Patent Eligibility of Computer Software – The New Landscape

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San Diego

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The Software Patent

- Covers a method or apparatus
  - that is produced by executing steps on a processor
  - as commanded by the processor.
- The invention may include
  - a method defined by lines of code or
  - a new machine produced as the commanded interconnections are made.

- A software claim recites:
  - A nontransitory medium
  - Which contains a set of instructions
  - To be executed on a processor
  - Which causes the processor to perform selected steps

A software patent

US006307576B1

(12) **United States Patent**
Rosenfeld

(10) Patent No.: **US 6,307,576 B1**
(45) **Date of Patent:** *Oct. 23, 2001

(54) **METHOD FOR AUTOMATICALLY ANIMATING LIP SYNCHRONIZATION AND FACIAL EXPRESSION OF ANIMATED CHARACTERS**

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(*) Notice: This patent issued on a continued prosecution application filed under 37 CFR 1.53(d), and is subject to the twenty year patent term provisions of 35 U.S.C. 154(a)(2).

Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: **08/942,987**

(22) Filed: **Oct. 2, 1997**

(51) Int. Cl.[7] G06T 15/70
(52) U.S. Cl. **345/956**; 345/951; 345/955; 345/473
(58) Field of Search 345/473, 951, 345/953, 956, 957, 955

(57) **ABSTRACT**

A method for controlling and automatically animating lip synchronization and facial expressions of three dimensional animated characters using weighted morph targets and time aligned phonetic transcriptions of recorded text. The method utilizes a set of rules that determine the systems output comprising a stream of morph weight sets when a sequence of timed phonemes and/or other timed data is encountered. Other data, such as timed emotional state data or emotemes such as "surprise, "disgust, "embarrassment", "timid smile", or the like, may be inputted to affect the output stream of morph weight sets, or create additional streams.

26 Claims, 4 Drawing Sheets

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4

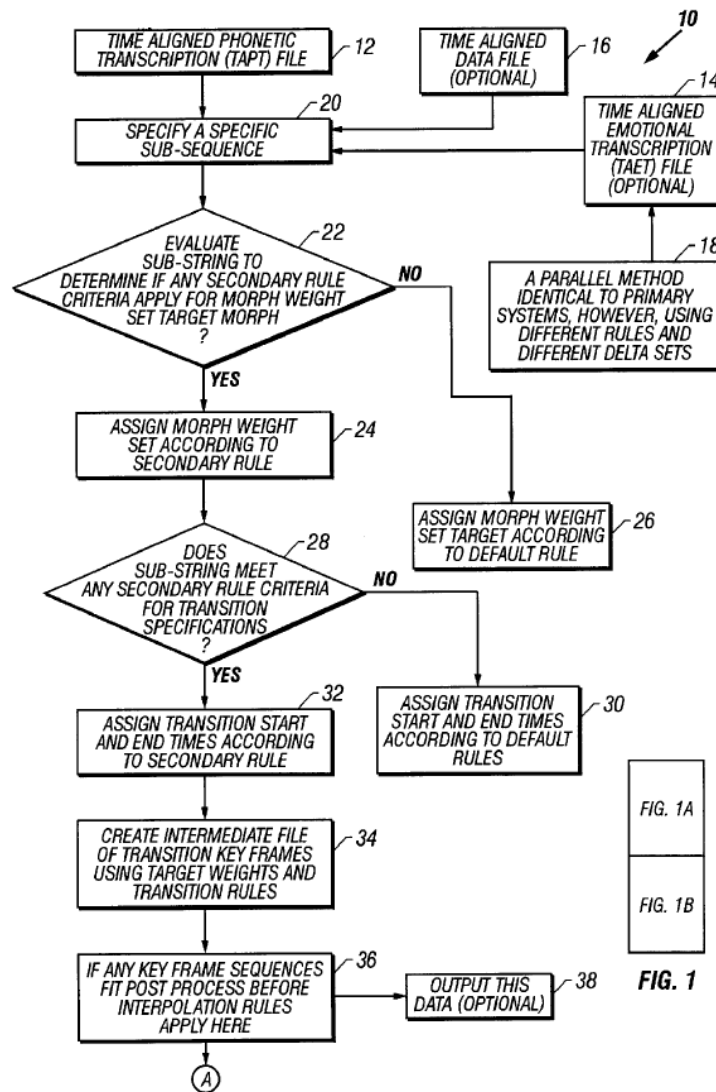FIG. 1A

- ## What is claimed is:

