of using the Fibonacci numbers in rhythm.

*One eight note = 1*

---

**Fibonacci numbers in Rhythm**

1 2 3 5 8 13
Initially, I planned to apply the idea of the Golden Section to deciding the durations of sections of the piece. However for various musical reasons, this approach was abandoned.
TREE OF LIFE FOR ORCHESTRA

by

Jiwoong Chung

Dissertation submitted to the Faculty of the Graduate School of the University of Maryland, College Park in partial fulfillment of the requirements for the degree of Doctor of Musical Arts 2004

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ii
INSTRUMENTS

Woodwinds

2 Flutes (alt. Piccolo)
  2 Oboes
2 Clarinets in Bb
  2 Bassoons

Brass

4 Horns in F
2 Trumpets in Bb
  2 Trombones
  Tuba

Percussion (2 performers)

Percussion I

Timpani
(23-inch, 26-25 inch, 29-28 inch)
  Cymbal
  Tam-tam
  Bass Drum
  Triangle

Percussion II

Marimba
Vibraphone
Strings

I Violin
II Violin
Violas
Violoncellos
Double Basses

Score in C
Piccolo, Harp harmonics sound 1 octave higher,
Double bass (including harmonics) sounds 1 octave lower
Tree of Life for Orchestra

Verily, verily, I say unto you, Except a corn of wheat
fall into the ground and die, it abideth alone:
but if it die, it bringeth forth much fruit [John 12:24]