1. A method for automatically animating lip synchronization and facial expression of three-dimensional characters comprising:

obtaining a first set of rules that define output morph weight set stream as a function of phoneme sequence and time of said phoneme sequence;
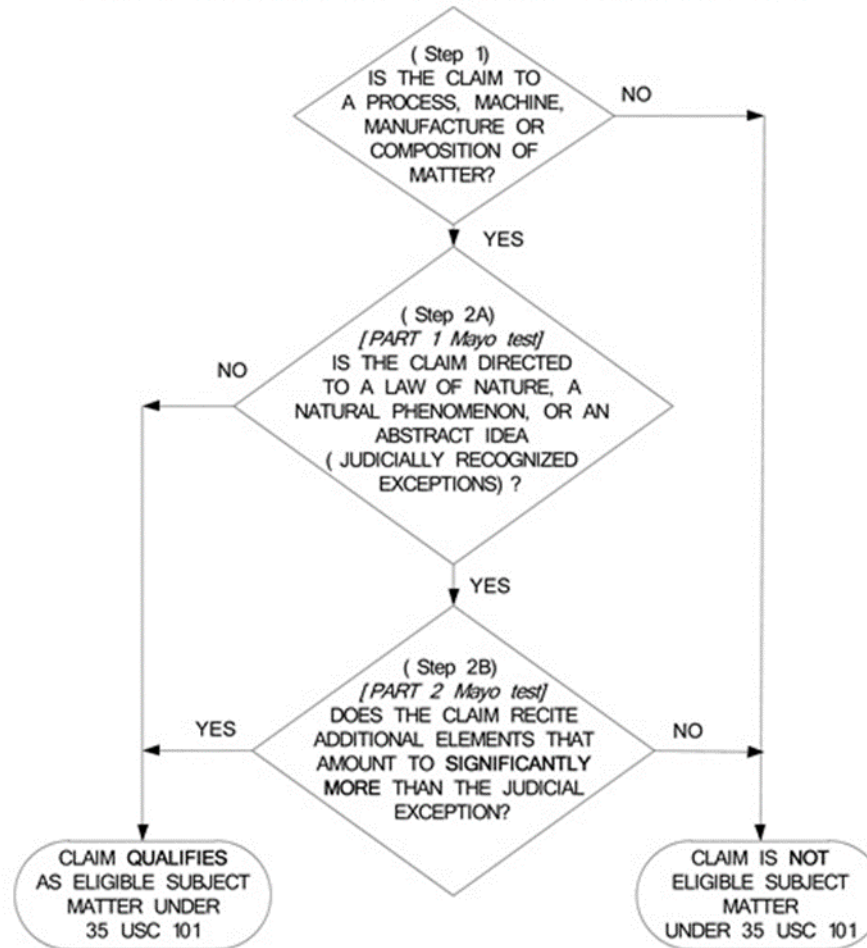
obtaining a timed data file of phonemes having a plurality of sub-sequences;

generating an intermediate stream of output morph weight sets and a plurality of transition parameters between two adjacent morph weight sets by evaluating said plurality of sub-sequences against said first set of rules; …

generating a final stream of output morph weight sets at a desired frame rate from said intermediate stream of output morph weight sets and said plurality of transition parameters; and

applying said final stream of output morph weight sets to a sequence of animated characters to produce lip synchronization and facial expression control of said animated characters.

PRIOR TO EVALUATING A CLAIM FOR PATENTABILITY, ESTABLISH THE
BROADEST REASONABLE INTERPRETATION OF THE CLAIM.
ANALYZE THE CLAIM AS A WHOLE WHEN EVALUATING FOR PATENTABILITY.

(Step 1)
IS THE CLAIM TO
A PROCESS, MACHINE,
MANUFACTURE OR
COMPOSITION OF
MATTER?

NO

YES

(Step 2A)
[PART 1 Mayo test]
IS THE CLAIM DIRECTED
TO A LAW OF NATURE, A
NATURAL PHENOMENON, OR AN
ABSTRACT IDEA
(JUDICIALLY RECOGNIZED
EXCEPTIONS) ?

NO

YES

(Step 2B)
[PART 2 Mayo test]
DOES THE CLAIM RECITE
ADDITIONAL ELEMENTS THAT
AMOUNT TO SIGNIFICANTLY
MORE THAN THE JUDICIAL
EXCEPTION?

YES

NO

CLAIM QUALIFIES
AS ELIGIBLE SUBJECT
MATTER UNDER
35 USC 101

CLAIM IS NOT
ELIGIBLE SUBJECT
MATTER
UNDER 35 USC 101

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Reasons for seeking a patent

- Preventing copying by a competitor.
- Securing market share
- Demonstrating competence of the patent holder
- Having a capital asset on the balance sheet. This increases a company's value at exit
- Making money

Program management considerations

- Agreements with the employees, joint developers, vendors, and occasionally customers to maintain its ownership

- Agreements often protect intellectual property rights in general

- Have a procedure to have employees write disclosures - the disclosure can be on the contract administrator's list

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Thank you!

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